Appendix Microfiches

Two sheets of microfilm are attached to the printed thesis (Fischlin, 1982). They contain the computer generated output from a standard simulation experiment, including the source code and simulation results. A minimum formatting[1] has been applied while generating this electronic edition to preserve the original content. In addition to the original microfiche output, the source code of some external Pascal routines (functions, procedures) was added to document more fully the actual code used for the simulation experiments. However, some of those routines had to be salvaged from old archives, which were partly damaged. Thus some routines are missing and for some the original elaborate comments from the header files could no longer be retrieved. Moreover, the sources of several external routines were never available, since they were accessed only in binary form from the runtime libraries of the computing centre. For the missing parts it is necessary to go back to the original sheets of microfilm.

A description of the simulation technique can be found in Fischlin (1982) p. 53-60, notably Fig. 5. The underlying mathematical model is fully described in Fischlin (1982) and partly in Fischlin & Baltensweiler (1979).

CITED REFERENCES

Fischlin, A. & Baltensweiler, W., 1979. Systems analysis of the larch bud moth system. Part I: the larch-larch bud moth relationship. Mitt. Schweiz. Ent. Ges., 52: 273-289.

Fischlin, A., 1982. Analyse eines Wald-Insekten-Systems: Der subalpine Lärchen-Arvenwald und der graue Lärchenwickler Zeiraphera diniana Gn. (Lep., Tortricidae). Diss. ETH No. 6977, Swiss Federal Institute of Technology: Zürich, Switzerland, pp. 294.

[1] Headings and page numbers were inserted and the originally visible line printing commands, '1' in first column, were replaced with page breaks.

1 JOB CONTROL STATEMENTS

```
LWFICHE,5771,CM45000,CT32.
FIND(ENTLIB)
COPY,,OUTPUT.
PUBLIC,COMIC.
COMIC,FLIMIT=3,TITLE=$LWMOD3:B/BOTH S=SV/20H36:04$,FICHENR=NO.
EXIT.
PERMF(CF)
REWIND(INPUT)
COPY(,CF)
TEMPCAT(CF,CFSV,PW=SERDNA)
AUDITL.
```

2 SOURCE CODE OF MAIN PROGRAM

```
000006 (*$U+,E+,L+*)                                                                DPLWMOD3    2
000006 PROGRAM LWMOD3(OUTPUT,RESULTS,OBSERVATIONS,PF1,PF2,RAM,COM1,COM2);            DPLWMOD3    3
001035   (*THIS PROGRAM SIMULATES A MODEL FROM THE LARCH BUD MOTH SYSTEM.            DPLWMOD3    4
001035   SEVERAL VARIANTS OF THIS MODEL ARE AVAILABLE BY DEFINING IN THE            DPLWMOD3    5
001035   UPDATE DECK 'AD HOC' ONE OR SEVERAL OF THE FOLLOWING IDENTIFIERS:          DPLWMOD3    6
001035                                                                              DPLWMOD3    7
001035    ------------------------------------------------------------------------- DPLWMOD3    8
001035    I ECOLOGICAL RELATIONSHIP   ABBREVIATION     UPDATE IDENTIFIER      I DPLWMOD3    9
001035    I-------------------------------------------------------------------I DPLWMOD3   10
001035    I  - PREDATION                  A            MODA                   I DPLWMOD3   11
001035    I  - LARCH-LARCH BUD MOTH       B            MODB                   I DPLWMOD3   12
001035    I                                            MODB78  (PUBL. VERS.) I DPLWMOD3   13
001035    I                                            MODBDC  (VARIABLE      I DPLWMOD3   14
001035    I                                                    DAY CONSUMP-   I DPLWMOD3   15
001035    I                                                    TION)          I DPLWMOD3   16
001035    I                                            MODBSCR (SCRAMBLE      I DPLWMOD3   17
001035    I                                                    COMPETITION)   I DPLWMOD3   18
001035    I                                            MODBNIC (INTRASPEC.    I DPLWMOD3   19
001035    I                                                    COMPETITION    I DPLWMOD3   20
001035    I                                                    AFTER NICHOL-  I DPLWMOD3   21
001035    I                                                    SON)           I DPLWMOD3   22
001035    I  - AS B PLUS POLYMORPHISM     C            MODC                   I DPLWMOD3   23
001035    I                                            MODB                   I DPLWMOD3   24
001035    I                                       PLUS EV. MODB78 (S. ABOVE)  I DPLWMOD3   25
001035    I  - COMBINATION A/B            D1           MODD1                  I DPLWMOD3   26
001035    I                                            MODA                   I DPLWMOD3   27
001035    I                                            MODB                   I DPLWMOD3   28
001035    I                                       PLUS EV. MODB78 (S. ABOVE)  I DPLWMOD3   29
001035    I  - COMBINATION A/C            D2           MODD2                  I DPLWMOD3   30
001035    I                                            MODA                   I DPLWMOD3   31
001035    I                                            MODB                   I DPLWMOD3   32
001035    I                                       PLUS EV. MODB78 (S.ABOVE)   I DPLWMOD3   33
001035    I                                            MODC                   I DPLWMOD3   34
001035    ------------------------------------------------------------------------- DPLWMOD3   35
001035                                                                              DPLWMOD3   36
001035    ************************************************************************* DPLWMOD3   37
001035    ****************    MODB    HAS BEEN DEFINED    ******************** DPLWMOD3   42
001035    ************************************************************************* DPLWMOD3   62
001035                                                                              DPLWMOD3   63
001035   THE MODEL IS PRIMARLY USED TO SIMULATE THE POPULATION DYNAMICS OF          DPLWMOD3   64
001035   LARCH BUD MOTH Z. DINIANA GN. WITHIN THE UPPER ENGADINE VALLEY             DPLWMOD3   65
001035                                                                              DPLWMOD3   66
001035   AUTHOR: ANDREAS FISCHLIN                                                   DPLWMOD3   67
001035           DEPARTMENT OF PHYTOMEDICINE ETH-Z                                 DPLWMOD3   68
001035           ETH-ZENTRUM                                                       DPLWMOD3   69
001035           CH-8092 ZUERICH                                                   DPLWMOD3   70
001035                   -------                                                   DPLWMOD3   71
001035           SWITZERLAND                                                       DPLWMOD3   72
001035                                                                             DPLWMOD3   73
001035           MAY 1980, REVIZED SEPTEMBER 1981                                  DPLWMOD3   74
001035   *)                                                                        DPLWMOD3   75
001035                                                                             DCLWMOD3    2
001035   CONST   (*CONDITIONS FOR SIMULATION*)                                     DCLWMOD3    3
001035                                                                             DCLWMOD3    4
001035           TIMEBEGIN = 1949  (*YEAR*);                                       DCLWMOD3    5
001035           TIMEEND   = 1977  (*YEAR*);                                       DCLWMOD3    6
001035           SAVNROFSITES = 20;                                                DCLWMOD3    7
001035                                                                             DCLWMOD3    8
001035           TITL =80;                                                         DCLWMOD3    9
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001035           DESLE=75;                                                                DCLWMOD3   10
001035           LABLE=37;                                                                DCLWMOD3   11
001035           BLACK=1;                                                                 DCLWMOD3   12
001035           RED  =2;                                                                 DCLWMOD3   13
001035           BLUE =3;                                                                 DCLWMOD3   14
001035           GREEN=4;                                                                 DCLWMOD3   15
001035           LEGLE=12;                                                                DCLWMOD3   16
001035                                                                                    DTLWMOD3    2
001035    TYPE   (*DEFINITIONS FOR TECHNICAL PURPOSES*)                                   DTLWMOD3    3
001035                                                                                    DTLWMOD3    4
001035           SITEINDEX = 0..SAVNROFSITES;                                             DTLWMOD3    5
001035           SEGFILET  = SEGMENTED FILE OF CHAR;                                      DTLWMOD3    6
001035                                                                                    DTLWMOD3    7
001035           SIMTYPE   = (NOMIGRATION,IMMIGRATION,BOTH);                              DTLWMOD3    8
001035           TITLETYP  = PACKED ARRAY [1..TITL] OF CHAR;                              DTLWMOD3    9
001035           STYPE     = RECORD                                                       DTLWMOD3   10
001035                         MAINTITLE,                                               DTLWMOD3   11
001035                         SUBTITLE: TITLETYP;                                      DTLWMOD3   12
001035                         SIMKIND:  SIMTYPE;                                       DTLWMOD3   13
001035                         DATE,TIME: ALFA;                                         DTLWMOD3   14
001035                         SIMID: PACKED ARRAY[1..2] OF CHAR;                       DTLWMOD3   15
001035                         MODEL: PACKED ARRAY[1..40] OF CHAR;                      DTLWMOD3   16
001035                       END(*RECORD*);                                             DTLWMOD3   17
001035                                                                                  DTLWMOD3   18
001035           (*THE FOLLOWING LIST SELECTS VARIABLES                                 DTLWMOD3   19
001035           OUT OF ALL THE VARIABLES, RATES AND                                    DTLWMOD3   20
001035           PARAMETERS USED BY ALL DYNAMIC PARTS                                   DTLWMOD3   21
001035           OF THE MODEL ON PURPOSE TO SAVE THEIR                                  DTLWMOD3   22
001035           VALUES FOR OUTPUT*)                                                    DTLWMOD3   23
001035           VARTYPE   = (T,OLADE,OLADEN,OLADEX,LADE,SQLADE,WSQLD,SQOUT,            DTLWMOD3   24
001035                        EGG,SML,MSML,LAL,MLLPM,FEM,FEC,                           DTLWMOD3   25
001035                        PUPW,FEMW,                                                DTLWMOD3   26
001035                        RF,                                                       DTLWMOD3   27
001035                        DEM,STARV,DC,EAT,DEFOL,FOL,                               DTLWMOD3   28
001035                        IMM,EMI,NETMIG,ACTF,DOWF,                                 DTLWMOD3   29
001035                        INV,FUG,SEGG,AEGG,                                        DTLWMOD3   30
001035                        AVCYT,                                                    DTLWMOD3   31
001035                        XX2,XX3,XX4,XX5,XX6,XX7,XX8,XX9,XX0,                      DTLWMOD3   32
001035                        UNDEF);                                                   DTLWMOD3   33
001035           DESTYPE   = ARRAY[VARTYPE] OF PACKED ARRAY[1..DESLE] OF CHAR;          DTLWMOD3   34
001035           LABTYPE   = ARRAY[VARTYPE] OF PACKED ARRAY[1..LABLE] OF CHAR;          DTLWMOD3   35
001035           SAVRCTYPE = (FIRSTREC,SUCCRECS);                                       DTLWMOD3   36
001035           (*FIRST RECORD CONTAINS SIMULATION SPECIFICATIONS.                      DTLWMOD3   37
001035           DATA ARE ONLY IN THE SUCCEEDING RECORDS OF THE FILE*)                  DTLWMOD3   38
001035           SAVETYPE  = RECORD                                                     DTLWMOD3   39
001035                         CASE SAVRCTYPE OF                                        DTLWMOD3   40
001035                         FIRSTREC: (S: STYPE;);                                   DTLWMOD3   41
001035                         SUCCRECS: (SITENR: INTEGER;                              DTLWMOD3   42
001035                                    Z: ARRAY[VARTYPE] OF REAL;);                  DTLWMOD3   43
001035                       END(*RECORD*);                                             DTLWMOD3   44
001035           SAVEFILET = FILE OF SAVETYPE;                                          DTLWMOD3   45
001035                                                                                  DTLWMOD3   46
001035           (*THE FOLLOWING TYPES ARE USED FOR PRODUCING                           DTLWMOD3   47
001035           TABLES, PRINTPLOTS AND PLOTS OF THE SIMULATION                         DTLWMOD3   48
001035           RESULTS*)                                                              DTLWMOD3   49
001035           NODETYPE  = (CENTRAL,BRANCHING);                                       DTLWMOD3   50
001035           TREETYPE  = (TAB,PRPL,PLOT);                                           DTLWMOD3   51
001035           SCALING   = (LOG,LIN,NEGLOG);                                          DTLWMOD3   52
001035           PLOTDEV   = (BENSON,HPPLOTTER,FILM16,FILM35);                          DTLWMOD3   53
001035                                                                                  DTLWMOD3   54
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001035                                                                  DTLWMOD3   55
001035          NODEP     = ^NODE;                                      DTLWMOD3   56
001035                                                                  DTLWMOD3   57
001035          NODE = RECORD                                           DTLWMOD3   58
001035                   CASE ANODE: NODETYPE OF                        DTLWMOD3   59
001035                   CENTRAL: (C: RECORD                            DTLWMOD3   60
001035                                 NEXT: NODEP;                     DTLWMOD3   61
001035                                 MT,ST: TITLETYP;                 DTLWMOD3   62
001035                                 CASE TREETYPE OF                 DTLWMOD3   63
001035                                 TAB,PRPL:(BRANCH:NODEP;          DTLWMOD3   64
001035                                           CASE TREETYPE OF       DTLWMOD3   65
001035                                           TAB:();                DTLWMOD3   66
001035                                           PRPL:(YSCALE:SCALING;  DTLWMOD3   67
001035                                                 YMIN,YMAX:REAL;) DTLWMOD3   68
001035                                          ;);                     DTLWMOD3   69
001035                                 PLOT:(X,Y: RECORD                DTLWMOD3   70
001035                                             BRANCH: NODEP;       DTLWMOD3   71
001035                                             LABL: PACKED ARRAY   DTLWMOD3   72
001035                                             [1..LABLE] OF CHAR;  DTLWMOD3   73
001035                                             SCALE: SCALING;      DTLWMOD3   74
001035                                             MIN,MAX: REAL;       DTLWMOD3   75
001035                                             TIC,LABTIC: REAL;    DTLWMOD3   76
001035                                           END(*RECORD*);         DTLWMOD3   77
001035                                      CURVENR: INTEGER;           DTLWMOD3   78
001035                                      GRID: BOOLEAN;);            DTLWMOD3   79
001035                                END(*RECORD*););                  DTLWMOD3   80
001035                   BRANCHING: (V: RECORD                          DTLWMOD3   81
001035                                    KEY: VARTYPE;                 DTLWMOD3   82
001035                                    BRANCH: NODEP;                DTLWMOD3   83
001035                                    CASE TREETYPE OF              DTLWMOD3   84
001035                                    TAB: (ABBR: CHAR;             DTLWMOD3   85
001035                                          DES: PACKED ARRAY[1..DESLE] DTLWMOD3   86
001035                                               OF CHAR;           DTLWMOD3   87
001035                                          LE,PREC: INTEGER;);     DTLWMOD3   88
001035                                    PRPL:(Z: CHAR;                DTLWMOD3   89
001035                                          LEG: PACKED ARRAY[1..DESLE] DTLWMOD3   90
001035                                               OF CHAR;);         DTLWMOD3   91
001035                                    PLOT:(CURVE: INTEGER;         DTLWMOD3   92
001035                                          COL: INTEGER;           DTLWMOD3   93
001035                                          COLOUR: INTEGER;        DTLWMOD3   94
001035                                          LINE: INTEGER;          DTLWMOD3   95
001035                                          SCATTER: BOOLEAN;       DTLWMOD3   96
001035                                          S: CHAR;                DTLWMOD3   97
001035                                          LEG1,LEG2: PACKED ARRAY DTLWMOD3   98
001035                                                     [1..LEGLE] OF CHAR; DTLWMOD3   99
001035                                          SKIP,STOP: INTEGER;);   DTLWMOD3  100
001035                                 END(*RECORD*););                 DTLWMOD3  101
001035                 END(*RECORD*);                                   DTLWMOD3  102
001035                                                                  DTLWMOD3  103
001035          (*THE FOLLOWING TYPE IS USED TO SELECT THE KIND OF      DTLWMOD3  104
001035          REPRESENTATION PRODUCED BY THE PROCEDURE RAMASS.        DTLWMOD3  105
001035          SINCE RAMASS DOES NOT DIRECTLY PRODUCE THESE GRAPHICAL  DTLWMOD3  106
001035          REPRESENTATIONS, THE PURPOSE OF THIS TYPE IS TO SELECT  DTLWMOD3  107
001035          THE PROCEDURE WHICH WILL EFFECTIVELY DO THE PLOTTING.   DTLWMOD3  108
001035          WHEN SELECTING NETZ, A PERSPECTIVE GRAPH WILL BE DONE   DTLWMOD3  109
001035          BY MEANS OF THE PROCEDURE PICTURE. IF SELECTING KARTE,  DTLWMOD3  110
001035          ONLY PARALLELPERSPECTIVE REPRESENTATION BY MEANS OF THE  DTLWMOD3  111
001035          PROCEDURE PICTUR2 WILL BE PRODUCED*)                    DTLWMOD3  112
001035                                                                  DTLWMOD3  113
001035          RAMPLTYP  = (NETZ,KARTE);                               DTLWMOD3  114
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001035                                                                  DTLWMOD3  115
001035                                                                  DVLWMOD3    2
001035  VAR     (*VARIABLES USED FOR TECHNICAL PURPOSES *)              DVLWMOD3    3
001035                                                                  DVLWMOD3    4
001035          SIMKIND: SIMTYPE;                                       DVLWMOD3    5
001036          SIMSPEC: STYPE;                                         DVLWMOD3    6
001066          (*INFORMATION SPECIFYING THE CURRENT SIMULATION JOB:     DVLWMOD3    7
001066          - DATE: DATE AT RUN TIME OF THE SIMULATION JOB          DVLWMOD3    8
001066          - TIME: HOUR AT RUN TIME OF THE SIMULATION JOB          DVLWMOD3    9
001066          - SIMID: UNIQUE IDENTIFIER DENOTING THE SIMULATION JOB  DVLWMOD3   10
001066                   USED THROUGHOUT THE WHOLE JOB                  DVLWMOD3   11
001066          - MODEL: STRING INDICATING WHICH MODEL HAS BEEN SELECTED*)  DVLWMOD3   12
001066          DYMSG: PACKED ARRAY[1..40] OF CHAR;                     DVLWMOD3   13
001072                                                                  DVLWMOD3   14
001072          TITLE: TITLETYP;                                        DVLWMOD3   15
001102          SUBTITLE: TITLETYP;                                     DVLWMOD3   16
001112          VARDES: DESTYPE;                                        DVLWMOD3   17
001652          (*USED AS DESCRIPTION OF VARIABLES FOR TABLES AND PRINTPLOTS*)  DVLWMOD3   18
001652          VARLAB: LABTYPE;                                        DVLWMOD3   19
002132          (*USES AS DESCRIPTION OF VARIABLES FOR PLOTS WHERE IT CAN  DVLWMOD3   20
002132          SERVE AS LABEL FOR AN AXIS*)                            DVLWMOD3   21
002132                                                                  DVLWMOD3   22
002132          OBSERVATIONS       : SEGFILET;  (*FILE WHICH CONTAINS   DVLWMOD3   23
003161                                           OBSERVATIONS*)         DVLWMOD3   24
003161          OLADEMIN           : ARRAY[1949..1977] OF REAL;         DVLWMOD3   25
003216                                           (*OBSERVED MINIMAL LARVAL  DVLWMOD3   26
003216                                           DENSITIES WITHIN VALLEY*)  DVLWMOD3   27
003216          OBSERVEDLADENS     : ARRAY[1949..1977] OF REAL;         DVLWMOD3   28
003253                                           (*OBSERVED LARVAL DENSITIES  DVLWMOD3   29
003253                                           OF LARCH BUD MOTH IN THE   DVLWMOD3   30
003253                                           UPPER ENGADINE VALLEY*)    DVLWMOD3   31
003253          OLADEMAX           : ARRAY[1949..1977] OF REAL;         DVLWMOD3   32
003310                                           (*OBSERVED MAXIMAL LARVAL  DVLWMOD3   33
003310                                           DENSITIES WITHIN VALLEY*)  DVLWMOD3   34
003310          REPRES: SET OF SITEINDEX;                               DVLWMOD3   35
003311                         (*SET CONTAINING THE SITE NUMBERS OF ALL  DVLWMOD3   36
003311                          SITES FOR WHICH THE SIMULATION RESULTS   DVLWMOD3   37
003311                          HAS TO BE REPRESENTED*)                 DVLWMOD3   38
003311          MSNR: SITEINDEX; (*MAIN SITENUMBER OR LOOP VARIABLE DENOTING  DVLWMOD3   39
003312                          THE ACTUALLY USED SITE*)                DVLWMOD3   40
003312          MSNRMIN: SITEINDEX;                                     DVLWMOD3   41
003313                         (*LOWEST NUMBER OF SITE FOR WHICH        DVLWMOD3   42
003313                          SIMULATIONS AND/OR REPRESENTATIONS OF   DVLWMOD3   43
003313                          RESULTS ARE PERFORMED*)                 DVLWMOD3   44
003313          MSNRMAX: SITEINDEX;                                     DVLWMOD3   45
003314                         (*HIGHEST NUMBER OF SITE FOR WHICH       DVLWMOD3   46
003314                          SIMULATIONS AND/OR REPRESENTATIONS OF   DVLWMOD3   47
003314                          RESULTS ARE PERFORMED*)                 DVLWMOD3   48
003314          DEBUG: BOOLEAN;   (*IF TRUE SOME PRINTOUTS WILL BE MADE  DVLWMOD3   49
003315                          WHICH HELP WHILE DEBUGGING. NORMALLY    DVLWMOD3   50
003315                          DEBUG SHOULD BE FALSE, BECAUSE THESE    DVLWMOD3   51
003315                          PRINTOUTS ARE RATHER CONFUSING*)        DVLWMOD3   52
003315                                                                  DVLWMOD3   53
003315                                                                  DVLWMOD3   54
003315          STARTFLAG: BOOLEAN;                                     DVLWMOD3   55
003316                          (*BEFORE THE FIRST TIMESTEP IS EXECUTED,  DVLWMOD3   56
003316                          STARTFLAG IS TRUE. AFTER THE COMPLETION  DVLWMOD3   57
003316                          OF THE FIRST TIME STEP (FIRST CALL OF   DVLWMOD3   58
003316                          PROCEDURE SAVE WITH ARGUMENT WHEN=0)    DVLWMOD3   59
003316                          STARTFLAG WILL BE CLEARED. THIS HELPS   DVLWMOD3   60
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003316                          TO PRINTOUT VARIOUS VALUES OF MODEL PARA-    DVLWMOD3   61
003316                          METERS WHILE EXECUTION OF A TIME STEP        DVLWMOD3   62
003316                          (GARANTUEES THAT EACH PARAMETER USED FOR     DVLWMOD3   63
003316                          THE SIMULATION MAY BE PRINTED, EVEN WHEN     DVLWMOD3   64
003316                          THEY ARE LOCAL CONSTANTS IN DIFFERENT        DVLWMOD3   65
003316                          PROGRAM PARTS AS LOCAL PROCEDURES AND OR     DVLWMOD3   66
003316                          FUNCTIONS).*)                                DVLWMOD3   67
003316                  LNCOUNTER: INTEGER;                                  DVLWMOD3   68
003317                          (*COUNTS LINES PRINTED ON OUTPUT WHILE       DVLWMOD3   69
003317                          STARTFLAG IS TRUE*)                          DVLWMOD3   70
003317                                                                       DVLWMOD3   71
003317                  (*FOR EACH TIME STEP OUTPUT IS CONSTRUCTED IN THE    DVLWMOD3   72
003317                  FOLLOWING WAY:                                       DVLWMOD3   73
003317                   IN ORDER TO SAVE VALUES OF STATE VARIABLES, OF PARAMETERS  DVLWMOD3   74
003317                   AND OF RATES WHICH MAY BE OVERWRITTEN WHILE CALCULATING  DVLWMOD3   75
003317                   DYNAMICS OF ONE TIME STEP OR WHILE PROCEEDING TO THE  DVLWMOD3   76
003317                   NEXT TIME STEP, THEY CAN BE ASSIGNED TO TO THE VARIABLE  DVLWMOD3   77
003317                   R BY CALLING PROCEDURES SAMPLING AND/OR SAVE.        DVLWMOD3   78
003317                                                                       DVLWMOD3   79
003317                   IN CASE SIMKIND OF                                  DVLWMOD3   80
003317                   - IMMIGRATION,NOMIGRATION: VALUES IN R ARE WRITTEN IMMEDIA-  DVLWMOD3   81
003317                     TELY TO THE FILE RESULTS JUST BEFORE PROCEEDING TO THE  DVLWMOD3   82
003317                     NEXT TIME STEP.                                   DVLWMOD3   83
003317                   - BOTH: VALUES IN R ARE USED BY PROCEDURE CENSUS TO COM-  DVLWMOD3   84
003317                     PUTE STATISTICS IN VARIABLE RR. AFTERWARDS RR IS WRITTEN  DVLWMOD3   85
003317                     TO THE FILE RESULTS BEFORE PROCEEDING TO THE NEXT TIME  DVLWMOD3   86
003317                     STEP.                                             DVLWMOD3   87
003317                                                                       DVLWMOD3   88
003317                  WHEN THE SIMULATION IS FINISHED THE SIMULATED VALUES ARE  DVLWMOD3   89
003317                  STORED ON FILE RESULTS FROM WHERE THEY CAN BE READ BY  DVLWMOD3   90
003317                  SEVERAL OUTPUT PROCEDURES (PRTABLE, PRATABLES, PRPRINTPLOT,  DVLWMOD3   91
003317                  PRAPRINTPLOTS, PLAGRAPHS). *)                        DVLWMOD3   92
003317                                                                       DVLWMOD3   93
003317                  R: ARRAY [0..SAVNROFSITES] OF SAVETYPE;              DVLWMOD3   94
005200                  (*THE PROCEDURES SAVE AND SAMPLING ASSIGN TO THIS INTER-  DVLWMOD3   95
005200                  MEDIATE STORAGE FOR EACH SITE OF THE WHOLE VALLEY AND FOR  DVLWMOD3   96
005200                  THE ACTUAL TIME STEP ALL VALUES AS DENOTED BY THE    DVLWMOD3   97
005200                  TYPE DECLARATION OF THE LIST VARTYPE*)               DVLWMOD3   98
005200                                                                       DVLWMOD3   99
005200                  RR,R0: SAVETYPE;                                     DVLWMOD3  100
005332                  (* RR IN ORDER TO CALCULATE STATISTICS THIS VARIABLE IS  DVLWMOD3  101
005332                        USED TO ACCAMULATE VALUES OF SEVERAL SITES AND TO  DVLWMOD3  102
005332                        STORE RESULTS OF STATISTICS.                   DVLWMOD3  103
005332                     R0 CONTAINS INITIAL CONDITIONS FOR PRESETTING RR BEFORE  DVLWMOD3  104
005332                        COMPUTING STATISTICS. ITS VALUES, NOT CHANGING  DVLWMOD3  105
005332                        DURING THE WHOLE SIMULATION, ARE ASSIGNED BY PROCEDURE  DVLWMOD3  106
005332                        INITIALIZATION*)                               DVLWMOD3  107
005332                  RESULTS            : SAVEFILET; (*FILE WHICH CONTAINS THE  DVLWMOD3  108
006455                                       SIMULATION RESULTS*)           DVLWMOD3  109
006455                  (*AUXILIARY VARIABLES USED BY OUTPUT-PROCEDURES*)     DVLWMOD3  110
006455                  ROOTTAB,ROOTAVCY,ROOTPRPL,ROOTPLOT,SENTINEL: NODEP;  DVLWMOD3  111
006462                  ATAB,AAVCY,APRPL,APLOT: NODEP;                       DVLWMOD3  112
006466                  XX,YY: ARRAY[TIMEBEGIN..TIMEEND] OF REAL; (*ARAYS    DVLWMOD3  113
006560                        USED TO STORE SOME DATA WHILE COMPUTING THE    DVLWMOD3  114
006560                        AVERAGE CYCLE*)                                DVLWMOD3  115
006560                  PF1,PF2            : SEGFILET;  (*FILES WHICH CONTAIN  DVLWMOD3  116
010636                                       DISPOSABLE PROGRAMS FOR        DVLWMOD3  117
010636                                       PRODUCING GRAPHICAL            DVLWMOD3  118
010636                                       REPRESENTATIONS OF THE         DVLWMOD3  119
010636                                       SIMULATION RESULTS BY          DVLWMOD3  120
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010636                                        MEANS OF THE PROCEDURES       DVLWMOD3  121
010636                                        DRAWBEN, RESP. DRAWHP*)       DVLWMOD3  122
010636                                        (*PF1 IS MAINLY USED FOR      DVLWMOD3  123
010636                                        PLOTS WITH THE BENSON         DVLWMOD3  124
010636                                        PLOTTER AND PF2 FOR PLOTS     DVLWMOD3  125
010636                                        WITH THE FILM PLOTTER*)       DVLWMOD3  126
010636          RAM               : SEGFILET;  (*FILE WHICH CONTAINS A        DVLWMOD3  127
011665                                        PLOTTING JOB TO DRAW          DVLWMOD3  128
011665                                        SIMULATION RESULTS WHEN       DVLWMOD3  129
011665                                        SIMKIND HAS BEEN SELECTED     DVLWMOD3  130
011665                                        AS BOTH. THE PROCEDURES       DVLWMOD3  131
011665                                        IRAMASS AND RAMASS WRITE      DVLWMOD3  132
011665                                        ON THIS FILE*)                DVLWMOD3  133
011665          RAMPLDEVSEL       : PLOTDEV;   (*PROCEDURE IRAMASS ASSIGNS    DVLWMOD3  134
011666                                        TO THIS VARIABLE A VALUE, SO  DVLWMOD3  135
011666                                        THAT THE SAME PLOTTING DEVICE DVLWMOD3  136
011666                                        IS SELECTED WHILE EACH CALL   DVLWMOD3  137
011666                                        OF PROCEDURE RAMASS*)         DVLWMOD3  138
011666          COM1,COM2         : TEXT;      (*FILES CONTAINING INFOR-      DVLWMOD3  139
013744                                        MATION FOR A JOB TO PRODUCE   DVLWMOD3  140
013744                                        A MICROFICHE OUTPUT. COM1 IS  DVLWMOD3  141
013744                                        FOR THE JOB CONTROL LANGUAGE  DVLWMOD3  142
013744                                        AND IS PRODUCED BY THE PRO-   DVLWMOD3  143
013744                                        CEDURE STARTSIMULATION. COM2  DVLWMOD3  144
013744                                        IS FOR THE SIMULATION         DVLWMOD3  145
013744                                        RESULTS AND IS MAINLY PRO-    DVLWMOD3  146
013744                                        DUCED BY PROCEDURE COMFICHE*) DVLWMOD3  147
013744          DUMMYFILE: TEXT;                                            DVLWMOD3  148
014773                                                                      DPGETSEG    2
014773   FUNCTION GETSEGMENT(VAR FIL:SEGFILET;                              DPGETSEG    3
000004                       SEG: INTEGER): BOOLEAN;                        DPGETSEG    4
000005     (*THE FILE POINTER ON THE SEGMENTED FILE FIL IS MOVED TO THE SEGMENT DPGETSEG    5
000005     SEG (NUMBERING STARTS WITH NUMBER 1). IF THE DESIRED SEGMENT IS    DPGETSEG    6
000005     PRESENT, THE VALUE OF THE FUNCTION WILL BE TRUE, OTHERWISE FALSE. *) DPGETSEG    7
000005                                                                       PRGETSEG    2
000005     VAR J:INTEGER;                                                   PRGETSEG    3
000006     BEGIN(*GETSEGMENT*)                                              PRGETSEG    4
000006       RESET(FIL);                                                    PRGETSEG    5
000011       FOR J:=2 TO SEG DO                                             PRGETSEG    6
000013       IF NOT EOF(FIL) THEN                                           PRGETSEG    7
000017       BEGIN                                                          PRGETSEG    8
000017         GETSEG(FIL);                                                 PRGETSEG    9
000021         GETSEGMENT:=TRUE;                                            PRGETSEG   10
000022       END                                                            PRGETSEG   11
000022       ELSE GETSEGMENT:=FALSE;                                        PRGETSEG   12
000026     END(*GETSEGMENT*);                                               PRGETSEG   13
000036                                                                       DPMOVE      2
000036   PROCEDURE MOVE (      FROM: PACKED ARRAY [INTEGER] OF CHAR;        DPMOVE      3
000004                  VAR  ONTO: PACKED ARRAY [INTEGER] OF CHAR;         DPMOVE      4
000005                  OPTION: CHAR ); EXTERN;                            DPMOVE      5
000016                                                                      PPOUTPAR    2
000016   PROCEDURE OUTPARAM(PARID: PACKED ARRAY[INTEGER] OF CHAR;           PPOUTPAR    3
000004                     PARVAL: REAL;                                    PPOUTPAR    4
000005                     NROCOL,NRODIG: INTEGER;                          PPOUTPAR    5
000007                     COMMENT: PACKED ARRAY[INTEGER] OF CHAR);         PPOUTPAR    6
000020     (*THIS PROCEDURE PRINTS ON FILE OUTPUT FOR THE MODEL PARAMETER   PPOUTPAR    7
000020     PARID ITS IDENTIFIER (PARID), ITS VALUE PARVAL WITH NROCOL COLUMNS PPOUTPAR    8
000020     AND NRODIG DECIMAL DIGITS AND ADDS TO THE RIGHT OF THE SO FAR    PPOUTPAR    9
000020     PRINTED INFORMATION THE TEXT COMMENT*)                           PPOUTPAR   10
000020                                                                      PPOUTPAR   11
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000020     VAR PS: PACKED ARRAY[1..20] OF CHAR;                                  PPOUTPAR   12
000022         I: INTEGER;                                                       PPOUTPAR   13
000023                                                                           PPOUTPAR   14
000023     BEGIN(*OUTPARAM*)                                                     PPOUTPAR   15
000023       IF STARTFLAG THEN                                                   PPOUTPAR   16
000035       BEGIN                                                               PPOUTPAR   17
000035         MOVE(PARID,PS,'R');                                               PPOUTPAR   18
000044         MOVE(COMMENT,COMMENT,'L');                                        PPOUTPAR   19
000052         IF NRODIG=0 THEN                                                  PPOUTPAR   20
000054         WRITE  (' ',PS,' = ',TRUNC(PARVAL):NROCOL)                        PPOUTPAR   21
000075         ELSE                                                              PPOUTPAR   22
000076         WRITE  (' ',PS,' = ',PARVAL:NROCOL:NRODIG);                       PPOUTPAR   23
000117         FOR I:=NROCOL+1 TO 15 DO WRITE(' ');                              PPOUTPAR   24
000127         IF (COMMENT[1]=' ')AND(COMMENT[2]=' ')                            PPOUTPAR   25
000151         THEN WRITELN                                                      PPOUTPAR   26
000153         ELSE WRITELN('  (',COMMENT,')');                                 PPOUTPAR   27
000172         LNCOUNTER:=LNCOUNTER+1;                                           PPOUTPAR   28
000174         IF LNCOUNTER MOD 58 =0 THEN PAGE(OUTPUT);                         PPOUTPAR   29
000205         IF NRODIG=0 THEN                                                  PPOUTPAR   30
000207         WRITE  (COM2,' ',PS,' = ',TRUNC(PARVAL):NROCOL)                   PPOUTPAR   31
000230         ELSE                                                              PPOUTPAR   32
000231         WRITE  (COM2,' ',PS,' = ',PARVAL:NROCOL:NRODIG);                  PPOUTPAR   33
000252         FOR I:=NROCOL+1 TO 15 DO WRITE(COM2,' ');                         PPOUTPAR   34
000262         IF (COMMENT[1]=' ')AND(COMMENT[2]=' ')                            PPOUTPAR   35
000304         THEN WRITELN(COM2)                                                PPOUTPAR   36
000306         ELSE WRITELN(COM2,'  (',COMMENT,')');                             PPOUTPAR   37
000325         IF LNCOUNTER MOD 60 =0 THEN PAGE(COM2);                           PPOUTPAR   38
000340       END;                                                                PPOUTPAR   39
000340     END(*OUTPARAM*);                                                      PPOUTPAR   40
000370                                                                           PFAS        2
000370   FUNCTION AS (V: VARTYPE): REAL;                                         PFAS        3
000004     BEGIN(*AS*)                                                           PFAS        4
000004       AS:=RR.Z[V];                                                        PFAS        5
000012     END(*AS*);                                                            PFAS        6
000017                                                                           DCAUXPROC   2
000017                                                                           DPTREESTA   2
000017   PROCEDURE TREESTART(VAR ROOT,SENTINEL: NODEP);                          DPTREESTA   3
000005     (*INITIATES A POINTER LIST TO STORE THE DEFINITIONS FOR OUTPUT*)      DPTREESTA   4
000005     EXTERN;                                                             DCAUXPROC   4
000005                                                                           DPFINDEND   2
000005   PROCEDURE FINDEND(FROM: NODEP; VAR A: NODEP;SENTINEL: NODEP);           DPFINDEND   3
000006     (*STARTING FROM THE POINTER FROM THE POINTER A IS MOVED ALONG        DPFINDEND   4
000006     THE POINTER LIST, ACCORDING TO THE NODE TYPE OF FROM ALONG CENTRAL   DPFINDEND   5
000006     OR BRANCHING PATH, UNTIL THE LAST NODE BEFORE THE NODE SENTINEL      DPFINDEND   6
000006     HAS BEEN REACHED*)                                                   DPFINDEND   7
000006     EXTERN;                                                             DCAUXPROC   6
000006                                                                           DPFIND      2
000006   PROCEDURE FIND(FROM, SENTINEL: NODEP; WHICH: VARTYPE;                   DPFIND      3
000006                  VAR W2,W1: NODEP);                                       DPFIND      4
000010     (*FINDS IN THE BRANCH OF THE CENTRAL NODE FROM THE NODE WITH THE     DPFIND      5
000010     KEY WHICH. THE POINTER W1 POINTS TO THE NODE SEARCHED IF THERE       DPFIND      6
000010     IS ONE SUCH NODE PRESENT IN THE BRANCH. OTHERWISE, IF NO NODE WITH   DPFIND      7
000010     SUCH A KEY CAN BE FOUND, W1 WILL POINT TO THE NODE SENTINEL AND      DPFIND      8
000010     W2 TO THE LAST NODE OF THE BRANCH IN WHICH HAS BEEN SEARCHED. THIS   DPFIND      9
000010     ALLOWS AN EVENTUAL SUBSEQUENT INSERT BETWEEN W2 AND SENTINEL (=W1),  DPFIND     10
000010     E.G. ADDING A NEW NODE TO THIS BRANCH*)                              DPFIND     11
000010     EXTERN;                                                             DCAUXPROC   8
000010                                                                           DPINSERT    2
000010   PROCEDURE INSERT(TREE: TREETYPE; W2, W1: NODEP; VAR NEWN: NODEP);       DPINSERT    3
000007     (*INSERTS A NEW NODE BETWEEN THE NODES W2 AND W1 (W2 PRECEEDS W1)    DPINSERT    4
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000007     ACCORDING TO THE NODE TYPE OF W2 (CENTRAL OR BRANCHING). IF W2 IS    DPINSERT    5
000007     OF TYPE CENTRAL THE INSERTION WILL BE MADE DIFFERENTLY ACCORDING TO  DPINSERT    6
000007     THE TYPE OF THE LIST AS GIVEN BY THE VALUE OF THE PARAMETER TREE *)  DPINSERT    7
000007     EXTERN;                                                             DCAUXPROC  10
000007                                                                         DPSCALEAX   2
000007   PROCEDURE SCALEAX(FROM, SENTINEL: NODEP;                              DPSCALEAX   3
000005                     VAR SCALE: SCALING;                                 DPSCALEAX   4
000006                     VAR RES: SAVEFILET;                                 DPSCALEAX   5
000007                     SNR:INTEGER;                                        DPSCALEAX   6
000010                     VAR RMIN,RMAX: REAL;                                DPSCALEAX   7
000012                     C,AXLENGTH: REAL;                                   DPSCALEAX   8
000014                     VAR A,B: REAL;                                      DPSCALEAX   9
000016                     MARGE: INTEGER;                                     DPSCALEAX  10
000017                     VAR O:TEXT);                                        DPSCALEAX  11
000020     (*                                                                  DPSCALEAX  12
000020     PURPOSE:    SCALES AN AXIS                                          DPSCALEAX  13
000020     METHOD:     SEARCHES FOR EXTREMES, SELECTS AND PRINTS OUT DEFINITIVE DPSCALEAX  14
000020                 SCALE (MARGE INDICATES BY HOW MANY BLANCS THIS TEXT     DPSCALEAX  15
000020                 WILL BE RIGHT SHIFTED), SUPPLEMENTS EXTREMES TO WHOLE   DPSCALEAX  16
000020                 NUMBERS, ASSIGNS THEM DEFINITIVELY AND                  DPSCALEAX  17
000020                 SCALES THE AXIS BY CALCULATING A AND B SO THAT ANY VALUE DPSCALEAX  18
000020                 OF THE AXIS CAN BE TRANSFORMED INTO THE GRAPH BY        DPSCALEAX  19
000020                                                                         DPSCALEAX  20
000020                    X' = A*X + B             IF SCALING=LIN              DPSCALEAX  21
000020                    X' = A*LN(X) + B         IF SCALING=LOG              DPSCALEAX  22
000020                    X' = A*LN(X-XMIN+C) + B  IF SCALING=NEGLOG           DPSCALEAX  23
000020                                                                         DPSCALEAX  24
000020     *)                                                                  DPSCALEAX  25
000020     EXTERN;                                                             DCAUXPROC  12
000020                                                                         DPTABLE     2
000020   PROCEDURE TABLE(MT,ST: PACKED ARRAY[INTEGER] OF CHAR;                 DPTABLE     3
000005                  ROOTTAB,SENTINEL: NODEP;                               DPTABLE     4
000007                  VAR ATAB: NODEP);                                      DPTABLE     5
000020     (*ACCORDING TO THE ACTUAL PARAMETER VALUES (SEE BELOW) THIS         DPTABLE     6
000020     PROCEDURE WILL INITIALISE A NEW TABLE:                              DPTABLE     7
000020         - MT,ST      MAIN-, RESPECTIVELY SUB-TITLE           *)         DPTABLE     8
000020     EXTERN;                                                             DCAUXPROC  14
000020                                                                         DPCOLUMN    2
000020   PROCEDURE COLUMN(WHICH: VARTYPE;                                      DPCOLUMN    3
000004                   ABBR: CHAR;                                          DPCOLUMN    4
000005                   LE,PREC: INTEGER;                                    DPCOLUMN    5
000007                   VAR VARDES: DESTYPE;                                 DPCOLUMN    6
000010                   SENTINEL,ATAB: NODEP);                               DPCOLUMN    7
000012     (*WHICH INDICATES WHICH VARIABLE HAS TO BE SELECTED FOR THE ACTUAL   DPCOLUMN    8
000012     TABLE AS A NEW COLUMN*)                                             DPCOLUMN    9
000012     EXTERN;                                                             DCAUXPROC  16
000012                                                                         DPPRTABLE   2
000012   PROCEDURE PRTABLE(VAR RESULTS: SAVEFILET; VAR RR: SAVETYPE;           DPPRTABLE   3
000005                    SNR: INTEGER; VAR SIMSPEC: STYPE;                    DPPRTABLE   4
000007                    ATAB,SENTINEL: NODEP;                                DPPRTABLE   5
000011                    VAR O: TEXT);                                        DPPRTABLE   6
000012     (*                                                                  DPPRTABLE   7
000012      PURPOSE     FROM THE SIMULATION RESULTS STORED ON FILE RES         DPPRTABLE   8
000012                  ONE DATA TABLE IS WRITTEN ONTO FILE O                  DPPRTABLE   9
000012                                                                         DPPRTABLE  10
000012      REMARK      THE VARIABLES PRINTED WERE SELECTED BY ANY PREVIOUS    DPPRTABLE  11
000012                  CALL(S) OF THE PROCEDURE COLUMN SINCE THE LAST         DPPRTABLE  12
000012                  CALL OF PROCEDURE TABLE.                               DPPRTABLE  13
000012                  BECAUSE EACH ROW CORRESPONDS TO A SPECIFIC POINT IN    DPPRTABLE  14
000012                  TIME, THE ROWS ARE ARRANGED SUCCESSIVELY IN ACCORDANCE DPPRTABLE  15
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000012                TO THE DIRECTION OF THE TIME AXIS.                    DPPRTABLE  16
000012                IT IS POSSIBLE TO SPECIFY MANY TABLES BY CALLING      DPPRTABLE  17
000012                PROCEDURE TABLE (PLUS PROCEDURE COLUMN) SEVERAL TIMES.DPPRTABLE  18
000012                THE ACTUALLY PRINTED TABLE WILL BE SELECTED BY THE    DPPRTABLE  19
000012                POINTER ATABLE (ACTUAL TABLE).                        DPPRTABLE  20
000012                BY RPINTING A WARNING MESSAGE ALL COLUMNS EVENTUAL-   DPPRTABLE  21
000012                LY EXCEEDING THE MAXIMAL WIDTH TABW WILL BE AUTOMATI- DPPRTABLE  22
000012                CALLY OMITTED.                                        DPPRTABLE  23
000012    *)                                                                DPPRTABLE  24
000012    EXTERN;                                                           DCAUXPROC  18
000012                                                                      DPPRATABL   2
000012  PROCEDURE PRATABLES(VAR RESULTS: SAVEFILET; VAR RR: SAVETYPE;       DPPRATABL   3
000005                      SNR: INTEGER; VAR SIMSPEC: STYPE;               DPPRATABL   4
000007                      ROOTTAB,SENTINEL: NODEP;                        DPPRATABL   5
000011                      VAR O: TEXT);                                   DPPRATABL   6
000012    (*BY CALLING THE PROCEDURE PRTABLE SEVERAL TIMES FOR SITE SNR,    DPPRATABL   7
000012    ALL THE TABLES DEFINED SINCE THE LAST CALL OF TREESTART(ROOTTAB)  DPPRATABL   8
000012    ARE WRITTEN ONTO FILE O *)                                        DPPRATABL   9
000012    EXTERN;                                                           DCAUXPROC  20
000012                                                                      DPAVCY      2
000012  PROCEDURE AVERAGECYCLE(MT,ST: PACKED ARRAY[INTEGER] OF CHAR;        DPAVCY      3
000005                         ROOTAVCY,SENTINEL: NODEP;                    DPAVCY      4
000007                         VAR AAVCY: NODEP);                           DPAVCY      5
000020    (*ACCORDING TO THE ACTUAL PARAMETER VALUES (SEE BELOW) THIS       DPAVCY      6
000020    PROCEDURE WIL INITIALISE A NEW AVERAGE CYCLE OUTPUT:              DPAVCY      7
000020      -MT,ST     MAIN-, RESP. SUB-TITLE                      *)       DPAVCY      8
000020    EXTERN;                                                           DCAUXPROC  22
000020                                                                      DPROW       2
000020  PROCEDURE ROW(WHICH: VARTYPE;                                       DPROW       3
000004                ABBR: CHAR;                                           DPROW       4
000005                LE,PREC: INTEGER;                                     DPROW       5
000007                VAR VARDES: DESTYPE;                                  DPROW       6
000010                SENTINEL,AAVCY: NODEP);                               DPROW       7
000012    (*WHICH INDICATES WHICH VARIABLE HAS TO BE SELECTED FOR THE       DPROW       8
000012    ACTUAL AVERAGE CYCLE OUPTUT AS A NEW ROW*)                        DPROW       9
000012    EXTERN;                                                           DCAUXPROC  24
000012                                                                      DPPRAVCY    2
000012  PROCEDURE PRAVERAGECYCLE(VAR RESULTS: SAVEFILET; VAR RR: SAVETYPE;  DPPRAVCY    3
000005                           SNR: INTEGER; VAR SIMSPEC: STYPE;          DPPRAVCY    4
000007                           X,Y: ARRAY[INTEGER] OF REAL;               DPPRAVCY    5
000011                           AAVCY,SENTINEL: NODEP;                     DPPRAVCY    6
000013                           VAR O: TEXT);                              DPPRAVCY    7
000024    (*                                                                DPPRAVCY    8
000024     PURPOSE     FROM THE SIMULATION RESULTS STORED ON FILE RESULTS   DPPRAVCY    9
000024                 ONE AVERAGE CYCLE IS WRITTEN ONTO FILE O             DPPRAVCY   10
000024                                                                      DPPRAVCY   11
000024     REMARK      THE VARIABLES PRINTED WERE SELECTED BY ANY PREVIOUS  DPPRAVCY   12
000024                 CALL(S) OF THE PROCEDURE ROW SINCE THE LAST          DPPRAVCY   13
000024                 CALL OF PROCEDURE AVERAGECYCLE.                      DPPRAVCY   14
000024                 IT IS POSSIBLE TO SPECIFY MANY AVERAGE CYCLES BY     DPPRAVCY   15
000024                 CALLING PROCEDURE AVERAGECYCLE (PLUS PROCEDURE ROW)  DPPRAVCY   16
000024                 SEVERAL TIMES. THE ACTUALLY PRINTED AVERAGE CYCLE    DPPRAVCY   17
000024                 WILL BE SELECTED BY THE POINTER AAVCY (ACTUAL AVERAGE DPPRAVCY   18
000024                 CYCLE).                                              DPPRAVCY   19
000024                 IF A ROW SHOULD BE PRINTED WITH VALUES MORE THAN     DPPRAVCY   20
000024                 14 COLUMNS (COL>14) AN ERROR MESSAGE WILL BE PRINTED DPPRAVCY   21
000024                 AND THE TABLE FOR THE AVERAGE CYCLE WILL BE PRINTED  DPPRAVCY   22
000024                 ONLY WITH A COLUMN LENGTH OF 14 CHARACTERS.*)        DPPRAVCY   23
000024    EXTERN;                                                           DCAUXPROC  26
000024                                                                      DPPRAAVCY   2
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000024   PROCEDURE PRAAVERAGECYCLES(VAR RESULTS: SAVEFILET; VAR RR: SAVETYPE;   DPPRAAVCY   3
000005                              SNR: INTEGER; VAR SIMSPEC: STYPE;           DPPRAAVCY   4
000007                              X,Y: ARRAY [INTEGER] OF REAL;               DPPRAAVCY   5
000011                              ROOTAVCY,SENTINEL: NODEP;                   DPPRAAVCY   6
000013                              VAR O: TEXT);                               DPPRAAVCY   7
000024     (*BY CALLING THE PROCEDURE PRAVERAGECYCLE SEVERAL TIMES FOR          DPPRAAVCY   8
000024     SITE SNR, ALL THE AVERAGE CYCLES DEFINED SINCE THE LAST CALL OF      DPPRAAVCY   9
000024     TREESTART(ROOTAVCY) ARE WRITTEN ONTO FILE O *)                       DPPRAAVCY  10
000024     EXTERN;                                                              DCAUXPROC  28
000024                                                                          DPPRINTPL   2
000024   PROCEDURE PRINTPLOT(MT,ST: PACKED ARRAY[INTEGER] OF CHAR;              DPPRINTPL   3
000005                       YSCALE: SCALING;                                   DPPRINTPL   4
000006                       YMIN,YMAX: REAL;                                   DPPRINTPL   5
000010                       ROOTPRPL,SENTINEL: NODEP;                          DPPRINTPL   6
000012                       VAR APRPL: NODEP);                                 DPPRINTPL   7
000023     (*ACCORDING TO THE ACTUAL PARAMETER VALUES (SEE BELOW) WILL BE       DPPRINTPL   8
000023       INITIALIZED A NEW PRINTPLOT                                        DPPRINTPL   9
000023        - MT,ST     MAIN-, RESP. SUB-TITLE                              DPPRINTPL  10
000023        - YSCALE    SCALE OF THE ORDINATE (LIN,LOG,NEGLOG)              DPPRINTPL  11
000023        - YMIN,YMAX MINIMAL, RESP. MAXIMAL VALUES OF THE ORDINATE       DPPRINTPL  12
000023                    (AUTOMATIC SEARCH FOR EXTREMES WILL BE PROVIDED      DPPRINTPL  13
000023                    IF YMIN IS SET EQUAL TO YMAX)                        DPPRINTPL  14
000023       ABSCISSA IS TIME                                                   DPPRINTPL  15
000023     *)                                                                   DPPRINTPL  16
000023     EXTERN;                                                              DCAUXPROC  30
000023                                                                          DPVARIABL   2
000023   PROCEDURE VARIABLE(WHICH: VARTYPE;                                     DPVARIABL   3
000004                      SYMB: CHAR;                                         DPVARIABL   4
000005                      SENTINEL,APRPL: NODEP);                             DPVARIABL   5
000007     (*WHICH INDICATES WHICH VARIABLE HAS TO BE PRINTPLOTTED VERSUS TIME  DPVARIABL   6
000007     WITH THE SYMBOL SYMB IN THE ACTUAL PRINTPLOT*)                       DPVARIABL   7
000007     EXTERN;                                                              DCAUXPROC  32
000007                                                                          DPPRPRPL    2
000007   PROCEDURE PRPRINTPLOT(VAR RESULTS: SAVEFILET;VAR RR: SAVETYPE;         DPPRPRPL    3
000005                         SNR: INTEGER; VAR SIMSPEC: STYPE;                DPPRPRPL    4
000007                         SPREAD: INTEGER;                                 DPPRPRPL    5
000010                         ROOTPRPL,SENTINEL,APRPL: NODEP;                  DPPRPRPL    6
000013                         VAR O:TEXT);                                     DPPRPRPL    7
000014     (*                                                                   DPPRPRPL    8
000014      PURPOSE     FROM THE SIMULATION RESULTS STORED ON FILE RES ONE      DPPRPRPL    9
000014                  PRINTPLOT FOR SITE SNR IS WRITTEN ONTO FILE O.          DPPRPRPL   10
000014                                                                          DPPRPRPL   11
000014      REMARK      THE VARIABLES PRINTPLOTTED VERSUS TIME WERE SELECTED    DPPRPRPL   12
000014                  BY ANY PREVIOUS CALL(S) OF THE PROCEDURE VARIABLE        DPPRPRPL   13
000014                  SINCE THE LAST CALL OF THE PROCEDURE PRINTPLOT.          DPPRPRPL   14
000014                  IT IS POSSIBLE TO SPECIFY MANY PRINTPLOTS BY CALLING     DPPRPRPL   15
000014                  PROCEDURE PRINTPLOT (PLUS PROCEDURE VARIABLE) SEVERAL    DPPRPRPL   16
000014                  TIMES. THE ACTUALLY PRINTED PRINTPLOT IS SELECTED BY     DPPRPRPL   17
000014                  THE POINTER APRPL (ACTUAL PRINTPLOT).                    DPPRPRPL   18
000014                  THE VALUE OF SPREAD DEFINES HOW MANY EMPTY LINES WILL    DPPRPRPL   19
000014                  BE PRINTPLOTTED BETWEEN LINES WHERE SOME POINTS ARE      DPPRPRPL   20
000014                  PRESENT (IF SPREAD IS SET TO 0 THE ABSCISSA WILL NOT     DPPRPRPL   21
000014                  BE SPREAD, OTHERWISE THE ABSCISSA WILL BE STRECHED       DPPRPRPL   22
000014                  ACCORDING TO THE VALUE OF SPREAD).                       DPPRPRPL   23
000014                  IF MORE THAN ONE SYMBOL SHOULD BE PRINTED AT THE SAME    DPPRPRPL   24
000014                  LOCATION, ONLY THE FIRST ONE WILL BE PRINTED.            DPPRPRPL   25
000014                  HOWEVER THIS WILL BE INDICATED BY PRINTING THE OMITTED   DPPRPRPL   26
000014                  SYMBOL(S) AT THE END OF THE LINE WHERE THIS HAS          DPPRPRPL   27
000014                  OCCURRED.                                                DPPRPRPL   28
000014                  IF LOGARITHMIC SCALING HAS BEEN SPECIFIED AND THE        DPPRPRPL   29
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000014                PROCEDURE DETECTS A VALUE <=0, THEN NEGLOG SCALING      DPPRPRPL   30
000014                WILL BE APPLIED BY PRINTING AN APPROPRIATE WARNING      DPPRPRPL   31
000014                MESSAGE.                                                DPPRPRPL   32
000014                NOT MORE THAN MAXVAR VARIABLES CAN BE REPRESENTED. BY   DPPRPRPL   33
000014                PRINTING A WARNING MESSAGE ALL ADDITIONALLY REQUIRED    DPPRPRPL   34
000014                VARIABLES WILL BE OMITTED.                              DPPRPRPL   35
000014    *)                                                                  DPPRPRPL   36
000014    EXTERN;                                                             DCAUXPROC  34
000014                                                                        DPPRAPRPL   2
000014    PROCEDURE PRAPRINTPLOTS(VAR RESULTS: SAVEFILET; VAR RR: SAVETYPE;   DPPRAPRPL   3
000005                            SNR: INTEGER; VAR SIMSPEC: STYPE;           DPPRAPRPL   4
000007                            SPREAD: INTEGER;                            DPPRAPRPL   5
000010                            ROOTPRPL,SENTINEL: NODEP;                   DPPRAPRPL   6
000012                            VAR O: TEXT);                               DPPRAPRPL   7
000013    (*BY CALLING THE PROCEDURE PRINTPLOT SEVERAL TIMES FOR SITE SNR,    DPPRAPRPL   8
000013    ALL THE PRINTPLOTS DEFINED SINCE THE LAST CALL OF THE PROCEDURE     DPPRAPRPL   9
000013    TREESTART(ROOTPRPL) ARE WRITTEN ONTO FILE O*)                       DPPRAPRPL  10
000013    EXTERN;                                                             DCAUXPROC  36
000013                                                                        DPGRAPH     2
000013    PROCEDURE GRAPH(MT,ST: PACKED ARRAY[INTEGER] OF CHAR;               DPGRAPH     3
000005                    XLABL: PACKED ARRAY[INTEGER] OF CHAR;               DPGRAPH     4
000006                    XSCALE: SCALING;                                    DPGRAPH     5
000007                    XMIN,XMAX,XTIC,XLABTIC: REAL;                       DPGRAPH     6
000013                    YLABL: PACKED ARRAY[INTEGER] OF CHAR;               DPGRAPH     7
000014                    YSCALE: SCALING;                                    DPGRAPH     8
000015                    YMIN,YMAX,YTIC,YLABTIC: REAL;                       DPGRAPH     9
000021                    GRID: BOOLEAN;                                      DPGRAPH    10
000022                    ROOTPLOT,SENTINEL: NODEP;                           DPGRAPH    11
000024                    VAR APLOT: NODEP);                                  DPGRAPH    12
000045    (*ACCORDING TO THE ACTUAL PARAMETER VALUES (SEE BELOW) THIS PROCE-   DPGRAPH    13
000045    DURE INITIALIZES A NEW GRAPHICAL REPRESENTATION WHICH CAN BE PLOTTED DPGRAPH    14
000045    E.G. ON THE HP2647A TERMINAL OR THE BENSON PLOTTER.                  DPGRAPH    15
000045      - MT,ST         MAIN-, RESP. SUB-TITLE                            DPGRAPH    16
000045      FOR EACH AXIS, X AND Y, MUST BE DEFINED THE FOLLOWING PARAMETERS: DPGRAPH    17
000045      (THE DOT INDICATES EITHER X OR Y CORRESPONDINGLY TO THE AXIS JUST  DPGRAPH    18
000045      DEFINING)                                                         DPGRAPH    19
000045      - .LABL         LABEL WRITTEN ASIDE THE AXIS                      DPGRAPH    20
000045      - .SCALE        SCALE OF THE AXIS (LIN,LOG,NEGLOG)                DPGRAPH    21
000045      - .MIN,.MAX     MINIMAL RESP. MAXIMAL VALUES OF THE AXIS          DPGRAPH    22
000045                      (AUTOMATIC SEARCH FOR EXTREMES WILL BE PROVIDED   DPGRAPH    23
000045                      IF .MIN IS SET EQUAL TO .MAX)                     DPGRAPH    24
000045                      (VALUES EXCEEDING THE SPECIFIED LIMITS WILL NOT BE DPGRAPH   25
000045                      PLOTTED. THIS ALLOWS 'WINDOW TECHNIQUE')          DPGRAPH    26
000045      - .TIC,.LABTIC  UNLABELLED, RESP. WITH NUMBER LABELLED TICS       DPGRAPH    27
000045                      (ONLY USED BY LINE-CHART OF MULTIPLOT ON HP2647A  DPGRAPH    28
000045                      TERMINAL)                                         DPGRAPH    29
000045      - GRID          A GRID CAN BE SPECIFIED BY SETTING THIS PARAMETER DPGRAPH    30
000045                      TO TRUE (ONLY USED BY LINE-CHART OF MULTIPLOT ON  DPGRAPH    31
000045                      HP2647A TERMINAL)                                 DPGRAPH    32
000045    WHEN THE PROGRAM RETURNS FROM THIS PROCEDURE THE POINTER APLOT WILL DPGRAPH    33
000045    POINT TO THE JUST INITIALIZED GRAPH*)                               DPGRAPH    34
000045    EXTERN;                                                             DCAUXPROC  38
000045                                                                        DPCURVE     2
000045    PROCEDURE CURVE(XWHICH,YWHICH: VARTYPE;                             DPCURVE     3
000005                    COLOUR,LINE: INTEGER;                               DPCURVE     4
000007                    SCATTER: BOOLEAN;                                   DPCURVE     5
000010                    S: CHAR;                                            DPCURVE     6
000011                    LEG1,LEG2: PACKED ARRAY[INTEGER] OF CHAR;           DPCURVE     7
000013                    SKIP,STOP: INTEGER;                                 DPCURVE     8
000015                    SENTINEL,APLOT: NODEP);                             DPCURVE     9
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000027    (*THIS PROCEDURE DEFINES THE VARIABLES WHICH ARE PLOTTED AGAINST     DPCURVE    10
000027    EACH OTHER IN THE ACTUAL GRAPH. THE CURVE THEY DEFINE IS DEFINED     DPCURVE    11
000027    BY THE VALUES OF THE FOLLOWING PARAMETERS:                           DPCURVE    12
000027      - XWHICH,YWHICH   THESE INDICATE WHICH VARIABLES HAS TO BE SELEC-  DPCURVE    13
000027                        TED AS X, RESP. Y FOR THE CURRENT CURVE          DPCURVE    14
000027      - COLOUR          BLACK, RED, BLUE, GREEN (GREEN NOT AVAILABLE     DPCURVE    15
000027                        ON BENSON PLOTTER, ONLY HP PLOTTER)              DPCURVE    16
000027      - LINE            LINE TYPE (0..7) (5 IS EQUAL TO SCATTER=TRUE)    DPCURVE    17
000027                        (0 MEANS ONLY LINE WITHOUT SYMBOLS IN PLACE OF   DPCURVE    18
000027                        THE DOTS)                                        DPCURVE    19
000027      - SCATTER         IF A SCATTER DIAGRAM (NO CURVE, ONLY DOTS) IS    DPCURVE    20
000027                        REQUIRED SCATTER MUST BE SET TO TRUE             DPCURVE    21
000027      - S               S INDICATES WHICH SYMBOL WILL BE USED IN AN      DPCURVE    22
000027                        EVENTUAL SCATTER DIAGRAM (OTHERWISE IGNORED)     DPCURVE    23
000027      - LEG1, LEG2      LEGEND PART 1, RESP. PART 2 (UP TO LEGLE         DPCURVE    24
000027                        CHARACTERS ARE ALLOWED PER PART)                 DPCURVE    25
000027      - SKIP            SKIP FIRST LINES IN DATA TABLE (USUALLY 0)       DPCURVE    26
000027      - STOP            STOP AFTER DRAWING STOP DOTS WITH THE CURVE      DPCURVE    27
000027    *)                                                                   DPCURVE    28
000027    EXTERN;                                                              DCAUXPROC  40
000027                                                                         DPPLAGRAP   2
000027  PROCEDURE PLAGRAPHS(VAR RESULTS: SAVEFILET; VAR RR: SAVETYPE;          DPPLAGRAP   3
000005                      SNRFROM,SNRTILL: INTEGER;                          DPPLAGRAP   4
000007                      VAR SIMSPEC: STYPE;                                DPPLAGRAP   5
000010                      ROOTPLOT,SENTINEL: NODEP;                          DPPLAGRAP   6
000012                      VAR OUTP: TEXT;                                    DPPLAGRAP   7
000013                      VAR O: SEGFILET;                                   DPPLAGRAP   8
000014                      PLDEVSEL: PLOTDEV);                                DPPLAGRAP   9
000015    (*BY CALLING SEVERAL TIMES THE PROCEDURE PLGRAPH FOR THE             DPPLAGRAP  10
000015    SITE(S) WITH THE NUMBER SNRFROM TO SNRTILL                           DPPLAGRAP  11
000015    ALL INFORMATIONS SPECIFYING THE GRAPHS DEFINED SINCE THE LAST        DPPLAGRAP  12
000015    CALL OF THE PROCEDURE TREESTART (ROOTPLOT) ARE WRITTEN ONTO THE      DPPLAGRAP  13
000015    FILE O. IF THE FILE O IS SAVED APPROPRIATELY BY THIS JOB             DPPLAGRAP  14
000015    (CATALOG) ALL THE GRAPHS CAN BE PLOTTED BY DISPOSING (SEE VENUS      DPPLAGRAP  15
000015    COMMAND DISPOSE) THE FILE O SIMPLY AS A JOB.                         DPPLAGRAP  16
000015    ALL INFORMATIVE OR WARNING MESSAGES PRODUCED BY THIS PROCEDURE       DPPLAGRAP  17
000015    ARE WRITTEN ONTO THE FILE OUTP*)                                     DPPLAGRAP  18
000015    EXTERN;                                                              DCAUXPROC  42
000015                                                                         DPIRAMASS   2
000015  PROCEDURE IRAMASS (    FROM,TILL: INTEGER;                           DPIRAMASS   3
000005                     VAR SIMSPEC: STYPE;                               DPIRAMASS   4
000006                     VAR OUTP: TEXT;                                   DPIRAMASS   5
000007                     VAR RAM: SEGFILET;                                DPIRAMASS   6
000010                     VAR PLDEVSEL: PLOTDEV;                            DPIRAMASS   7
000011                     VALPLDEVSEL: PLOTDEV);                            DPIRAMASS   8
000012    (*THIS PROCEDURE INITIALISES THE FILE RAM AND WRITES SOME SCOPE      DPIRAMASS   9
000012    3.4 STATEMENTS AND THE PROGRAM PLOTRAMREPR TO REPRESENT RESULTS      DPIRAMASS  10
000012    OF A SIMULATION WITH SIMKIND EQUAL TO BOTH. THIS PROCEDURE HAS       DPIRAMASS  11
000012    TO BE CALLED BEFORE ANY SUBSEQUENT CALL OF THE PROCEDURE RAMASS*)    DPIRAMASS  12
000012    EXTERN;                                                              DCAUXPROC  44
000012                                                                         DPRAMASS    2
000012  PROCEDURE RAMASS (MT,ST:PACKED ARRAY[INTEGER] OF CHAR;                 DPRAMASS    3
000005                    WHICH1: VARTYPE;                                     DPRAMASS    4
000006                    VARDES1: PACKED ARRAY[INTEGER] OF CHAR;              DPRAMASS    5
000007                    NETZ1: RAMPLTYP;                                     DPRAMASS    6
000010                    COLOUR1: INTEGER;                                    DPRAMASS    7
000011                    WHICH2: VARTYPE;                                     DPRAMASS    8
000012                    VARDES2: PACKED ARRAY[INTEGER] OF CHAR;              DPRAMASS    9
000013                    NETZ2: RAMPLTYP;                                     DPRAMASS   10
000014                    COLOUR2: INTEGER;                                    DPRAMASS   11
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000015                    VARLAB: PACKED ARRAY[INTEGER] OF CHAR;              DPRAMASS   12
000016                    MIN,MAX: REAL;  SCALE: SCALING;                     DPRAMASS   13
000021                    FROM,TILL: INTEGER;                                 DPRAMASS   14
000023                    VAR SIMSPEC: STYPE;                                 DPRAMASS   15
000024                    VAR RES: SAVEFILET; VAR RR: SAVETYPE;               DPRAMASS   16
000026                    VAR OUTP: TEXT; VAR RAM: SEGFILET;                  DPRAMASS   17
000030                    SX,SY: REAL;                                        DPRAMASS   18
000032                    PLDEVSEL: PLOTDEV);                                 DPRAMASS   19
000057    (*THIS PROCEDURE PRODUCES A SEGMENT ON THE FILE RAM. THIS SEGMENT    DPRAMASS   20
000057    CONTAINS ALL NEEDED INFORMATION TO PLOT THE SIMULATED VALUES OF THE  DPRAMASS   21
000057    VARIABLE SELECTED BY WHICH1 AND EV. WHICH2 IN A 3 DIMENSIONAL GRAPH. DPRAMASS   22
000057    IF ONLY ONE CURVE SHALL BE PLOTTED WHICH2 MUST BE SET EQUAL UNDEF.   DPRAMASS   23
000057    THIS REPRESENTATION IS ONLY MEANINGFUL IF SIMKIND HAS BEEN SELECTED  DPRAMASS   24
000057    AS BOTH*)                                                           DPRAMASS   25
000057    EXTERN;                                                             DCAUXPROC  46
000057                                                                        PPSTARTSI   2
000057                                                                        DPSTARTSI   2
000057  PROCEDURE STARTSIMULATION;                                            DPSTARTSI   3
000003                                                                        DPSTARTSI   4
000003    VAR                                                                 DPSTARTSI   5
000003      I: INTEGER;                                                       DPSTARTSI   6
000004                                                                        PPREADOBS   2
000004    PROCEDURE READOBSERVATIONS(VAR FILNAM: SEGFILET);                   PPREADOBS   3
000004      (*READS FROM THE FILE FILNAM SEVERAL OBSERVED VALUES OBTAINED     PPREADOBS   4
000004      FROM THE LARCH BUD MOTH SYSTEM WITHIN THE UPPER ENGADINE VALLEY.  PPREADOBS   5
000004      THE PROCEDURE DOES SEARCH FOR VALUES OVER THE PERIOD FROM 1949    PPREADOBS   6
000004      UNTIL 1977. THE FILE FILNAM CAN BE PRODUCED BY A JOB CALLED       PPREADOBS   7
000004      PRODOBS (CJOB DISPOSABLE DECK ON COLLIB9) AND IS STORED AS A      PPREADOBS   8
000004      DECK ON COLLIB9 (FOR FURTHER INFORMATION SEE PRODOBS) *)          PPREADOBS   9
000004                                                                        PPREADOBS  10
000004      CONST    SEG       = 3; (*NUMBER OF THE SEGMENT                   PPREADOBS  11
000004                              ON DATAFILE FILNAM                        PPREADOBS  12
000004                              WHERE THE OBSERVED LARVAL DENSITIES FOR   PPREADOBS  13
000004                              THE UPPER ENGADINE VALLEY CAN             PPREADOBS  14
000004                              BE FOUND*)                                PPREADOBS  15
000004                                                                        PPREADOBS  16
000004      VAR      YEAROFOBS: INTEGER;                                      PPREADOBS  17
000005               I: INTEGER;                                              PPREADOBS  18
000006               MIN,MEAN,MAX: REAL;                                      PPREADOBS  19
000011                                                                        PPREADOBS  20
000011      BEGIN(*READOBSERVATIONS*)                                         PPREADOBS  21
000011        IF GETSEGMENT(FILNAM,SEG) THEN                                  PPREADOBS  22
000012        FOR YEAROFOBS:=1949 TO 1977 DO                                  PPREADOBS  23
000013        BEGIN                                                           PPREADOBS  24
000015           READLN(FILNAM,I,MIN,MEAN,MAX);                               PPREADOBS  25
000037           IF I<>YEAROFOBS THEN                                         PPREADOBS  26
000041           BEGIN                                                        PPREADOBS  27
000041             WRITE(' ','YEAR FOUND BY READOBSERVATION IS WRONG :',I:5); PPREADOBS  28
000054             WRITELN;                                                   PPREADOBS  29
000055           END                                                          PPREADOBS  30
000055           ELSE                                                         PPREADOBS  31
000056           BEGIN                                                        PPREADOBS  32
000056             OLADEMIN[YEAROFOBS]:=MIN;                                  PPREADOBS  33
000063             OBSERVEDLADENS[YEAROFOBS]:=MEAN;                           PPREADOBS  34
000066             OLADEMAX[YEAROFOBS]:=MAX;                                  PPREADOBS  35
000071           END;                                                         PPREADOBS  36
000071        END;                                                            PPREADOBS  37
000073      END(*READOBSERVATIONS*);                                          PPREADOBS  38
000114                                                                        PPPRSISPC   2
000114    PROCEDURE PRSISPC(VAR F: TEXT);                                     PPPRSISPC   3
```

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000004       (*PRINTS SIMULATION SPECIFICATIONS ONTO FILE F*)                  PPPRSISPC   4
000004                                                                        PPPRSISPC   5
000004       VAR I: INTEGER;                                                  PPPRSISPC   6
000005                                                                        PPPRSISPC   7
000005       BEGIN(*PRSISPC*)                                                 PPPRSISPC   8
000005         PAGE(F);                                                       PPPRSISPC   9
000013         WRITELN(F,' ','SPECIFICATIONS OF SIMULATION: ',TITLE);         PPPRSISPC  10
000035         WRITELN(F,' ','----------------------------');                 PPPRSISPC  11
000051         WRITELN(F,' ',SUBTITLE);                                       PPPRSISPC  12
000065         WRITELN(F);                                                    PPPRSISPC  13
000070         WRITELN(F,' ','TIME BEGIN ',TIMEBEGIN:4);                      PPPRSISPC  14
000110         WRITELN(F,' ','TIME END   ',TIMEEND:4);                        PPPRSISPC  15
000130         WRITELN(F);                                                    PPPRSISPC  16
000133         WITH SIMSPEC DO                                                PPPRSISPC  17
000133         BEGIN                                                          PPPRSISPC  18
000133           WRITELN(F,' ','DATE (DAY/MONTH/YEAR)      ',DATE);           PPPRSISPC  19
000155           WRITELN(F,' ','SIMULATION STARTED AT TIME ',TIME);           PPPRSISPC  20
000177           WRITELN(F,' ','INTERNAL SIMULATION IDENTIFIER S=',SIMID);    PPPRSISPC  21
000221           CASE SIMKIND OF                                              PPPRSISPC  22
000226           NOMIGRATION: WRITELN(F,' ','SIMKIND=NOMIGRATION');           PPPRSISPC  23
000243           IMMIGRATION: WRITELN(F,' ','SIMKIND=IMMIGRATION');           PPPRSISPC  24
000260           BOTH:        WRITELN(F,' ','SIMKIND=BOTH');                  PPPRSISPC  25
000275           END(*CASE*);                                                 PPPRSISPC  26
000300           WRITE  (F,' ');                                              PPPRSISPC  27
000304           FOR I:=3 TO 40 DO WRITE(F,MODEL[I]);                         PPPRSISPC  28
000325           WRITELN(F);                                                  PPPRSISPC  29
000330         END;                                                           PPPRSISPC  30
000330       END(*PRSISPC*);                                                  PPPRSISPC  31
000367                                                                        PRSTARTSI   2
000367     BEGIN(*STARTSIMULATION*)                                           PRSTARTSI   3
000367       DATE(SIMSPEC.DATE);                                              PRSTARTSI   5
000007       TIME(SIMSPEC.TIME);                                              PRSTARTSI   6
000010       WITH SIMSPEC DO                                                  PRSTARTSI   7
000010       BEGIN                                                            PRSTARTSI   8
000010         SIMID[1]:=CHR( ORD('A') +                                      PRSTARTSI   9
000011                       (ORD(TIME[5])*10+ORD(TIME[6])) MOD 35);          PRSTARTSI  10
000024         SIMID[2]:=CHR( ORD('A') +                                      PRSTARTSI  11
000024                       (ORD(TIME[8])*10+ORD(TIME[9])) MOD 35);          PRSTARTSI  12
000036       END;                                                             PRSTARTSI  13
000036       MOVE('* MODELL B      ',SIMSPEC.MODEL,'L');                      PRSTARTSI  26
000044       MOVE('DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN',TITLE,'L');      PRSTARTSI  86
000053       CASE SIMKIND OF                                                  PRSTARTSI  87
000060       NOMIGRATION: MOVE('ABUNDANZDYNAMIK',SUBTITLE,'L');               PRSTARTSI  88
000070       IMMIGRATION: MOVE('ABUNDANZDYNAMIK UND FALTEREINFLUG',           PRSTARTSI  89
000072                         SUBTITLE,'L');                                 PRSTARTSI  90
000100       BOTH:        MOVE('ABUNDANZ- U. DISPERSIONSDYNAMIK',             PRSTARTSI  91
000102                         SUBTITLE,'L');                                 PRSTARTSI  92
000110       END(*CASE*);                                                     PRSTARTSI  93
000113       SIMSPEC.MAINTITLE:= TITLE;                                       PRSTARTSI  95
000117       SIMSPEC.SUBTITLE:=  SUBTITLE;                                    PRSTARTSI  96
000122       SIMSPEC.SIMKIND:=   SIMKIND;                                     PRSTARTSI  97
000125                                                                        PRSTARTSI  98
000125       DYMSG:='* SIMULATION JOB    STARTED             ';               PRSTARTSI  99
000130       DYMSG[18]:=SIMSPEC.SIMID[1];                                     PRSTARTSI 100
000135       DYMSG[19]:=SIMSPEC.SIMID[2];                                     PRSTARTSI 101
000141       MESSAGE(DYMSG);                                                  PRSTARTSI 102
000143       RR.S:=SIMSPEC;                                                   PRSTARTSI 103
000147       REWRITE(RESULTS);                                                PRSTARTSI 104
000150       WRITE(RESULTS,RR);                                               PRSTARTSI 105
000155       PRSISPC(OUTPUT);                                                 PRSTARTSI 121
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000157                                                                  PRSTARTSI 122
000157       REWRITE(COM2);                                             PRSTARTSI 123
000160       PAGE(COM2);                                                PRSTARTSI 124
000164       PRSISPC(COM2);                                             PRSTARTSI 125
000166       MOVE('   ',VARDES[UNDEF],'L');                             PRSTARTSI 211
000175       MOVE('   ',VARDES[UNDEF],'L');                             PRSTARTSI 212
000204       MOVE('ZEIT IN JAHREN',VARDES[T],'L');                      PRSTARTSI 213
000213       MOVE('GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)',     PRSTARTSI 214
000215            VARDES[AVCYT],'L');                                   PRSTARTSI 215
000222       MOVE('BEOBACHTETE RAUPENDICHTEN',VARDES[OLADE],'L');       PRSTARTSI 216
000231       MOVE('SIMULIERTE RAUPENDICHTEN',VARDES[LADE],'L');         PRSTARTSI 217
000240       MOVE('MIN. RAUPENDICHTE INNERHALB DEM TAL',VARDES[OLADEN],'L');  PRSTARTSI 218
000247       MOVE('MAX. RAUPENDICHTE INNERHALB DEM TAL',VARDES[OLADEX],'L');  PRSTARTSI 219
000256       MOVE(                                                      PRSTARTSI 220
000256       'SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE'  PRSTARTSI 221
000256       ,VARDES[SQLADE],'L');                                      PRSTARTSI 222
000265       MOVE(                                                      PRSTARTSI 223
000265       'SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE'  PRSTARTSI 224
000265       ,VARDES[WSQLD ],'L');                                      PRSTARTSI 225
000274       MOVE(                                                      PRSTARTSI 226
000274       'SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH'    PRSTARTSI 227
000274       ,VARDES[SQOUT ],'L');                                      PRSTARTSI 228
000303       MOVE('ZAHL DER EIER IM FRUEHLING',VARDES[EGG],'L');        PRSTARTSI 229
000312       MOVE('KLEINE RAUPEN (L1,L2)',VARDES[SML],'L');             PRSTARTSI 230
000321       MOVE('MORTALITAET DER KLEINEN RAUPEN (L1,L2)',VARDES[MSML],'L');  PRSTARTSI 231
000330       MOVE('GROSSE RAUPEN (L3,L4,L5)',VARDES[LAL],'L');          PRSTARTSI 232
000337       MOVE('GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ',  PRSTARTSI 233
000341            VARDES[MLLPM],'L');                                   PRSTARTSI 234
000346       MOVE('WEIBCHEN',VARDES[FEM],'L');                          PRSTARTSI 235
000355       MOVE('FEKUNDITAET',VARDES[FEC],'L');                       PRSTARTSI 236
000364       MOVE('GEWICHT DER WEIBLICHEN PUPPEN',VARDES[PUPW],'L');    PRSTARTSI 237
000373       MOVE('GEWICHT DER WEIBCHEN',VARDES[FEMW],'L');             PRSTARTSI 238
000402       MOVE('ROHFASERGEHALT IN PROZENT',VARDES[RF],'L');          PRSTARTSI 240
000411       MOVE('NAHRUNGSNACHFRAGE IN KG DER NADELMASSE',VARDES[DEM],'L');   PRSTARTSI 241
000420       MOVE('HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)',    PRSTARTSI 242
000422            VARDES[STARV],'L');                                   PRSTARTSI 243
000427       MOVE(                                                      PRSTARTSI 244
000427       'TAEGLICHE KONSUMATION AN NADELMASSE DURCH EINE GROSSE RAUPE',     PRSTARTSI 245
000431            VARDES[DC],'L');                                      PRSTARTSI 246
000436       MOVE('VERZEHRTE NADELMASSE IN KG',VARDES[EAT],'L');        PRSTARTSI 247
000445       MOVE('SIMULIERTER FRASSSCHADEN',VARDES[DEFOL],'L');        PRSTARTSI 248
000454       MOVE('NAHRUNGSANGEBOT ODER NADELMASSE IN KG',VARDES[FOL],'L');     PRSTARTSI 249
000463       MOVE('EMIGRIERENDE WEIBCHEN',VARDES[EMI],'L');             PRSTARTSI 250
000472       MOVE('AKTIV FLIEGENDE WEIBCHEN',VARDES[ACTF],'L');         PRSTARTSI 251
000501       MOVE('MIT DEM WIND FLIEGENDE WEIBCHEN',VARDES[DOWF],'L');  PRSTARTSI 252
000510       MOVE('IMMIGRIERENDE WEIBCHEN',VARDES[IMM],'L');            PRSTARTSI 253
000517       MOVE(                                                      PRSTARTSI 254
000517       'DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN',    PRSTARTSI 255
000521            VARDES[NETMIG],'L');                                  PRSTARTSI 256
000526       MOVE('DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER',         PRSTARTSI 257
000530            VARDES[INV],'L');                                     PRSTARTSI 258
000535       MOVE('DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER',      PRSTARTSI 259
000537            VARDES[FUG],'L');                                     PRSTARTSI 260
000544       MOVE('AUTOCHTHONE EIER',VARDES[AEGG],'L');                 PRSTARTSI 261
000553       MOVE('FREMDE EIER',VARDES[SEGG],'L');                      PRSTARTSI 262
000562       VARLAB[T     ]:='JAHRE                                ';   PRSTARTSI 263
000566       VARLAB[AVCYT ]:='JAHRE                                ';   PRSTARTSI 264
000571       VARLAB[OLADE ]:='RAUPEN/KG LAERCHENZWEIGE             ';   PRSTARTSI 265
000574       VARLAB[LADE  ]:='RAUPEN/KG LAERCHENZWEIGE             ';   PRSTARTSI 266
000577       VARLAB[OLADEN]:='RAUPEN/KG LAERCHENZWEIGE             ';   PRSTARTSI 267
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000602       VARLAB[OLADEX]:='RAUPEN/KG LAERCHENZWEIGE             ';          PRSTARTSI 268
000605       VARLAB[SQLADE]:='(RAUPEN/KG LAERCHENZWEIGE)**2        ';          PRSTARTSI 269
000610       VARLAB[WSQLD ]:='(RAUPEN/KG LAERCHENZWEIGE)**2        ';          PRSTARTSI 270
000613       VARLAB[SQOUT ]:='(RAUPEN/KG LAERCHENZWEIGE)**2        ';          PRSTARTSI 271
000616       VARLAB[EGG   ]:='EIER/RAUMSEGMENT                     ';          PRSTARTSI 272
000621       VARLAB[SML   ]:='KLEINE RAUPEN/ RAUMSEGMENT           ';          PRSTARTSI 273
000624       VARLAB[MSML  ]:='MORTALITAET DER KLEINEN RAUPEN       ';          PRSTARTSI 274
000627       VARLAB[LAL   ]:='GROSSE RAUPEN/ RAUMSEGMENT           ';          PRSTARTSI 275
000632       VARLAB[MLLPM ]:='MORTALITAET DER GROSSEN RAUPEN       ';          PRSTARTSI 276
000635       VARLAB[FEM   ]:='WEIBCHEN/RAUMSEGMENT                 ';          PRSTARTSI 277
000640       VARLAB[FEC   ]:='EIER/WEIBCHEN                        ';          PRSTARTSI 278
000643       VARLAB[PUPW  ]:='GEWICHT IN MG                        ';          PRSTARTSI 279
000646       VARLAB[FEMW  ]:='GEWICHT IN MG                        ';          PRSTARTSI 280
000651       VARLAB[RF    ]:='ROHFASERGEHALT DER LAERCHENNADELN    ';          PRSTARTSI 282
000654       VARLAB[DEM   ]:='KG NADELMASSE                        ';          PRSTARTSI 283
000657       VARLAB[STARV ]:='HUNGERMORTALITAET DER GROSSEN RAUPEN ';          PRSTARTSI 284
000662       VARLAB[DC    ]:='MG LAERCHENNADELN/TAG/GROSSE RAUPE   ';          PRSTARTSI 285
000665       VARLAB[EAT   ]:='KG VERZEHRTE NADELMASSE              ';          PRSTARTSI 286
000670       VARLAB[DEFOL ]:='FRASSSCHADENINDEX                    ';          PRSTARTSI 287
000673       VARLAB[FOL   ]:='KG NADELMASSE                        ';          PRSTARTSI 288
000676       VARLAB[EMI   ]:='WEIBCHEN/RAUMSEGMENT                 ';          PRSTARTSI 289
000701       VARLAB[ACTF  ]:='WEIBCHEN/RAUMSEGMENT                 ';          PRSTARTSI 290
000704       VARLAB[DOWF  ]:='WEIBCHEN/RAUMSEGMENT                 ';          PRSTARTSI 291
000707       VARLAB[IMM   ]:='WEIBCHEN/RAUMSEGMENT                 ';          PRSTARTSI 292
000712       VARLAB[NETMIG]:='WEIBCHEN/RAUMSEGMENT                 ';          PRSTARTSI 293
000715       VARLAB[INV   ]:='EIER/RAUMSEGMENT                     ';          PRSTARTSI 294
000720       VARLAB[FUG   ]:='EIER/RAUMSEGMENT                     ';          PRSTARTSI 295
000723       VARLAB[AEGG  ]:='EIER/RAUMSEGMENT                     ';          PRSTARTSI 296
000726       VARLAB[SEGG  ]:='EIER/RAUMSEGMENT                     ';          PRSTARTSI 297
000731                                                                          PRSTARTSI 299
000731                                                                          PRSTARTSI 300
000731       ROOTTAB:=NIL;                                                      PRSTARTSI 301
000732       ROOTAVCY:=NIL;                                                     PRSTARTSI 302
000733       ROOTPRPL:=NIL;                                                     PRSTARTSI 303
000733       ROOTPLOT:=NIL;                                                     PRSTARTSI 304
000734       SENTINEL:=NIL;                                                     PRSTARTSI 305
000735       ATAB:=NIL;                                                         PRSTARTSI 306
000736       AAVCY:=NIL;                                                        PRSTARTSI 307
000737       APRPL:=NIL;                                                        PRSTARTSI 308
000740       APLOT:=NIL;                                                        PRSTARTSI 309
000741                                                                          PRSTARTSI 310
000741       TREESTART(ROOTTAB,SENTINEL);                                       PRSTARTSI 311
000743       TREESTART(ROOTAVCY,SENTINEL);                                      PRSTARTSI 312
000745       TREESTART(ROOTPRPL,SENTINEL);                                      PRSTARTSI 313
000747       TREESTART(ROOTPLOT,SENTINEL);                                      PRSTARTSI 314
000751                                                                          PRSTARTSI 315
000751       READOBSERVATIONS(OBSERVATIONS);                                    PRSTARTSI 316
000753                                                                          PRSTARTSI 317
000753       (*PREPARE JOB CONTROL LANGUAGE FOR MICROFICHE PRODUCTION*)         PRSTARTSI 318
000753       REWRITE(COM1);                                                     PRSTARTSI 319
000754       WRITELN(COM1,'LWFICHE,5771,CM45000,CT32.');                        PRSTARTSI 320
000762       WRITELN(COM1,'FIND(ENTLIB)');                                      PRSTARTSI 321
000770       WRITELN(COM1,'COPY,,OUTPUT.');                                     PRSTARTSI 322
000776       WRITELN(COM1,'PUBLIC,COMIC.');                                     PRSTARTSI 323
001004       WRITE  (COM1,'COMIC,FLIMIT=3,TITLE=$LWMOD3:');                     PRSTARTSI 324
001011       WITH SIMSPEC DO                                                    PRSTARTSI 325
001011       BEGIN                                                              PRSTARTSI 326
001011         FOR I:=9 TO 15 DO                                                PRSTARTSI 327
001012         IF MODEL[I]<>' ' THEN                                            PRSTARTSI 328
001025         WRITE  (COM1,MODEL[I]);                                          PRSTARTSI 329
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001043        WRITE  (COM1,'/');                                          PRSTARTSI 330
001045        CASE SIMKIND OF                                            PRSTARTSI 331
001052        NOMIGRATION: WRITE  (COM1,'NOMIGR.');                      PRSTARTSI 332
001060        IMMIGRATION: WRITE  (COM1,'IMMIGR.');                      PRSTARTSI 333
001066        BOTH:        WRITE  (COM1,'BOTH');                         PRSTARTSI 334
001074        END(*CASE*);                                               PRSTARTSI 335
001077        WRITE  (COM1,' ','S=',SIMID);                              PRSTARTSI 336
001113        WRITE  (COM1,'/');                                         PRSTARTSI 337
001115        WRITE  (COM1,TIME[2],TIME[3],'H',TIME[5],TIME[6],':');     PRSTARTSI 338
001145        WRITE  (COM1,TIME[8],TIME[9],'$');                         PRSTARTSI 339
001161      END;                                                         PRSTARTSI 340
001161      WRITE  (COM1,',FICHENR=NO');                                 PRSTARTSI 341
001166      WRITELN(COM1,'.');                                           PRSTARTSI 342
001171      WRITELN(COM1,'EXIT.');                                       PRSTARTSI 343
001177      WRITELN(COM1,'PERMF(CF)');                                   PRSTARTSI 344
001205      WRITELN(COM1,'REWIND(INPUT)');                               PRSTARTSI 345
001213      WRITELN(COM1,'COPY(,CF)');                                   PRSTARTSI 346
001221      WRITELN(COM1,'TEMPCAT(CF,CF',SIMSPEC.SIMID,',PW=SERDNA)');   PRSTARTSI 347
001241      WRITELN(COM1,'AUDITL.');                                     PRSTARTSI 348
001247                                                                   PRSTARTSI 349
001247    END(*STARTSIMULATION*);                                        PRSTARTSI 350
001775                                                                   PPCOMFICH   2
001775                                                                   DPCOMFICH   2
001775  PROCEDURE COMFICHE(FROM,TILL: SITEINDEX; VAR C: TEXT);           DPCOMFICH   3
000006    (*COMFICHE WRITES ALL SIMULATION RESULTS COMPUTED ONTO THE      DPCOMFICH   4
000006    FILE C. ONLY THOSE DATA FROM THE SITES FROM TO TILL ARE        DPCOMFICH   5
000006    SELECTED. THIS FILE CAN BE USED TO PRODUCE A MICROFICHE OUTPUT*) DPCOMFICH   6
000006                                                                   DVCOMFICH   2
000006    VAR   SNR: SITEINDEX;                                          DVCOMFICH   3
000007                                                                   PRCOMFICH   2
000007    BEGIN(*COMFICHE*)                                              PRCOMFICH   3
000007      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                 PRCOMFICH   4
000016        COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);              PRCOMFICH   5
000030        COLUMN(RF    ,'R', 5,1,VARDES,SENTINEL,ATAB);              PRCOMFICH   6
000042        COLUMN(EGG   ,'E',13,0,VARDES,SENTINEL,ATAB);              PRCOMFICH   7
000054        COLUMN(SML   ,'S',13,0,VARDES,SENTINEL,ATAB);              PRCOMFICH   8
000066        COLUMN(MSML  ,'.', 6,3,VARDES,SENTINEL,ATAB);              PRCOMFICH   9
000101        COLUMN(LADE  ,'Y', 8,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  10
000114        COLUMN(OLADE ,'O', 8,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  11
000127        COLUMN(FOL   ,'F',12,1,VARDES,SENTINEL,ATAB);              PRCOMFICH  12
000141        COLUMN(STARV ,';', 6,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  13
000153        COLUMN(LAL   ,'L',12,0,VARDES,SENTINEL,ATAB);              PRCOMFICH  14
000165        COLUMN(DEFOL ,'D', 6,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  15
000200        COLUMN(MLLPM ,',', 6,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  16
000213        COLUMN(FEM   ,'F',12,0,VARDES,SENTINEL,ATAB);              PRCOMFICH  17
000225        COLUMN(FEC   ,'4', 6,1,VARDES,SENTINEL,ATAB);              PRCOMFICH  18
000237                                                                   PRCOMFICH  19
000237      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                 PRCOMFICH  20
000245        COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);              PRCOMFICH  21
000257        COLUMN(RF    ,'R', 6,1,VARDES,SENTINEL,ATAB);              PRCOMFICH  23
000271        COLUMN(LADE  ,'A', 9,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  24
000304        COLUMN(OLADE ,'O', 9,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  25
000317        COLUMN(OLADEN,'N', 9,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  26
000332        COLUMN(OLADEX,'X', 9,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  27
000344        COLUMN(SQLADE,'Q',12,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  28
000357        IF SIMKIND<>NOMIGRATION THEN                               PRCOMFICH  29
000361        COLUMN(WSQLD ,'W',12,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  30
000374        COLUMN(SQOUT ,'U',12,3,VARDES,SENTINEL,ATAB);              PRCOMFICH  31
000407                                                                   PRCOMFICH  32
000407      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                 PRCOMFICH  33
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000415          COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  34
000427          COLUMN(RF    ,'R', 6,1,VARDES,SENTINEL,ATAB);                  PRCOMFICH  36
000441          COLUMN(LADE  ,'A', 9,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  37
000454          COLUMN(EGG   ,'E',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  38
000466          COLUMN(SML   ,'1',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  39
000500          COLUMN(MSML  ,'M', 6,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  40
000513          COLUMN(LAL   ,'3',15,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  41
000525          COLUMN(MLLPM ,'L', 6,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  42
000537          COLUMN(PUPW  ,'P', 7,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  43
000552          COLUMN(FEM   ,'M',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  44
000564          COLUMN(FEC   ,'4', 6,1,VARDES,SENTINEL,ATAB);                  PRCOMFICH  45
000576          COLUMN(FEMW  ,'W', 7,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  46
000611                                                                         PRCOMFICH  47
000611        TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                     PRCOMFICH  48
000617          COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  49
000631          COLUMN(RF    ,'R', 6,1,VARDES,SENTINEL,ATAB);                  PRCOMFICH  51
000643          COLUMN(LADE  ,'A', 9,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  52
000656          COLUMN(FOL   ,'F',11,1,VARDES,SENTINEL,ATAB);                  PRCOMFICH  53
000670          COLUMN(DEM   ,'*',12,1,VARDES,SENTINEL,ATAB);                  PRCOMFICH  54
000702          COLUMN(STARV ,'S', 6,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  55
000714          COLUMN(EAT   ,'E',12,1,VARDES,SENTINEL,ATAB);                  PRCOMFICH  58
000726          COLUMN(DEFOL ,'D', 7,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  59
000741                                                                         PRCOMFICH  60
000741        TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                     PRCOMFICH  61
000747          COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  62
000761          COLUMN(RF    ,'R', 6,1,VARDES,SENTINEL,ATAB);                  PRCOMFICH  64
000773          COLUMN(LADE  ,'A', 9,3,VARDES,SENTINEL,ATAB);                  PRCOMFICH  65
001006          COLUMN(IMM   ,'I',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  66
001020          COLUMN(EMI   ,'O',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  67
001032          IF SIMKIND<>NOMIGRATION THEN                                   PRCOMFICH  68
001034          BEGIN                                                          PRCOMFICH  69
001034          COLUMN(NETMIG,'N',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  70
001046          COLUMN(ACTF  ,'C',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  71
001060          COLUMN(DOWF  ,'P',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  72
001072                                                                         PRCOMFICH  73
001072        TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                     PRCOMFICH  74
001100          COLUMN(INV   ,'V',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  75
001112          COLUMN(FUG   ,'U',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  76
001124          COLUMN(SEGG  ,'G',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  77
001136          COLUMN(AEGG  ,'H',14,0,VARDES,SENTINEL,ATAB);                  PRCOMFICH  78
001150          END;                                                           PRCOMFICH  79
001150                                                                         PRCOMFICH  80
001150        AVERAGECYCLE(TITLE,SUBTITLE,ROOTAVCY,SENTINEL,AAVCY);            PRCOMFICH  81
001156          ROW(AVCYT ,'T', 2,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  82
001170          ROW(LADE  ,'A', 9,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  83
001203          ROW(OLADE ,'O', 9,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  84
001216          ROW(OLADEN,'M', 9,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  85
001231          ROW(OLADEX,'X', 9,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  86
001243          ROW(EGG   ,'E',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  87
001255          ROW(SML   ,'1',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  88
001267          ROW(LAL   ,'3',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  89
001301          ROW(FEM   ,'W',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  90
001313                                                                         PRCOMFICH  91
001313                                                                         PRCOMFICH  92
001313        AVERAGECYCLE(TITLE,SUBTITLE,ROOTAVCY,SENTINEL,AAVCY);            PRCOMFICH  93
001321          ROW(AVCYT ,'T', 2,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  94
001333          ROW(RF    ,'R', 6,1,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  96
001345          ROW(LADE  ,'A', 9,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  98
001360          ROW(MSML  ,'M', 6,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH  99
001373          ROW(MLLPM ,'L', 6,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 100
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001405         ROW(STARV ,'S', 6,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 101
001417         ROW(PUPW  ,'P', 7,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 102
001432         ROW(FEMW  ,'W', 7,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 103
001445         ROW(FEC   ,'4', 6,1,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 104
001457         ROW(DEFOL ,'D', 7,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 105
001472                                                                        PRCOMFICH 106
001472       IF SIMKIND<>NOMIGRATION THEN                                     PRCOMFICH 107
001474       BEGIN                                                            PRCOMFICH 108
001474       AVERAGECYCLE(TITLE,SUBTITLE,ROOTAVCY,SENTINEL,AAVCY);            PRCOMFICH 109
001502         ROW(AVCYT ,'T', 2,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 110
001514         ROW(RF    ,'R', 6,1,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 112
001526         ROW(LADE  ,'A', 9,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 114
001541         ROW(IMM   ,'I',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 115
001553         ROW(EMI   ,'O',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 116
001565         ROW(NETMIG,'E',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 117
001577         ROW(FUG   ,'U',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 118
001611         ROW(AEGG  ,'H',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 119
001623         ROW(SEGG  ,'G',14,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 120
001635       END;                                                             PRCOMFICH 121
001635                                                                        PRCOMFICH 122
001635       AVERAGECYCLE(TITLE,SUBTITLE,ROOTAVCY,SENTINEL,AAVCY);            PRCOMFICH 123
001643         ROW(AVCYT ,'T', 2,0,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 124
001655         ROW(RF    ,'R', 6,1,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 126
001667         ROW(LADE  ,'A', 9,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 128
001702         ROW(DEFOL ,'D', 7,3,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 129
001715         ROW(FOL   ,'F',11,1,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 130
001727         ROW(DEM   ,'*',12,1,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 131
001741         ROW(EAT   ,'E',12,1,VARDES,SENTINEL,AAVCY);                    PRCOMFICH 132
001753                                                                        PRCOMFICH 135
001753       PRINTPLOT(TITLE,SUBTITLE,LOG,0.001,1000,                         PRCOMFICH 136
001764                 ROOTPRPL,SENTINEL,APRPL);                              PRCOMFICH 137
001770         VARIABLE(LADE ,'A',SENTINEL,APRPL);                            PRCOMFICH 138
002000         VARIABLE(OLADE,'0',SENTINEL,APRPL);                            PRCOMFICH 139
002010                                                                        PRCOMFICH 140
002010       PRINTPLOT(TITLE,SUBTITLE,LIN,0,1,                                PRCOMFICH 141
002022                 ROOTPRPL,SENTINEL,APRPL);                              PRCOMFICH 142
002026         VARIABLE(MSML  ,'M',SENTINEL,APRPL);                           PRCOMFICH 143
002036         VARIABLE(MLLPM ,'L',SENTINEL,APRPL);                           PRCOMFICH 144
002046         VARIABLE(STARV ,'S',SENTINEL,APRPL);                           PRCOMFICH 146
002056         VARIABLE(DEFOL ,'D',SENTINEL,APRPL);                           PRCOMFICH 147
002066                                                                        PRCOMFICH 149
002066                                                                        PRCOMFICH 150
002066       PRINTPLOT(TITLE,SUBTITLE,LOG,500000,200000000000,                PRCOMFICH 151
002101                 ROOTPRPL,SENTINEL,APRPL);                              PRCOMFICH 152
002105         VARIABLE(EGG   ,'E',SENTINEL,APRPL);                           PRCOMFICH 153
002115         VARIABLE(SML   ,'1',SENTINEL,APRPL);                           PRCOMFICH 154
002125         VARIABLE(LAL   ,'3',SENTINEL,APRPL);                           PRCOMFICH 155
002135         VARIABLE(FEM   ,'M',SENTINEL,APRPL);                           PRCOMFICH 156
002145                                                                        PRCOMFICH 157
002145       PRINTPLOT(TITLE,SUBTITLE,LOG,0,300000000,                        PRCOMFICH 159
002157                 ROOTPRPL,SENTINEL,APRPL);                              PRCOMFICH 160
002163         VARIABLE(DEM   ,'*',SENTINEL,APRPL);                           PRCOMFICH 161
002173         VARIABLE(FOL   ,'F',SENTINEL,APRPL);                           PRCOMFICH 162
002203         VARIABLE(EAT   ,'E',SENTINEL,APRPL);                           PRCOMFICH 163
002213                                                                        PRCOMFICH 164
002213       PRINTPLOT(TITLE,SUBTITLE,LIN,0,35,                               PRCOMFICH 165
002226                 ROOTPRPL,SENTINEL,APRPL);                              PRCOMFICH 166
002232         VARIABLE(RF    ,'R',SENTINEL,APRPL);                           PRCOMFICH 167
002242         VARIABLE(PUPW  ,'P',SENTINEL,APRPL);                           PRCOMFICH 168
002252         VARIABLE(FEMW  ,'W',SENTINEL,APRPL);                           PRCOMFICH 169
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002262                                                                  PRCOMFICH 171
002262      IF SIMKIND<>BOTH THEN                                       PRCOMFICH 172
002264        IF DEBUG THEN                                             PRCOMFICH 173
002265        LINELIMIT(C, (MSNRMAX+1)*100*(TIMEEND-TIMEBEGIN))         PRCOMFICH 174
002272        ELSE                                                      PRCOMFICH 175
002273        LINELIMIT(C, (MSNRMAX+1)*50*(TIMEEND-TIMEBEGIN))          PRCOMFICH 176
002300        (*FOR EACH SITE 15 PAGES WITH 60 LINES TO REPRESENT THE    PRCOMFICH 177
002300        SIMULATION RESULTS*)                                      PRCOMFICH 178
002300      ELSE                                                        PRCOMFICH 179
002301        IF DEBUG THEN                                             PRCOMFICH 180
002302        LINELIMIT(C, (SAVNROFSITES+1)*200*(TIMEEND-TIMEBEGIN))    PRCOMFICH 181
002310        ELSE                                                      PRCOMFICH 182
002310        LINELIMIT(C, (SAVNROFSITES+1)*70*(TIMEEND-TIMEBEGIN));    PRCOMFICH 183
002316        (*FOR EACH SITE 15 PAGES WITH 60 LINES TO REPRESENT THE    PRCOMFICH 184
002316        SIMULATION RESULTS*)                                      PRCOMFICH 185
002316      FOR SNR:=FROM TO TILL DO                                    PRCOMFICH 186
002320      BEGIN                                                       PRCOMFICH 187
002324        PRATABLES(RESULTS,RR,SNR,SIMSPEC,ROOTTAB,SENTINEL,C);     PRCOMFICH 188
002332        PRAAVERAGECYCLES(RESULTS,RR,SNR,SIMSPEC,XX,YY,ROOTAVCY,   PRCOMFICH 189
002341                         SENTINEL,C);                             PRCOMFICH 190
002344        PRAPRINTPLOTS(RESULTS,RR,SNR,SIMSPEC,0,                   PRCOMFICH 191
002347                      ROOTPRPL,SENTINEL,C);                       PRCOMFICH 192
002353      END;                                                        PRCOMFICH 193
002355                                                                  PRCOMFICH 194
002355      MESSAGE('* COMFICHE OUTPUT FINISHED');                      PRCOMFICH 195
002357                                                                  PRCOMFICH 196
002357    END(*COMFICHE*);                                              PRCOMFICH 197
002405                                                                  PPSIMLW3    2
002405                                                                  DPSIMLW3    2
002405  PROCEDURE SIMULATION(TBEG,TEND: INTEGER; SIMKIND: SIMTYPE;      DPSIMLW3    3
000006                       MSNR: INTEGER);                            DPSIMLW3    4
000007    (*                                                            DPSIMLW3    5
000007     PURPOSE     CALCULATES ONE SIMULATION RUN FROM THE INITIAL   DPSIMLW3    6
000007                 TIME TBEG UNTIL THE FINISH TIME TEND             DPSIMLW3    7
000007                                                                  DPSIMLW3    8
000007     VARIABLES   INPUT                                            DPSIMLW3    9
000007                   - TBEG      (INTEGER)                          DPSIMLW3   10
000007                      YEAR FOR WHICH THE SIMULATION SHOULD BE     DPSIMLW3   11
000007                      STARTED                                     DPSIMLW3   12
000007                   - TEND      (INTEGER)                          DPSIMLW3   13
000007                      YEAR FOR WHICH THE SIMULATION SHOULD BE     DPSIMLW3   14
000007                      STOPPED                                     DPSIMLW3   15
000007                   - SIMKIND   (NOMIGRATION,MIGRATION,BOTH)       DPSIMLW3   16
000007                      CHARACTERIZES THE TYPE OF SIMULATION RUN    DPSIMLW3   17
000007                      WHICH SHOULD BE DONE, WHERE:                DPSIMLW3   18
000007                             - NOMIGRATION     ONLY LOCAL DYNAMICS  DPSIMLW3   19
000007                                               ARE COMPUTED FOR ONE DPSIMLW3   20
000007                                               SITE (MSNR)          DPSIMLW3   21
000007                             - IMMIGRATION     ONLY SPATIAL DYNAMICS DPSIMLW3   22
000007                                               ARE COMPUTED         DPSIMLW3   23
000007                             - BOTH            LOCAL AND SPATIAL    DPSIMLW3   24
000007                                               DYNAMICS ARE COMPUTED DPSIMLW3   25
000007                   - MSNR      (INTEGER)                          DPSIMLW3   26
000007                      MAIN SITE NUMBER FOR WHICH THE LOCAL DYNAMICS DPSIMLW3   27
000007                      ARE CALCULATED IN CASE SIMKIND OF NOMIGRATION DPSIMLW3   28
000007                      OR IMMIGRATION                              DPSIMLW3   29
000007                                                                  DPSIMLW3   30
000007                                                                  DPSIMLW3   31
000007     PROGRAMMING A.FISCHLIN, DEPARTMENT OF ENTOMOLOGY, ETH-Z,FEB. 80 DPSIMLW3   32
000007                                                                  DPSIMLW3   33
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000007     *)                                                                  DPSIMLW3   34
000007                                                                         DCSIMLW3    2
000007     CONST                                                               DCSIMLW3    3
000007       NRDIR      = 8;    (*NUMBER OF DIRECTIONS:                        DCSIMLW3    4
000007                                      N                                  DCSIMLW3    5
000007                                   NW   8   NE                          DCSIMLW3    6
000007                                    7       1                           DCSIMLW3    7
000007                                                                         DCSIMLW3    8
000007                                W 6           2 E                        DCSIMLW3    9
000007                                                                         DCSIMLW3   10
000007                                    5       3                           DCSIMLW3   11
000007                                   SW   4   SE                          DCSIMLW3   12
000007                                        S                    *)          DCSIMLW3   13
000007       NROFSITES  = 20;   (*NUMBER OF SITES FOR THE WHOLE MODEL*)        DCSIMLW3   14
000007       BRANCHPERTREE = 91.3; (*KG BRANCHES PER LARCH TREE*)              DCSIMLW3   15
000007                             (*AU9,126*)                                 DCSIMLW3   16
000007       REFUGE     = 0.000;   (*FRACTION OF LARCH BUD MOTH ANIMALS        DCSIMLW3   17
000007                             ALWAYS SURVIVING*)                          DCSIMLW3   18
000007       OLADEUNDEF = 0.0001;  (*VALUE OF OBSERVED LARVAL DENSITY TO       DCSIMLW3   19
000007                             ASSIGN WHEN NO OBSERVATIONS HAS BEEN        DCSIMLW3   20
000007                             MADE*)                                      DCSIMLW3   21
000007       FOLPERTREE = 40.30; (*KG NEEDLES PER LARCH TREE*)                 DCSIMLW3   22
000007                           (*AU9,126*)                                   DCSIMLW3   23
000007                                                                         DTSIMLW3    2
000007     TYPE                                                                DTSIMLW3    3
000007       SITEINDEX = 0..NROFSITES;                                         DTSIMLW3    4
000007       DIRECT    = 1..NRDIR;                                             DTSIMLW3    5
000007       NEIBOURTYPE = ARRAY [1..NRDIR] OF RECORD                          DTSIMLW3    6
000007         PRES: BOOLEAN;                                                  DTSIMLW3    7
000007         SNR: SITEINDEX;                                                 DTSIMLW3    8
000007         DISTANCE: REAL; (*KM*)                                          DTSIMLW3    9
000007         (*DISTANCE TO NEIGHBOURING SITE*)                               DTSIMLW3   10
000007         AREA: REAL; (*HA*)                                              DTSIMLW3   11
000007         (*PARTIAL, FORESTED AREA OF                                     DTSIMLW3   12
000007         NEIGHBOURING SITE WITHIN SECTOR*)                               DTSIMLW3   13
000007       END(*RECORD NEIBOUR*);                                            DTSIMLW3   14
000007                                                                         DTSIMLW3   15
000007       WINDKIND = (CALM,TURBULENCE,WEAKWF,STRONGWF);                     DTSIMLW3   16
000007       WTYPE = RECORD                                                    DTSIMLW3   17
000007         FREQUENCY: REAL; (*PERCENT*)                                    DTSIMLW3   18
000007       END(*RECORD*);                                                    DTSIMLW3   19
000007       WFDTYPE = RECORD                                                  DTSIMLW3   20
000007         FREQUENCY: REAL; (*PERCENT*)(*FREQUENCY OF WIND                 DTSIMLW3   21
000007                                      BLOWING FROM A PARTI-              DTSIMLW3   22
000007                                      CULAR DIRECTION IN                 DTSIMLW3   23
000007                                      PERCENTS OF THE                    DTSIMLW3   24
000007                                      SPECIFIC WIND-                     DTSIMLW3   25
000007                                      FIELDFREQUENCY*)                   DTSIMLW3   26
000007       END(*RECORD*);                                                    DTSIMLW3   27
000007       WFTYPE = RECORD                                                   DTSIMLW3   28
000007         FREQUENCY: REAL; (*PERCENT*)(*FREQUENCY OF SPECI-               DTSIMLW3   29
000007                                      FIC WINDFIELD IN                   DTSIMLW3   30
000007                                      PERCENTS OF THE                    DTSIMLW3   31
000007                                      FLYINGPERIOD*)                     DTSIMLW3   32
000007         DIR: ARRAY [1..NRDIR] OF WFDTYPE;                               DTSIMLW3   33
000007       END(*RECORD*);                                                    DTSIMLW3   34
000007                                                                         DTSIMLW3   35
000007       WINDTYPE = RECORD                                                 DTSIMLW3   36
000007         KIND: WINDKIND;                                                 DTSIMLW3   37
000007         LULL: WTYPE;                                                    DTSIMLW3   38
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000007        TURB: WTYPE;                                                    DTSIMLW3   39
000007        FIELD: RECORD                                                   DTSIMLW3   40
000007                 STRONG: WFTYPE;                                        DTSIMLW3   41
000007                 WEAK: WFTYPE;                                          DTSIMLW3   42
000007               END(*RECORD*);                                           DTSIMLW3   43
000007      END(*RECORD WIND*);                                               DTSIMLW3   44
000007                                                                        DTSIMLW3   45
000007      LARCHTYPE = RECORD                                                DTSIMLW3   57
000007        TREES: INTEGER; (*NUMBER OF TREES PER SITE*)                    DTSIMLW3   58
000007        FOLIAGE: REAL; (*KG*) (*BIOMASS (FRESHWEIGHT) OF NEEDLES*)      DTSIMLW3   59
000007        RAWFIBER: REAL; (*IN PERCENTS OF FOLIAGE*)                      DTSIMLW3   61
000007        DEFOLIATION: REAL; (*INDEX INDICATING PERCENTAGE OF             DTSIMLW3   63
000007                           DEFOLIATED FOLIAGE FROM TOTAL FOLIAGE*)      DTSIMLW3   64
000007      END(*RECORD LARCH*);                                              DTSIMLW3   65
000007                                                                        DTSIMLW3   66
000007      BUDMOTHTYPE = RECORD                                              DTSIMLW3   67
000007        IMMIGRATORS: INTEGER; (*NUMBER OF FEMALES IMMIGRATED FROM       DTSIMLW3   68
000007                              ENVIRONMENT OF THE SITE*)                 DTSIMLW3   69
000007        INVEGGS: INTEGER; (*NUMBER OF EGGS DEPOSITED BY FEMALES         DTSIMLW3   70
000007                          INVADED FROM OUTSIDE THE UPPER                DTSIMLW3   71
000007                          ENGADINE VALLEY*)                             DTSIMLW3   72
000007        AUTOCHEGGS: INTEGER; (*NUMBER OF AUTOCHTONOUS EGGS*)            DTSIMLW3   73
000007        STRANGEGGS: INTEGER; (*NUMBER OF EGGS ORIGINATING IN            DTSIMLW3   74
000007                             STRANGE (NONAUTOCHTONOUS) SITES*)          DTSIMLW3   75
000007        EGGS: INTEGER; (*NUMBER OF EGGS*)                               DTSIMLW3   76
000007        SMALLARVAE: INTEGER; (*NUMBER OF SMALL LARVAE (L1,L2)*)         DTSIMLW3   77
000007        MORTSMALL: REAL; (*MORTALITY OF SMALL LARVAE (L1,L2)*)          DTSIMLW3   78
000007        LARGELARVAE: INTEGER; (*NUMBER OF LARGE LARVAE (L3-L5)*)        DTSIMLW3   79
000007        SURVIVORS: INTEGER; (*NUMBER OF LARGE LARVAE HAVING             DTSIMLW3   80
000007                            PASSED GRAZING*)                            DTSIMLW3   81
000007        PIONEERS: INTEGER; (*NUMBER OF LARGE LARVAE (L3-L5) HAVING      DTSIMLW3   82
000007                           PASSED GRAZING AS FIRST GROUP OF THE         DTSIMLW3   83
000007                           POPULATION*)                                 DTSIMLW3   84
000007        MORTLARGELAPUMO: REAL; (*MORTALITY OF LARGE LARVAE (L3,         DTSIMLW3   85
000007                               L4,L5) PUPAE AND MOTH EMERGENCE*)        DTSIMLW3   86
000007        FEMPUPWEIGHT: REAL; (*MG*)  (*WEIGHT OF FEMALE PUPAE*)          DTSIMLW3   87
000007        FEMALES: INTEGER; (*NUMBER OF FEMALES*)                         DTSIMLW3   88
000007        FECUNDITY: REAL; (*EGGS/FEMALE*) (*AVERAGE NUMBER OF            DTSIMLW3   89
000007                         EGGS DEPOSITED BY ONE FEMALE*)                 DTSIMLW3   90
000007        FEMOWEIGHT: REAL; (*MG*) (*WEIGHT OF A FEMALE MOTH*)            DTSIMLW3   91
000007        EMIGRATORS: INTEGER; (*NUMBER OF FEMALES EMIGRATING             DTSIMLW3   92
000007                             FROM THE SITE*)                            DTSIMLW3   93
000007      END(*RECORD BUDMOTH*);                                            DTSIMLW3   94
000007                                                                        DTSIMLW3   95
000007                                                                        DTSIMLW3  110
000007      GRAZINGTYPE = RECORD                                              DTSIMLW3  111
000007        FOODDEMAND: REAL; (*KG*)  (*AMOUNT OF FOLIAGE WHICH             DTSIMLW3  112
000007                                  WOULD BE DEMANDED BY LARGE            DTSIMLW3  113
000007                                  LARVAE IF THERE WOULD BE NO           DTSIMLW3  114
000007                                  STARVATION*)                          DTSIMLW3  115
000007        DAYCONSUMPTION: REAL; (*KG*) (*AMOUNT OF FOLIAGE DAYLY          DTSIMLW3  116
000007                                     CONSUMED BY A LARGE LARVAE*)       DTSIMLW3  117
000007        CONSUMERDAYS: REAL; (*LARGELARVAE*DAYS*) (*PRODUCT OF CONSUMERS DTSIMLW3  118
000007                                                 AND DAYS WHILE THESE   DTSIMLW3  119
000007                                                 CONSUMERS HAVE GRAZED  DTSIMLW3  120
000007                                                 ON LARCH FOLIAGE*)     DTSIMLW3  121
000007        EATEN: REAL; (*KG*)  (*AMOUNT OF FOLIAGE EFFECTIVELY            DTSIMLW3  122
000007                             EATEN BY LARGE LARVAE*)                    DTSIMLW3  123
000007        STARVATION: REAL; (*MORTALITY OF LARGELARVAE DUE                 DTSIMLW3  124
000007                          TO STARVATION*)                               DTSIMLW3  125
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000007       END(*RECORD GRAZING*);                                                    DTSIMLW3  126
000007                                                                                 DTSIMLW3  128
000007                                                                                 DTSIMLW3  129
000007       SITETYPE = RECORD                                                         DTSIMLW3  130
000007         CODE: SITEINDEX; (*NUMBER OF THE SITE*)                                 DTSIMLW3  131
000007         NAME: PACKED ARRAY [1..40] OF CHAR;                                     DTSIMLW3  132
000007         EXPOSITION: DIRECT;                                                     DTSIMLW3  133
000007         AREA: REAL; (*HA*)       (*TOTAL AREA*)                                 DTSIMLW3  134
000007         FORESTAREA: REAL; (*HA*) (*AREA COVERED BY FOREST*)                     DTSIMLW3  135
000007         NEIBOURA: NEIBOURTYPE;                                                  DTSIMLW3  136
000007         NEIBOURB: NEIBOURTYPE;                                                  DTSIMLW3  137
000007                                                                                 DTSIMLW3  138
000007         BUDMOTH: BUDMOTHTYPE;                                                   DTSIMLW3  139
000007                                                                                 DTSIMLW3  140
000007         GRAZING: GRAZINGTYPE;                                                   DTSIMLW3  141
000007         LARCH: LARCHTYPE;                                                       DTSIMLW3  142
000007                                                                                 DTSIMLW3  147
000007         WIND: WINDTYPE;                                                         DTSIMLW3  148
000007                                                                                 DTSIMLW3  149
000007       END(*RECORD SITETYPE*);                                                   DTSIMLW3  150
000007                                                                                 DVSIMLW3    2
000007     VAR                                                                         DVSIMLW3    3
000007       SITE: ARRAY[0..NROFSITES] OF SITETYPE; (*UPPER ENGADIN                    DVSIMLW3    4
004665                                              VALLEY TREATED AS ONE              DVSIMLW3    5
004665                                              SITE GETS NUMBER 0*)               DVSIMLW3    6
004665       SITENR: SITEINDEX; (*ACTUAL SITE NUMBER*)                                 DVSIMLW3    7
004666       YEAR: INTEGER;                                                            DVSIMLW3    8
004667       (*VARIABLES FOR CALCULATING CPU TIME USED*)                               DVSIMLW3    9
004667       MIN: INTEGER;                                                             DVSIMLW3   10
004670       SEC,MSEC: REAL;                                                           DVSIMLW3   11
004672                                                                                 DFYLININT   2
004672     FUNCTION YLININT(X: REAL;XVALS,YVALS: ARRAY[INTEGER] OF REAL): REAL;        DFYLININT   3
000016       (*                                                                        DFYLININT   4
000016         PURPOSE     LINEAR INTERPOLATION OR EXTRAPOLATION OF A                  DFYLININT   5
000016                     FUNCTION GIVEN BY A DATA TABLE                              DFYLININT   6
000016       *)                                                                        DFYLININT   7
000016       EXTERN;                                                                   PPSIMLW3   11
000016                                                                                 PFREVERSE   2
000016     FUNCTION REVERSE (D: DIRECT): DIRECT;                                       PFREVERSE   3
000004       (*REVERSES DIRECTION D INTO OPPOSITE DIRECTION*)                           PFREVERSE   4
000004                                                                                 PFREVERSE   5
000004       VAR J: INTEGER;                                                           PFREVERSE   6
000005                                                                                 PFREVERSE   7
000005       BEGIN(*REVERSE*)                                                          PFREVERSE   8
000005         J:= (D + NRDIR DIV 2) MOD NRDIR;                                        PFREVERSE   9
000012         IF J=0 THEN REVERSE:=NRDIR                                              PFREVERSE  10
000013                ELSE REVERSE:=J;                                                 PFREVERSE  11
000017       END(*REVERSE*);                                                           PFREVERSE  12
000027                                                                                 PPINIT      2
000027                                                                                 DPINIT      2
000027     PROCEDURE INITIALIZATION(SNR: SITEINDEX);                                   DPINIT      3
000004       (*ALL VARIABLES FROM THE SITE I WILL BE ASSIGNED A STARTING VALUE          DPINIT      4
000004       AT THE BEGINNING OF THE SIMULATION*)                                      DPINIT      5
000004                                                                                 DCSITEDYN   2
000004       CONST                                                                     DCSITEDYN   3
000004         MORTEGGS = 0.5728;  (*/D*) (*EGGMORTALITY*)                             DCSITEDYN   9
000004         LARGELIFE = 34.2;   (*D*)  (*AVERAGE NUMBER OF DAYS THE                 DCSITEDYN  19
000004                                    LIFE SPAN OF LARGE LARVAE LASTS*)            DCSITEDYN  20
000004                                    (*MA6,293: 40-50 MINUS 15 DAYS FOR           DCSITEDYN  21
000004                                    L1L2 RESULTS IN A MEAN OF 30 DAYS.           DCSITEDYN  22
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000004                                30 DAYS MINUS THE HALF OF L3, WHICH   DCSITEDYN  23
000004                                LASTS 6 DAYS AFTER BE2,219, RESULTS   DCSITEDYN  24
000004                                IN 27 DAYS. WHILE THESE DAYS A SUB-   DCSITEDYN  25
000004                                STANTIAL AMOUNT OF FOLIAGE IS CON-    DCSITEDYN  26
000004                                SUMED*)                               DCSITEDYN  27
000004        DAYNEED = 0.00004;  (*KG/D*) (*DAYLY NEEDLEMASSDEMAND OF A    DCSITEDYN  30
000004                            LARGELARVAE*)                             DCSITEDYN  31
000004        WASTEFACTOR = 4.0;  (*FACTOR TO CALCULATE FROM FOODDEMAND     DCSITEDYN  45
000004                            THE REAL DEFOLIATION (INCLUDING EATEN     DCSITEDYN  47
000004                            AND WASTED FOLIAGE) *)                    DCSITEDYN  48
000004        DEFOLTHRESHOLD = 0.4; (*PERCENT*)                             DCSITEDYN  62
000004        MAXRAWFIB = 18.0;   (*PERCENT*)                               DCSITEDYN  64
000004        MINRAWFIB = 11.99;  (*FI UNPUBL. DATA*)                       DCSITEDYN  69
000004        RAWFIBDECR = 0.425; (*PERCENT*) (*WHEN NO DEFOLIATION         DCSITEDYN  70
000004                            OCCURS THE LARCHTREE RECOVERS BY          DCSITEDYN  71
000004                            DECREASING RAWFIBER CONTENT IN THE        DCSITEDYN  72
000004                            FOLIAGE*)                                 DCSITEDYN  73
000004        SEXRATIO = 0.44;    (*FRACTION OF FEMALES IN THE MOTH         DCSITEDYN  80
000004                            POPULATION*)                              DCSITEDYN  81
000004                                                                      DCINIT      2
000004          A = 'A';                                                    DCINIT      3
000004          B = 'B';                                                    DCINIT      4
000004          (*DIRECTIONS FOR WIND ROSES*)                               DCINIT      5
000004          NE=1;                                                       DCINIT      6
000004          E =2;                                                       DCINIT      7
000004          SE=3;                                                       DCINIT      8
000004          S =4;                                                       DCINIT      9
000004          SW=5;                                                       DCINIT     10
000004          W =6;                                                       DCINIT     11
000004          NW=7;                                                       DCINIT     12
000004          N =8;      (* =NRDIR *)                                    DCINIT     13
000004          SITE0EXPOSITION=NE;                                         DCINIT     14
000004          INVE0 = 0;                                                  DCINIT     15
000004          EMIG = 0;                                                   DCINIT     16
000004          RAWFI0 = 15.0;                                              DCINIT     22
000004          DEF0 = 0;                                                   DCINIT     28
000004          LUL0 = 1;                                                   DCINIT     29
000004          TU0 = 0;                                                    DCINIT     30
000004          WFW0 = 0.0;                                                 DCINIT     31
000004          WFS0 = 0.0;                                                 DCINIT     32
000004          DOWNW = 0.75;                                               DCINIT     33
000004          MAINV = (*1-DOWNW*)  0.25; (*FREQUENCY OF DOWNWIND IN THE MAIN DCINIT  34
000004                               VALLEY*)                               DCINIT     35
000004                                                                      DVINIT      2
000004      VAR                                                             DVINIT      3
000004          EGGS0: REAL;                                                DVINIT      4
000005          J,I: INTEGER;                                               DVINIT      5
000007          IV: VARTYPE;                                                DVINIT      6
000010                                                                      PPNONEIB    2
000010      PROCEDURE NONEIB(T: CHAR; FROM: SITEINDEX; DI: DIRECT);         PPNONEIB    3
000006        BEGIN(*NONEIB*)                                               PPNONEIB    4
000006          IF T = 'A' THEN                                             PPNONEIB    5
000011          WITH SITE[FROM].NEIBOURA[DI] DO                             PPNONEIB    6
000020          BEGIN                                                       PPNONEIB    7
000020            PRES:= FALSE;                                             PPNONEIB    8
000021            SNR:= 0;                                                  PPNONEIB    9
000021            DISTANCE:= 0;                                             PPNONEIB   10
000024            AREA:= 0;                                                 PPNONEIB   11
000026          END;                                                        PPNONEIB   12
000026          IF T = 'B' THEN                                             PPNONEIB   13
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000030          WITH SITE[FROM].NEIBOURB[DI] DO                                 PPNONEIB   14
000040          BEGIN                                                           PPNONEIB   15
000040            PRES:= FALSE;                                                 PPNONEIB   16
000041            SNR:= 0;                                                      PPNONEIB   17
000041            DISTANCE:= 0;                                                 PPNONEIB   18
000044            AREA:= 0;                                                     PPNONEIB   19
000046          END;                                                            PPNONEIB   20
000046        END(*NONEIB*);                                                    PPNONEIB   21
000057                                                                          PPNEIB      2
000057      PROCEDURE NEIB(T: CHAR; TOW: SITEINDEX; DI: DIRECT;                 PPNEIB      3
000006                     D,F: REAL);                                          PPNEIB      4
000010        BEGIN(*NEIB*)                                                     PPNEIB      5
000010          IF T = 'A' THEN                                                 PPNEIB      6
000011          WITH SITE[SNR].NEIBOURA[DI] DO                                  PPNEIB      7
000022          BEGIN                                                           PPNEIB      8
000022             PRES:= TRUE;                                                 PPNEIB      9
000023             SNR:= TOW;                                                   PPNEIB     10
000025             DISTANCE:= D;                                                PPNEIB     11
000026             AREA:= F;                                                    PPNEIB     12
000030          END;                                                            PPNEIB     13
000030          IF T = 'B' THEN                                                 PPNEIB     14
000032          WITH SITE[SNR].NEIBOURB[DI] DO                                  PPNEIB     15
000043          BEGIN                                                           PPNEIB     16
000043             PRES:= TRUE;                                                 PPNEIB     17
000043             SNR:= TOW;                                                   PPNEIB     18
000046             DISTANCE:= D;                                                PPNEIB     19
000047             AREA:= F;                                                    PPNEIB     20
000050          END;                                                            PPNEIB     21
000050        END(*NEIB*);                                                      PPNEIB     22
000065                                                                          PPWFD       2
000065      PROCEDURE WFD (T: CHAR; DI:DIRECT; DUR: REAL);                      PPWFD       3
000006        BEGIN(*WFD*)                                                      PPWFD       4
000006          IF T = 'W' THEN SITE[SNR].WIND.FIELD.WEAK.DIR[DI].FREQUENCY     PPWFD       5
000020                        := DUR;                                           PPWFD       6
000022          IF T = 'S' THEN SITE[SNR].WIND.FIELD.STRONG.DIR[DI].FREQUENCY   PPWFD       7
000033                        := DUR;                                           PPWFD       8
000035        END(*WFD*);                                                       PPWFD       9
000046                                                                          PPPRINVAL   2
000046    PROCEDURE PRINVAL(VAR F: TEXT);                                       PPPRINVAL   3
000004      (*PRINTS INITIAL VALUES OF ALL STATE VARIABLES ONTO FILE F*)         PPPRINVAL   4
000004                                                                          PPPRINVAL   5
000004      VAR                                                                 PPPRINVAL   6
000004          SI: SITEINDEX;                                                  PPPRINVAL   7
000005          CL: INTEGER;                                                    PPPRINVAL   8
000006          I: INTEGER;                                                     PPPRINVAL   9
000007                                                                          PPPRINVAL  10
000007      BEGIN(*PRINVAL*)                                                    PPPRINVAL  11
000007        WRITELN(F); WRITELN(F); WRITELN(F); WRITELN(F);                    PPPRINVAL  12
000022        WRITE  (F,' ','INITIAL VALUES OF STATE VARIABLES AT');            PPPRINVAL  13
000034        WRITE  (F,' BEGIN OF WINTER ',TIMEBEGIN-1:4,'/');                 PPPRINVAL  14
000053        WRITELN(F,TIMEBEGIN MOD 1900:2,':');                              PPPRINVAL  15
000071        WRITE  (F,' ','-----------------------------------');             PPPRINVAL  16
000103        WRITE  (F,'-----------------','----',       '-');                 PPPRINVAL  17
000123        WRITELN(F,'--',                  '-');                            PPPRINVAL  18
000137        WRITELN(F);                                                       PPPRINVAL  19
000142        WRITELN(F);                                                       PPPRINVAL  20
000145        WRITELN(F,' ','R: ',VARDES[RF]);                                  PPPRINVAL  22
000167        WRITELN(F,' ','E: ','NUMBER OF EGGS');                            PPPRINVAL  24
000211        WRITELN(F);                                                       PPPRINVAL  25
000214        CL:=10;                                                           PPPRINVAL  26
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000215        WRITE  (F,' ','SITE    I');                                    PPPRINVAL  27
000227        FOR SI:=1 TO 10 DO WRITE(F,SI:CL);                             PPPRINVAL  28
000242        WRITELN(F);                                                    PPPRINVAL  29
000245        WRITE  (F,' ','        I');                                    PPPRINVAL  30
000257        FOR SI:=11 TO 20 DO WRITE(F,SI:CL);                            PPPRINVAL  31
000272        WRITELN(F);                                                    PPPRINVAL  32
000275        WRITE  (F,' ','---------');                                    PPPRINVAL  33
000307        FOR SI:=1 TO 10 DO FOR I:=1 TO CL DO WRITE(F,'-');             PPPRINVAL  34
000326        WRITELN(F);                                                    PPPRINVAL  35
000331        WRITE  (F,' ','R       I');                                    PPPRINVAL  37
000343        FOR SI:=1 TO 10 DO WRITE(F,SITE[SI].LARCH.RAWFIBER:CL:1);      PPPRINVAL  38
000363        WRITELN(F);                                                    PPPRINVAL  39
000366        WRITE  (F,' ','        I');                                    PPPRINVAL  40
000400        FOR SI:=11 TO 20 DO WRITE(F,SITE[SI].LARCH.RAWFIBER:CL:1);     PPPRINVAL  41
000420        WRITELN(F);                                                    PPPRINVAL  42
000423        WRITE  (F,' ','E       I');                                    PPPRINVAL  44
000435        FOR SI:=1 TO 10 DO WRITE(F,SITE[SI].BUDMOTH.EGGS:CL);          PPPRINVAL  45
000454        WRITELN(F);                                                    PPPRINVAL  46
000457        WRITE  (F,' ','        I');                                    PPPRINVAL  47
000471        FOR SI:=11 TO 20 DO WRITE(F,SITE[SI].BUDMOTH.EGGS:CL);         PPPRINVAL  48
000510        WRITELN(F);                                                    PPPRINVAL  49
000513        IF MSNR=0 THEN                                                 PPPRINVAL  50
000516        BEGIN                                                          PPPRINVAL  51
000516          WRITELN(F);                                                  PPPRINVAL  52
000520          WRITE  (F,' ','SITE 0  :');                                  PPPRINVAL  53
000532          WRITE  (F,'   ');                                            PPPRINVAL  54
000541          WRITE  (F,'R =', SITE[0].LARCH.RAWFIBER:CL:1);               PPPRINVAL  56
000556          WRITE  (F,'   ');                                            PPPRINVAL  57
000565          WRITE  (F,'E =', SITE[0].BUDMOTH.EGGS:CL);                   PPPRINVAL  59
000602          WRITELN(F);                                                  PPPRINVAL  60
000605        END;                                                           PPPRINVAL  61
000605      END(*PRINVAL*);                                                  PPPRINVAL  62
000651                                                                       PFMORTSMA   2
000651      FUNCTION FMORTSMALL(RF: REAL ): REAL;                            PFMORTSMA   3
000004        (*DETERMINES MORTALITY OF SMALL LARCH BUD MOTH LARVAE (L1L2) AS PFMORTSMA   4
000004        FUNCTION OF RAWFIBER RF*)                                      PFMORTSMA   5
000004                                                                       PFMORTSMA   6
000004        CONST                                                          PFMORTSMA   7
000004          M=  0.051116;                                                PFMORTSMA  40
000004          C= -0.179318;                                                PFMORTSMA  41
000004                                                                       PFMORTSMA  43
000004        VAR                                                            PFMORTSMA  44
000004          MORT: REAL;                                                  PFMORTSMA  45
000005                                                                       PFMORTSMA  46
000005        BEGIN(*FMORTSMALL*)                                            PFMORTSMA  47
000005          MORT:= M*RF+C;                                               PFMORTSMA  48
000011          OUTPARAM('C2',M,9,6,                                         PFMORTSMA  49
000013                   'SLOPE L.R. MORTALITY OF L1L2 VS RF');              PFMORTSMA  50
000016          OUTPARAM('C3',C,9,6,                                         PFMORTSMA  51
000021                   'Y-INTERCEPT (OM3,TAB5, 16 U. 10/BE2,204 ABB.2)');  PFMORTSMA  56
000024          IF MORT<0 THEN MORT:=0;                                      PFMORTSMA  58
000033          IF MORT>1-REFUGE THEN MORT:=1-REFUGE;                        PFMORTSMA  59
000043          OUTPARAM('REFUGE',REFUGE,6,3,                                PFMORTSMA  60
000046          'FMORTSMALL=1-REFUGE IF MORT>1 ELSE FMORTSMALL=MORT');       PFMORTSMA  61
000051          FMORTSMALL:=MORT;                                            PFMORTSMA  62
000053        END(*FMORTSMALL*);                                             PFMORTSMA  63
000124                                                                       PFFOLIAGE   2
000124      FUNCTION FFOLIAGE(RF: REAL; SNR: SITEINDEX): REAL;               PFFOLIAGE   3
000005        (*DETERMINES FOLIAGE (KG NEEDLES / SITE) OF LARCH AS           PFFOLIAGE   4
000005        FUNCTION OF RAWFIBER*)                                         PFFOLIAGE   5
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000005                                                                  PFFOLIAGE   6
000005        CONST                                                     PFFOLIAGE   7
000005          MAXNEEDLELENGTH = 28.67; (*MM*)                         PFFOLIAGE   8
000005          (*BALTENSWEILER UNPUBL. DATA*)                          PFFOLIAGE   9
000005          MINNEEDLELENGTH = 19.01; (*MM*)                         PFFOLIAGE  10
000005          (*BALTENSWEILER UNPUBL. DATA*)                          PFFOLIAGE  11
000005                                                                  PFFOLIAGE  12
000005        VAR                                                       PFFOLIAGE  13
000005          ACTUALNEEDLELENGTH: REAL;(*MM*)                         PFFOLIAGE  14
000006          M,C: REAL;                                              PFFOLIAGE  15
000010          C4DASH,C5DASH: REAL;                                    PFFOLIAGE  16
000012          C4,C5: REAL;                                            PFFOLIAGE  17
000014          SNO: INTEGER; (*LOCALLY USED SITENUMBER FOR OUTPARAM*)  PFFOLIAGE  18
000015                                                                  PFFOLIAGE  19
000015        BEGIN(*FFOLIAGE*)                                         PFFOLIAGE  20
000015          M:= (MINNEEDLELENGTH-MAXNEEDLELENGTH)/(MAXRAWFIB-MINRAWFIB);  PFFOLIAGE  21
000013          C:= MINNEEDLELENGTH - M*MAXRAWFIB;                      PFFOLIAGE  32
000015          ACTUALNEEDLELENGTH:= M*RF+C;                            PFFOLIAGE  34
000016          OUTPARAM('MAXNEEDLELENGTH',MAXNEEDLELENGTH,6,2,         PFFOLIAGE  35
000021          'IN MM. BALTENSWEILER UNPUBL.DATA');                    PFFOLIAGE  36
000024          OUTPARAM('MINNEEDLELENGTH',MINNEEDLELENGTH,6,2,         PFFOLIAGE  37
000027          'S.A.');                                                PFFOLIAGE  38
000032          ACTUALNEEDLELENGTH:= M*RF+C;                            PFFOLIAGE  39
000035          C4DASH:=M*FOLPERTREE/MAXNEEDLELENGTH;                   PFFOLIAGE  40
000037          C5DASH:=C*FOLPERTREE/MAXNEEDLELENGTH;                   PFFOLIAGE  41
000040          OUTPARAM('C4'''',C4DASH,9,6,                            PFFOLIAGE  42
000043          'COEFF. IN GFOL=NROFTREES*(C4''*RF+C5'')');             PFFOLIAGE  43
000046          OUTPARAM('C5'''',C5DASH,10,6,                           PFFOLIAGE  44
000051          'IN GFOL S.A. (LINE BASED ON MIN/MAXNL,MIN/MAXRF,FOLPERTREE');  PFFOLIAGE  45
000054          IF SIMKIND<>BOTH THEN SNO:= SNR ELSE SNO:=0;            PFFOLIAGE  46
000062          C4:=SITE[SNR].LARCH.TREES*C4DASH;                       PFFOLIAGE  47
000073          C5:=SITE[SNR].LARCH.TREES*C5DASH;                       PFFOLIAGE  48
000101          OUTPARAM('C4',SITE[SNO].LARCH.TREES*C4DASH,10,1,        PFFOLIAGE  49
000111          'SLOPE IN GFOL=C4*RF+C5 (C4=NROFTREES*C4'')');          PFFOLIAGE  50
000114          OUTPARAM('C5',SITE[SNO].LARCH.TREES*C5DASH,11,1,        PFFOLIAGE  51
000126          'Y-INTERCEPT IN GFOL S.A. (C5=NROFTREES*C5'')');        PFFOLIAGE  52
000131          OUTPARAM('NROFTREES',SITE[SNO].LARCH.TREES,7,0,         PFFOLIAGE  53
000143          'NUMBER OF TREES IN SITE SNR (WIRTSCH.PLAENE)');        PFFOLIAGE  54
000146          OUTPARAM('SNR',SNO,3,0,                                 PFFOLIAGE  55
000153          'SITE NUMBER (SNR) WITH NROFTREES AS ABOVE');           PFFOLIAGE  56
000156          OUTPARAM('NAME OF SITE',SITE[SNO].CODE,3,0,SITE[SNO].NAME);  PFFOLIAGE  57
000176          FFOLIAGE:= C4*RF+C5;                                    PFFOLIAGE  61
000201        END(*FFOLIAGE*);                                          PFFOLIAGE  62
000362                                                                  PRINIT      2
000362      BEGIN(*INITIALIZATION*)                                     PRINIT      3
000362        WITH SITE[SNR] ,BUDMOTH,LARCH,GRAZING DO                  PRINIT      4
000016        BEGIN                                                     PRINIT      5
000016          CODE:= SNR;                                             PRINIT      6
000020          FOR J:= 1 TO NRDIR DO                                   PRINIT      7
000021          BEGIN                                                   PRINIT      8
000023            NONEIB(A,SNR,J);                                      PRINIT      9
000035            NONEIB(B,SNR,J);                                      PRINIT     10
000047          END;                                                    PRINIT     11
000051          STRANGEGGS:= 0;                                         PRINIT     12
000053          AUTOCHEGGS:= 0;                                         PRINIT     13
000054          IMMIGRATORS:=0;                                         PRINIT     14
000054          (*INITIAL NUMBER OF EGGS PER TREE*)                     PRINIT     15
000054          IF SNR=0 THEN EGGS0:=OBSERVEDLADENS[TBEG]               PRINIT     16
000062          ELSE                                                    PRINIT     17
000064          BEGIN                                                   PRINIT     18
```

```
000064            IF NOT GETSEGMENT(OBSERVATIONS,2) THEN                    PRINIT     19
000067            BEGIN                                                     PRINIT     20
000067              MESSAGE('* SIMULATION ABORTED');                        PRINIT     21
000071              MESSAGE('* FILE OBSERVATIONS INCORRECT');               PRINIT     22
000073              HALT;                                                   PRINIT     23
000074            END;                                                      PRINIT     24
000074            FOR J:=1949 TO TBEG-1 DO                                  PRINIT     25
000077            FOR I:=1 TO NROFSITES DO READ(OBSERVATIONS,EGGS0);        PRINIT     26
000113            FOR I:=1 TO SNR DO READ(OBSERVATIONS,EGGS0);              PRINIT     27
000125          END(*IF SNR<>0*);                                           PRINIT     28
000125          IF FMORTSMALL(RAWFI0)>0 THEN EGGS0:=EGGS0*BRANCHPERTREE     PRINIT     29
000132          /(1-FMORTSMALL(RAWFI0))/(1-MORTEGGS) ELSE EGGS0:=0;         PRINIT     30
000152          FOR J:= 1 TO NRDIR DO                                       PRINIT     31
000153          BEGIN                                                       PRINIT     32
000155            WFD('W',J,0);                                             PRINIT     33
000166            WFD('S',J,0);                                             PRINIT     34
000200          END;                                                        PRINIT     35
000202          WIND.FIELD.STRONG.FREQUENCY:= WFS0;                         PRINIT     36
000204          WIND.FIELD.WEAK.FREQUENCY:= WFW0;                           PRINIT     37
000205                                                                      PRINIT     38
000205          CASE SNR OF                                                 PRINIT     39
000211          1: BEGIN                                                    PRINIT     40
000211                MOVE('SILS LEFT',NAME,'L');                           PRINIT     41
000220                EXPOSITION:= SE;                                      PRINIT     42
000222                TREES:= 25525;                                        PRINIT     43
000223                AREA:= 304.7;                                         PRINIT     44
000225                FORESTAREA:= 147.3;                                   PRINIT     45
000226                NEIB(A ,2  ,NE ,4.15 ,270.1);                         PRINIT     46
000241                NEIB(B ,19 ,NE ,5.25 ,201.9);                         PRINIT     47
000255                NEIB(A ,19 ,E  ,5.25 ,227.5);                         PRINIT     48
000271                NEIB(B ,20 ,E  ,2.15 ,173.8);                         PRINIT     49
000305                NEIB(A ,20 ,SE ,2.15 ,360.9);                         PRINIT     50
000321                NEIB(A ,20 ,S  ,2.15 ,360.9);                         PRINIT     51
000335                INVEGGS:= INVE0;                                      PRINIT     52
000336                EGGS:= TRUNC(EGGS0*TREES);                            PRINIT     53
000343                EMIGRATORS:= EMIG;                                    PRINIT     54
000344                RAWFIBER:= RAWFI0;                                    PRINIT     55
000345                (*1**********)                                        PRINIT     56
000345                (*2**********)                                        PRINIT     57
000345                WIND.LULL.FREQUENCY:= 0.4;                            PRINIT     65
000347                WIND.TURB.FREQUENCY:= TU0;                            PRINIT     66
000352                WIND.FIELD.WEAK.FREQUENCY:= 0.4;                      PRINIT     67
000352                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                    PRINIT     68
000354                WFD('W',NE,0.1);   (*LAKE WIND*)                      PRINIT     70
000363                WFD('W',REVERSE(SITE0EXPOSITION),0.5);                PRINIT     71
000401                WFD('W',REVERSE(EXPOSITION),0.4);                     PRINIT     72
000420                WFD('S',NE,0.5);                                      PRINIT     73
000430                WFD('S',REVERSE(SITE0EXPOSITION),0.5);                PRINIT     74
000446              END;                                                    PRINIT     75
000447          2: BEGIN                                                    PRINIT     76
000447                MOVE('SILVAPLANA LEFT',NAME,'L');                     PRINIT     77
000456                EXPOSITION:= SE;                                      PRINIT     78
000460                TREES:= 16072;                                        PRINIT     79
000461                AREA:= 270.1;                                         PRINIT     80
000463                FORESTAREA:= 148.2;                                   PRINIT     81
000464                NEIB(A ,3  ,NE ,4.4  ,248.7);                         PRINIT     82
000477                NEIB(B ,18 ,NE ,4.65 ,278.8);                         PRINIT     83
000513                NEIB(A ,18 ,E  ,4.65 ,83.8 );                         PRINIT     84
000527                NEIB(B ,19 ,E  ,2.1  ,185.6);                         PRINIT     85
000543                NEIB(A ,19 ,SE ,2.1  ,491.5);                         PRINIT     86
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000560                NEIB(A ,19 ,S  ,2.1  ,44.4 );                          PRINIT     87
000575                NEIB(B ,20 ,S  ,3.8  ,248.1);                          PRINIT     88
000611                NEIB(A ,20 ,SW ,3.8  ,105  );                          PRINIT     89
000627                NEIB(B ,1  ,SW ,4.15 ,304.7);                          PRINIT     90
000644                INVEGGS:= INVE0;                                       PRINIT     91
000645                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT     92
000652                EMIGRATORS:= EMIG;                                     PRINIT     93
000653                RAWFIBER:= RAWFI0;                                     PRINIT     94
000654                (*1**********)                                         PRINIT     95
000654                (*2**********)                                         PRINIT     96
000654                WIND.LULL.FREQUENCY:= 0.4;                             PRINIT    104
000656                WIND.TURB.FREQUENCY:= TU0;                             PRINIT    105
000661                WIND.FIELD.WEAK.FREQUENCY:= 0.4;                       PRINIT    106
000661                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                     PRINIT    107
000663                WFD('W',SITE0EXPOSITION,0.1);   (*LAKE WIND*)          PRINIT    109
000672                WFD('W',REVERSE(SITE0EXPOSITION),0.5);                 PRINIT    110
000710                WFD('W',REVERSE(EXPOSITION),0.4);                      PRINIT    111
000727                WFD('S',SITE0EXPOSITION,0.5);                          PRINIT    112
000737                WFD('S',REVERSE(SITE0EXPOSITION),0.5);                 PRINIT    113
000755             END;                                                      PRINIT    114
000756          3: BEGIN                                                     PRINIT    115
000756                MOVE('ST.MORITZ LEFT',NAME,'L');                       PRINIT    116
000765                EXPOSITION:= SE;                                       PRINIT    117
000767                TREES:= 13630;                                         PRINIT    118
000770                AREA:= 248.7;                                          PRINIT    119
000772                FORESTAREA:= 227.4;                                    PRINIT    120
000773                (*ABOVE VALUES ARE FROM THE MAP ESTIMATED*)            PRINIT    121
000773                NEIB(A ,4  ,NE ,4.63 ,280  );                          PRINIT    122
001010                NEIB(B ,16 ,NE ,3.8  ,182.5);                          PRINIT    123
001024                NEIB(A ,18 ,E  ,1.53 ,391.8);                          PRINIT    124
001040                NEIB(A ,18 ,SE ,1.53 ,391.8);                          PRINIT    125
001055                NEIB(A ,18 ,S  ,1.53 ,114.4);                          PRINIT    126
001072                NEIB(B ,19 ,S  ,4.2  ,400.6);                          PRINIT    127
001106                NEIB(A ,2  ,SW ,4.4  ,270.1);                          PRINIT    128
001123                INVEGGS:= INVE0;                                       PRINIT    129
001124                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT    130
001131                EMIGRATORS:= EMIG;                                     PRINIT    131
001132                RAWFIBER:= RAWFI0;                                     PRINIT    132
001133                (*1**********)                                         PRINIT    133
001133                (*2**********)                                         PRINIT    134
001133                WIND.LULL.FREQUENCY:= 0.6;                             PRINIT    142
001135                WIND.TURB.FREQUENCY:= TU0;                             PRINIT    143
001140                WIND.FIELD.WEAK.FREQUENCY:= 0.2;                       PRINIT    144
001141                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                     PRINIT    145
001142                WFD('W',REVERSE(SITE0EXPOSITION),0.4);                 PRINIT    147
001157                WFD('W',REVERSE(EXPOSITION),0.6);                      PRINIT    148
001176                WFD('S',SITE0EXPOSITION,0.4);                          PRINIT    149
001206                WFD('S',REVERSE(EXPOSITION),0.6);                      PRINIT    150
001225             END;                                                      PRINIT    151
001226          4: BEGIN                                                     PRINIT    152
001226                MOVE('CELERINA-SAMEDAN LEFT',NAME,'L');                PRINIT    153
001235                EXPOSITION:= SE;                                       PRINIT    154
001237                TREES:= 42885;                                         PRINIT    155
001240                AREA:= 410.3;                                          PRINIT    156
001242                FORESTAREA:= 301;                                      PRINIT    157
001245                NEIB(A ,7  ,NE ,5.03 ,225.4);                          PRINIT    158
001260                NEIB(B ,12 ,NE ,5.25 ,350.6);                          PRINIT    159
001274                NEIB(A ,12 ,E  ,4.85 ,253.8);                          PRINIT    160
001310                NEIB(B ,13 ,E  ,3.25 ,91.9 );                          PRINIT    161
001324                NEIB(A ,13 ,SE ,3.25 ,217  );                          PRINIT    162
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001343                NEIB(B ,16 ,SE ,3.33 ,260.6);                          PRINIT    163
001357                NEIB(A ,16 ,S  ,3.33 ,108.8);                          PRINIT    164
001374                NEIB(B ,18 ,S  ,5.35 ,391.8);                          PRINIT    165
001410                NEIB(A ,3  ,SW ,4.63 ,248.7);                          PRINIT    166
001425                NEIB(A ,5  ,N  ,2.85 ,223.1);                          PRINIT    167
001441                INVEGGS:= INVE0;                                       PRINIT    168
001442                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT    169
001447                EMIGRATORS:= EMIG;                                     PRINIT    170
001450                RAWFIBER:= RAWFI0;                                     PRINIT    171
001451                (*1**********)                                         PRINIT    172
001451                (*2**********)                                         PRINIT    173
001451                WIND.LULL.FREQUENCY:= 0.65;                            PRINIT    181
001453                WIND.TURB.FREQUENCY:= TU0;                             PRINIT    182
001456                WIND.FIELD.WEAK.FREQUENCY:= 0.3;                       PRINIT    183
001457                WIND.FIELD.STRONG.FREQUENCY:= 0.05;                    PRINIT    184
001461                WFD('W',REVERSE(SITE0EXPOSITION),0.2);                 PRINIT    186
001476                WFD('W',REVERSE(EXPOSITION),0.8);                      PRINIT    187
001515                WFD('S',REVERSE(SITE0EXPOSITION),0.2);                 PRINIT    188
001533                WFD('S',REVERSE(EXPOSITION),0.8);                      PRINIT    189
001552             END;                                                      PRINIT    190
001553          5: BEGIN                                                     PRINIT    191
001553                MOVE('VAL BEVER RIGHT',NAME,'L');                      PRINIT    192
001562                EXPOSITION:= N;                                        PRINIT    193
001564                TREES:= 14739;                                         PRINIT    194
001565                AREA:= 223.1;                                          PRINIT    195
001567                FORESTAREA:= 182.7;                                    PRINIT    196
001570                NEIB(A ,6  ,NE ,0.85 ,277.9);                          PRINIT    197
001603                NEIB(A ,7  ,E  ,3.23 ,125  );                          PRINIT    198
001621                NEIB(B ,12 ,E  ,4.23 , 32.5);                          PRINIT    199
001635                NEIB(A ,4  ,SE ,2.85 ,410.3);                          PRINIT    200
001652                NEIB(A ,4  ,S  ,2.85 ,410.3);                          PRINIT    201
001666                NEIB(A ,6  ,N  ,0.85 ,277.9);                          PRINIT    202
001702                INVEGGS:= INVE0;                                       PRINIT    203
001703                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT    204
001710                EMIGRATORS:= EMIG;                                     PRINIT    205
001711                RAWFIBER:= RAWFI0;                                     PRINIT    206
001712                (*1**********)                                         PRINIT    207
001712                (*2**********)                                         PRINIT    208
001712                WIND.LULL.FREQUENCY:= 0.6;                             PRINIT    216
001714                WIND.TURB.FREQUENCY:= TU0;                             PRINIT    217
001717                WIND.FIELD.WEAK.FREQUENCY:= 0.25;                      PRINIT    218
001720                WIND.FIELD.STRONG.FREQUENCY:= 0.15;                    PRINIT    219
001722                WFD('W',REVERSE(EXPOSITION),0.75);                     PRINIT    221
001741                WFD('W',W,0.25);                                       PRINIT    222
001751                WFD('S',REVERSE(EXPOSITION),0.75);                     PRINIT    223
001770                WFD('S',W,0.25);                                       PRINIT    224
002000             END;                                                      PRINIT    225
002001          6: BEGIN                                                     PRINIT    226
002001                MOVE('VAL BEVER LEFT',NAME,'L');                       PRINIT    227
002010                EXPOSITION:= S;                                        PRINIT    228
002012                TREES:= 13673;                                         PRINIT    229
002013                AREA:= 277.9;                                          PRINIT    230
002015                FORESTAREA:= 196.4;                                    PRINIT    231
002016                NEIB(A ,7  ,E  ,2.53 ,225.4);                          PRINIT    232
002032                NEIB(A ,12 ,SE ,3.85 ,667.1);                          PRINIT    233
002047                NEIB(A ,5  ,S  ,0.85 ,223.1);                          PRINIT    234
002064                INVEGGS:= INVE0;                                       PRINIT    235
002065                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT    236
002072                EMIGRATORS:= EMIG;                                     PRINIT    237
002073                RAWFIBER:= RAWFI0;                                     PRINIT    238
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002074                (*1**********)                                        PRINIT    239
002074                (*2**********)                                        PRINIT    240
002074                WIND.LULL.FREQUENCY:= 0.6;                            PRINIT    248
002076                WIND.TURB.FREQUENCY:= TU0;                            PRINIT    249
002101                WIND.FIELD.WEAK.FREQUENCY:= 0.25;                     PRINIT    250
002102                WIND.FIELD.STRONG.FREQUENCY:= 0.15;                   PRINIT    251
002104                WFD('W',REVERSE(EXPOSITION),0.75);                    PRINIT    253
002123                WFD('W',W,0.25);                                      PRINIT    254
002133                WFD('S',REVERSE(EXPOSITION),0.75);                    PRINIT    255
002152                WFD('S',W,0.25);                                      PRINIT    256
002162             END;                                                     PRINIT    257
002163          7: BEGIN                                                    PRINIT    258
002163                MOVE('BEVER LEFT',NAME,'L');                          PRINIT    259
002172                EXPOSITION:= SE;                                      PRINIT    260
002174                TREES:= 10922;                                        PRINIT    261
002175                AREA:= 225.4;                                         PRINIT    262
002177                FORESTAREA:= 172.4;                                   PRINIT    263
002200                NEIB(A ,8  ,NE ,1.8  ,127.7);                         PRINIT    264
002212                NEIB(A ,12 ,E  ,2.03 ,667.1);                         PRINIT    265
002226                NEIB(A ,12 ,SE ,2.03 ,667.1);                         PRINIT    266
002243                NEIB(A ,12 ,S  ,2.03 ,270  );                         PRINIT    267
002262                NEIB(B ,16 ,S  ,6.9  ,355.6);                         PRINIT    268
002276                NEIB(A ,4  ,SW ,5.03 ,410.3);                         PRINIT    269
002313                NEIB(B ,5  ,SW ,3.23 ,105  );                         PRINIT    270
002331                NEIB(A ,5  ,W  ,3.23 ,115.6);                         PRINIT    271
002346                NEIB(B ,6  ,W  ,2.53 ,227.5);                         PRINIT    272
002362                INVEGGS:= INVE0;                                      PRINIT    273
002363                EGGS:= TRUNC(EGGS0*TREES);                            PRINIT    274
002370                EMIGRATORS:= EMIG;                                    PRINIT    275
002371                RAWFIBER:= RAWFI0;                                    PRINIT    276
002372                (*1**********)                                        PRINIT    277
002372                (*2**********)                                        PRINIT    278
002372                WIND.LULL.FREQUENCY:= 0.5;                            PRINIT    286
002374                WIND.TURB.FREQUENCY:= TU0;                            PRINIT    287
002377                WIND.FIELD.WEAK.FREQUENCY:= 0.3;                      PRINIT    288
002400                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                    PRINIT    289
002402                WFD('W',REVERSE(SITE0EXPOSITION),0.25);               PRINIT    291
002417                WFD('W',REVERSE(EXPOSITION),0.75);                    PRINIT    292
002436                WFD('S',REVERSE(SITE0EXPOSITION),0.25);               PRINIT    293
002454                WFD('S',REVERSE(EXPOSITION),0.75);                    PRINIT    294
002473             END;                                                     PRINIT    295
002474          8: BEGIN                                                    PRINIT    296
002474                MOVE('GOD ARVINS',NAME,'L');                          PRINIT    297
002503                EXPOSITION:= E;                                       PRINIT    298
002505                TREES:= 6724;                                         PRINIT    299
002506                AREA:= 127.7;                                         PRINIT    300
002510                FORESTAREA:= 103.2;                                   PRINIT    301
002511                NEIB(A ,9  ,NE ,3.85 ,269.9);                         PRINIT    302
002524                NEIB(A ,11 ,E  ,5.5  ,395  );                         PRINIT    303
002542                NEIB(B ,12 ,E  ,3.08 , 32.5);                         PRINIT    304
002556                NEIB(A ,12 ,SE ,3.08 ,667.1);                         PRINIT    305
002573                NEIB(A ,12 ,S  ,3.08 ,667.1);                         PRINIT    306
002610                NEIB(A ,7  ,SW ,1.8  ,225.4);                         PRINIT    307
002625                INVEGGS:= INVE0;                                      PRINIT    308
002626                EGGS:= TRUNC(EGGS0*TREES);                            PRINIT    309
002633                EMIGRATORS:= EMIG;                                    PRINIT    310
002634                RAWFIBER:= RAWFI0;                                    PRINIT    311
002635                (*1**********)                                        PRINIT    312
002635                (*2**********)                                        PRINIT    313
002635                WIND.LULL.FREQUENCY:= 0.45;                           PRINIT    321
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002637                WIND.TURB.FREQUENCY:= TU0;                                PRINIT    322
002642                WIND.FIELD.WEAK.FREQUENCY:= 0.35;                         PRINIT    323
002643                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                        PRINIT    324
002645                WFD('W',REVERSE(SITE0EXPOSITION),0.25);                   PRINIT    326
002662                WFD('W',REVERSE(EXPOSITION),0.75);                        PRINIT    327
002701                WFD('S',REVERSE(SITE0EXPOSITION),0.25);                   PRINIT    328
002717                WFD('S',REVERSE(EXPOSITION),0.75);                        PRINIT    329
002736             END;                                                         PRINIT    330
002737          9: BEGIN                                                        PRINIT    331
002737                MOVE('MADULAIN-ZUOZ LEFT',NAME,'L');                      PRINIT    332
002746                EXPOSITION:= SE;                                          PRINIT    333
002750                TREES:= 19612;                                            PRINIT    334
002751                AREA:= 269.9;                                             PRINIT    335
002753                FORESTAREA:= 177.7;                                       PRINIT    336
002754                NEIB(A ,10 ,NE ,4    ,396.8);                             PRINIT    337
002771                NEIB(A ,11 ,E  ,2.8  ,810.6);                             PRINIT    338
003005                NEIB(A ,11 ,SE ,2.8  ,810.6);                             PRINIT    339
003022                NEIB(A ,11 ,S  ,2.8  ,115  );                             PRINIT    340
003041                NEIB(B ,12 ,S  ,6.48 ,435  );                             PRINIT    341
003057                NEIB(A ,8  ,SW ,3.85 ,127.7);                             PRINIT    342
003073                INVEGGS:= INVE0;                                          PRINIT    343
003074                INVEGGS:= INVE0;                                          PRINIT    344
003075                EGGS:= TRUNC(EGGS0*TREES);                                PRINIT    345
003102                EMIGRATORS:= EMIG;                                        PRINIT    346
003103                RAWFIBER:= RAWFI0;                                        PRINIT    347
003104                (*1**********)                                            PRINIT    348
003104                (*2**********)                                            PRINIT    349
003104                WIND.LULL.FREQUENCY:= 0.4;                                PRINIT    357
003106                WIND.TURB.FREQUENCY:= TU0;                                PRINIT    358
003111                WIND.FIELD.WEAK.FREQUENCY:= 0.4;                          PRINIT    359
003111                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                        PRINIT    360
003113                WFD('W',REVERSE(SITE0EXPOSITION),0.25);                   PRINIT    362
003130                WFD('W',REVERSE(EXPOSITION),0.75);                        PRINIT    363
003147                WFD('S',REVERSE(SITE0EXPOSITION),0.25);                   PRINIT    364
003165                WFD('S',REVERSE(EXPOSITION),0.75);                        PRINIT    365
003204             END;                                                         PRINIT    366
003205          10: BEGIN                                                       PRINIT    367
003205                MOVE('GOD GOD (S''CHANF LEFT)',NAME,'L');                 PRINIT    368
003214                EXPOSITION:= SE;                                          PRINIT    369
003216                TREES:= 28884;                                            PRINIT    370
003217                AREA:= 396.8;                                             PRINIT    371
003221                FORESTAREA:= 305.4;                                       PRINIT    372
003222                NEIB(A ,11 ,SE ,3.48 ,810.6);                             PRINIT    373
003236                NEIB(A ,11 ,S  ,3.48 ,810.6);                             PRINIT    374
003253                NEIB(A ,11 ,SW ,3.48 ,183.8);                             PRINIT    375
003270                NEIB(B ,9  ,SW ,4    ,177.7);                             PRINIT    376
003306                INVEGGS:= INVE0;                                          PRINIT    377
003307                EGGS:= TRUNC(EGGS0*TREES);                                PRINIT    378
003314                EMIGRATORS:= EMIG;                                        PRINIT    379
003315                RAWFIBER:= RAWFI0;                                        PRINIT    380
003316                (*1**********)                                            PRINIT    381
003316                (*2**********)                                            PRINIT    382
003316                WIND.LULL.FREQUENCY:= 0.65;                               PRINIT    390
003320                WIND.TURB.FREQUENCY:= TU0;                                PRINIT    391
003323                WIND.FIELD.WEAK.FREQUENCY:= 0.25;                         PRINIT    392
003324                WIND.FIELD.STRONG.FREQUENCY:= 0.1;                        PRINIT    393
003326                WFD('W',W,1);                                             PRINIT    395
003340                WFD('S',W,1);                                             PRINIT    396
003352             END;                                                         PRINIT    397
003353          11: BEGIN                                                       PRINIT    398
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003353                MOVE('S''CHANF-ZUOZ-MADULAIN RIGHT',NAME,'L');          PRINIT    399
003362                EXPOSITION:= NW;                                        PRINIT    400
003364                TREES:= 54772;                                          PRINIT    401
003365                AREA:= 810.6;                                           PRINIT    402
003367                FORESTAREA:= 635.4;                                     PRINIT    403
003370                NEIB(A ,12 ,SW ,7.15 ,667.1);                           PRINIT    404
003404                NEIB(A ,9  ,W  ,2.8  ,269.9);                           PRINIT    405
003421                NEIB(A ,9  ,NW ,2.8  ,269.9);                           PRINIT    406
003436                NEIB(A ,10 ,N  ,3.48 ,396.8);                           PRINIT    407
003452                INVEGGS:= INVE0;                                        PRINIT    408
003453                EGGS:= TRUNC(EGGS0*TREES);                              PRINIT    409
003460                EMIGRATORS:= EMIG;                                      PRINIT    410
003461                RAWFIBER:= RAWFI0;                                      PRINIT    411
003462                (*1**********)                                          PRINIT    412
003462                (*2**********)                                          PRINIT    413
003462                WIND.LULL.FREQUENCY:= 0.7;                              PRINIT    421
003464                WIND.TURB.FREQUENCY:= TU0;                              PRINIT    422
003467                WIND.FIELD.WEAK.FREQUENCY:= 0.25;                       PRINIT    423
003470                WIND.FIELD.STRONG.FREQUENCY:= 0.05;                     PRINIT    424
003472                WFD('W',REVERSE(EXPOSITION),0.75);                      PRINIT    426
003511                WFD('W',REVERSE(SITE0EXPOSITION),0.25);                 PRINIT    427
003527                WFD('S',REVERSE(EXPOSITION),0.75);                      PRINIT    428
003546                WFD('S',REVERSE(SITE0EXPOSITION),0.25);                 PRINIT    429
003564              END;                                                      PRINIT    430
003565           12: BEGIN                                                    PRINIT    431
003565                MOVE('BEVER RIGHT (LA PUNT-BEVER-SAMEDAN RIGHT)',       PRINIT    432
003567                     NAME,'L');                                         PRINIT    433
003574                EXPOSITION:= NW;                                        PRINIT    434
003576                TREES:= 38788;                                          PRINIT    435
003577                AREA:= 667.1;                                           PRINIT    436
003601                FORESTAREA:= 509.6;                                     PRINIT    437
003602                NEIB(A ,11 ,NE ,7.15 ,810.6);                           PRINIT    438
003615                NEIB(A ,13 ,SW ,3.7  , 81.9);                           PRINIT    439
003632                NEIB(B ,4  ,SW ,4.85 ,238.1);                           PRINIT    440
003646                NEIB(A ,4  ,W  ,4.85 ,184.4);                           PRINIT    441
003663                NEIB(B ,5  ,W  ,4.23 ,223.1);                           PRINIT    442
003677                NEIB(A ,7  ,NW ,2.03 ,225.4);                           PRINIT    443
003713                NEIB(A ,8  ,N  ,3.08 ,127.7);                           PRINIT    444
003726                NEIB(B ,9  ,N  ,6.48 ,245  );                           PRINIT    445
003744                INVEGGS:= INVE0;                                        PRINIT    446
003745                EGGS:= TRUNC(EGGS0*TREES);                              PRINIT    447
003752                EMIGRATORS:= EMIG;                                      PRINIT    448
003753                RAWFIBER:= RAWFI0;                                      PRINIT    449
003754                (*1**********)                                          PRINIT    450
003754                (*2**********)                                          PRINIT    451
003754                WIND.LULL.FREQUENCY:= 0.5;                              PRINIT    459
003756                WIND.TURB.FREQUENCY:= TU0;                              PRINIT    460
003761                WIND.FIELD.WEAK.FREQUENCY:= 0.3;                        PRINIT    461
003762                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                      PRINIT    462
003764                WFD('W',REVERSE(EXPOSITION),0.75);                      PRINIT    464
004003                WFD('W',REVERSE(SITE0EXPOSITION),0.25);                 PRINIT    465
004021                WFD('S',REVERSE(EXPOSITION),0.75);                      PRINIT    466
004040                WFD('S',REVERSE(SITE0EXPOSITION),0.25);                 PRINIT    467
004056              END;                                                      PRINIT    468
004057           13: BEGIN                                                    PRINIT    469
004057                MOVE('SAMEDAN RIGHT',NAME,'L');                         PRINIT    470
004066                EXPOSITION:= W;                                         PRINIT    471
004070                TREES:= 24260;                                          PRINIT    472
004071                AREA:= 217;                                             PRINIT    473
004074                FORESTAREA:= 187.4;                                     PRINIT    474
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004076                NEIB(A ,12 ,NE ,3.7  ,667.1);                          PRINIT    475
004112                NEIB(A ,14 ,SE ,5    ,615  );                          PRINIT    476
004132                NEIB(A ,15 ,S  ,6.45 ,170  );                          PRINIT    477
004151                NEIB(B ,16 ,S  ,2.03 , 48.1);                          PRINIT    478
004165                NEIB(A ,16 ,SW ,2.03 ,326.6);                          PRINIT    479
004202                NEIB(A ,4  ,W  ,3.25 ,410.3);                          PRINIT    480
004217                NEIB(A ,4  ,NW ,3.25 ,410.3);                          PRINIT    481
004234                NEIB(A ,7  ,N  ,5.15 ,225.4);                          PRINIT    482
004250                NEIB(B ,12 ,N  ,3.7  ,345  );                          PRINIT    483
004266                INVEGGS:= INVE0;                                       PRINIT    484
004267                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT    485
004274                EMIGRATORS:= EMIG;                                     PRINIT    486
004275                RAWFIBER:= RAWFI0;                                     PRINIT    487
004276                (*1**********)                                         PRINIT    488
004276                (*2**********)                                         PRINIT    489
004276                WIND.LULL.FREQUENCY:= 0.5;                             PRINIT    497
004300                WIND.TURB.FREQUENCY:= TU0;                             PRINIT    498
004303                WIND.FIELD.WEAK.FREQUENCY:= 0.3;                       PRINIT    499
004304                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                     PRINIT    500
004306                WFD('W',REVERSE(EXPOSITION),0.75);                     PRINIT    502
004325                WFD('W',SE,0.25);                                      PRINIT    503
004335                WFD('S',REVERSE(EXPOSITION),0.75);                     PRINIT    504
004354                WFD('S',SE,0.25);                                      PRINIT    505
004364             END;                                                      PRINIT    506
004365          14: BEGIN                                                    PRINIT    507
004365                MOVE('PONTRESINA RIGHT',NAME,'L');                     PRINIT    508
004374                EXPOSITION:= SW;                                       PRINIT    509
004376                TREES:= 40504;                                         PRINIT    510
004377                AREA:= 615;                                            PRINIT    511
004402                FORESTAREA:= 571.9;                                    PRINIT    512
004404                NEIB(A ,15 ,S  ,1.65 ,570  );                          PRINIT    513
004422                NEIB(A ,15 ,SW ,1.65 ,570  );                          PRINIT    514
004441                NEIB(A ,15 ,W  ,1.65 ,570  );                          PRINIT    515
004460                NEIB(A ,15 ,NW ,1.65 , 20  );                          PRINIT    516
004477                NEIB(B ,16 ,NW ,4.73 ,290.6);                          PRINIT    517
004513                INVEGGS:= INVE0;                                       PRINIT    518
004514                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT    519
004521                EMIGRATORS:= EMIG;                                     PRINIT    520
004522                RAWFIBER:= RAWFI0;                                     PRINIT    521
004523                (*1**********)                                         PRINIT    522
004523                (*2**********)                                         PRINIT    523
004523                WIND.LULL.FREQUENCY:= 0.6;                             PRINIT    531
004525                WIND.TURB.FREQUENCY:= TU0;                             PRINIT    532
004530                WIND.FIELD.WEAK.FREQUENCY:= 0.2;                       PRINIT    533
004531                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                     PRINIT    534
004532                WFD('W',REVERSE(EXPOSITION),0.75);                     PRINIT    536
004551                WFD('W',SE,0.25);                                      PRINIT    537
004561                WFD('S',REVERSE(EXPOSITION),0.75);                     PRINIT    538
004600                WFD('S',SE,0.25);                                      PRINIT    539
004610             END;                                                      PRINIT    540
004611          15: BEGIN                                                    PRINIT    541
004611                MOVE('PONTRESINA LEFT',NAME,'L');                      PRINIT    542
004620                EXPOSITION:= NE;                                       PRINIT    543
004622                TREES:= 37402;                                         PRINIT    544
004623                AREA:= 570; (*ESTIMATED FROM THE MAP*)                 PRINIT    545
004626                FORESTAREA:= 522; (*ESTIMATED FROM THE MAP*)           PRINIT    546
004631                NEIB(A ,14 ,NE ,1.65 ,615  );                          PRINIT    547
004650                NEIB(A ,14 ,E  ,1.65 ,615  );                          PRINIT    548
004666                NEIB(A ,14 ,SE ,1.65 ,615  );                          PRINIT    549
004705                NEIB(A ,16 ,NW ,5.8  ,326.6);                          PRINIT    550
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004722                NEIB(A ,14 ,N  ,1.65 ,615  );                          PRINIT    551
004740                INVEGGS:= INVE0;                                       PRINIT    552
004741                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT    553
004746                EMIGRATORS:= EMIG;                                     PRINIT    554
004747                RAWFIBER:= RAWFI0;                                     PRINIT    555
004750                (*1**********)                                         PRINIT    556
004750                (*2**********)                                         PRINIT    557
004750                WIND.LULL.FREQUENCY:= 0.6;                             PRINIT    565
004752                WIND.TURB.FREQUENCY:= TU0;                             PRINIT    566
004755                WIND.FIELD.WEAK.FREQUENCY:= 0.2;                       PRINIT    567
004756                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                     PRINIT    568
004757                WFD('W',REVERSE(EXPOSITION),0.75);                     PRINIT    570
004776                WFD('W',SE,0.25);                                      PRINIT    571
005006                WFD('S',REVERSE(EXPOSITION),0.75);                     PRINIT    572
005025                WFD('S',SE,0.25);                                      PRINIT    573
005035              END;                                                     PRINIT    574
005036           16: BEGIN                                                   PRINIT    575
005036                MOVE('STAZ DOWN',NAME,'L');                            PRINIT    576
005045                EXPOSITION:= N;                                        PRINIT    577
005047                TREES:= 23195;                                         PRINIT    578
005050                AREA:= 326.6; (*WITHOUT ABT. 39,40*)                   PRINIT    579
005052                FORESTAREA:= 253.6; (*WITHOUT ABT. 39,40*)             PRINIT    580
005053                NEIB(A ,13 ,NE ,2.03 ,217  );                          PRINIT    581
005070                NEIB(A ,14 ,E  ,4.73 ,615  );                          PRINIT    582
005106                NEIB(A ,14 ,SE ,4.73 ,400.6);                          PRINIT    583
005123                NEIB(B ,15 ,SE ,5.8  ,570  );                          PRINIT    584
005141                NEIB(A ,17 ,S  ,1.38 ,321.7);                          PRINIT    585
005156                NEIB(A ,18 ,SW ,3.48 ,391.8);                          PRINIT    586
005173                NEIB(A ,3  ,W  ,3.8  , 95  );                          PRINIT    587
005212                NEIB(B ,4  ,W  ,3.33 , 70.6);                          PRINIT    588
005226                NEIB(A ,4  ,NW ,3.33 ,410.3);                          PRINIT    589
005243                NEIB(A ,4  ,N  ,3.33 ,410.3);                          PRINIT    590
005257                INVEGGS:= INVE0;                                       PRINIT    591
005260                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT    592
005265                EMIGRATORS:= EMIG;                                     PRINIT    593
005266                RAWFIBER:= RAWFI0;                                     PRINIT    594
005267                (*1**********)                                         PRINIT    595
005267                (*2**********)                                         PRINIT    596
005267                WIND.LULL.FREQUENCY:= 0.65;                            PRINIT    604
005271                WIND.TURB.FREQUENCY:= TU0;                             PRINIT    605
005274                WIND.FIELD.WEAK.FREQUENCY:= 0.3;                       PRINIT    606
005275                WIND.FIELD.STRONG.FREQUENCY:= 0.05;                    PRINIT    607
005277                WFD('W',SE,0.15);                                      PRINIT    609
005307                WFD('W',REVERSE(EXPOSITION),0.75);                     PRINIT    610
005326                WFD('W',REVERSE(SITE0EXPOSITION),0.1);                 PRINIT    611
005344                WFD('S',SE,0.2);                                       PRINIT    612
005354                WFD('S',REVERSE(EXPOSITION),0.75);                     PRINIT    613
005373                WFD('S',REVERSE(SITE0EXPOSITION),0.05);                PRINIT    614
005411              END;                                                     PRINIT    615
005412           17: BEGIN                                                   PRINIT    616
005412                MOVE('STAZ UP',NAME,'L');                              PRINIT    617
005421                EXPOSITION:= N;                                        PRINIT    618
005423                TREES:= 22967;                                         PRINIT    619
005424                AREA:= 321.7;                                          PRINIT    620
005426                FORESTAREA:= 251.4;                                    PRINIT    621
005427                NEIB(A ,13 ,NE ,3.13 ,54.4 );                          PRINIT    622
005442                NEIB(B ,14 ,NE ,3.93 ,106.9);                          PRINIT    623
005456                NEIB(A ,16 ,E  ,1.38 ,326.6);                          PRINIT    624
005472                NEIB(A ,15 ,SE ,4.73 ,570  );                          PRINIT    625
005511                NEIB(A ,18 ,SW ,2.85 ,391.8);                          PRINIT    626
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005526                NEIB(A ,18 ,W  ,2.85 ,391.8);                          PRINIT   627
005543                NEIB(A ,3  ,NW ,3.73 , 26.9);                          PRINIT   628
005560                NEIB(B ,4  ,NW ,4.6  ,248.1);                          PRINIT   629
005574                NEIB(A ,16 ,N  ,1.38 ,326.6);                          PRINIT   630
005610                INVEGGS:= INVE0;                                       PRINIT   631
005611                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT   632
005616                EMIGRATORS:= EMIG;                                     PRINIT   633
005617                RAWFIBER:= RAWFI0;                                     PRINIT   634
005620                (*1**********)                                         PRINIT   635
005620                (*2**********)                                         PRINIT   636
005620                WIND.LULL.FREQUENCY:= 0.55;                            PRINIT   644
005622                WIND.TURB.FREQUENCY:= TU0;                             PRINIT   645
005625                WIND.FIELD.WEAK.FREQUENCY:= 0.25;                      PRINIT   646
005626                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                     PRINIT   647
005630                WFD('W',REVERSE(EXPOSITION),0.75);                     PRINIT   649
005647                WFD('W',REVERSE(SITE0EXPOSITION),0.25);                PRINIT   650
005665                WFD('S',REVERSE(EXPOSITION),0.75);                     PRINIT   651
005704                WFD('S',REVERSE(SITE0EXPOSITION),0.25);                PRINIT   652
005722              END;                                                     PRINIT   653
005723            18: BEGIN                                                  PRINIT   654
005723                MOVE('ST.MORITZ RIGHT',NAME,'L');                      PRINIT   655
005732                EXPOSITION:= NW;                                       PRINIT   656
005734                TREES:= 18261;                                         PRINIT   657
005735                AREA:= 391.8; (*ESTIMATED FROM THE MAP*)               PRINIT   658
005737                FORESTAREA:= 364.8; (*ESTIMATED FROM THE MAP*)         PRINIT   659
005740                NEIB(A ,16 ,NE ,3.48 ,301.3);                          PRINIT   660
005753                NEIB(B ,17 ,NE ,2.85 ,163.1);                          PRINIT   661
005767                NEIB(A ,17 ,NE ,2.85 ,321.7);                          PRINIT   662
006003                NEIB(A ,19 ,SW ,3.73 ,491.5);                          PRINIT   663
006020                NEIB(A ,3  ,W  ,1.53 ,248.7);                          PRINIT   664
006035                NEIB(A ,3  ,NW ,1.53 ,248.7);                          PRINIT   665
006052                NEIB(A ,3  ,N  ,1.53 , 54.5);                          PRINIT   666
006066                NEIB(B ,4  ,N  ,5.35 ,410.3);                          PRINIT   667
006102                INVEGGS:= INVE0;                                       PRINIT   668
006103                EGGS:= TRUNC(EGGS0*TREES);                             PRINIT   669
006110                EMIGRATORS:= EMIG;                                     PRINIT   670
006111                RAWFIBER:= RAWFI0;                                     PRINIT   671
006112                (*1**********)                                         PRINIT   672
006112                (*2**********)                                         PRINIT   673
006112                WIND.LULL.FREQUENCY:= 0.45;                            PRINIT   681
006114                WIND.TURB.FREQUENCY:= TU0;                             PRINIT   682
006117                WIND.FIELD.WEAK.FREQUENCY:= 0.3;                       PRINIT   683
006120                WIND.FIELD.STRONG.FREQUENCY:= 0.25;                    PRINIT   684
006122                WFD('W',REVERSE(EXPOSITION),0.7);                      PRINIT   686
006141                WFD('W',REVERSE(SITE0EXPOSITION),0.3);                 PRINIT   687
006157                WFD('S',REVERSE(EXPOSITION),0.7);                      PRINIT   688
006176                WFD('S',REVERSE(SITE0EXPOSITION),0.3);                 PRINIT   689
006214              END;                                                     PRINIT   690
006215            19: BEGIN                                                  PRINIT   691
006215                MOVE('SILVAPLANA RIGHT',NAME,'L');                     PRINIT   692
006224                EXPOSITION:= NW;                                       PRINIT   693
006226                TREES:= 31059;                                         PRINIT   694
006227                AREA:= 491.5;                                          PRINIT   695
006231                FORESTAREA:= 339.5;                                    PRINIT   696
006232                NEIB(A ,18 ,NE ,3.73 ,391.8);                          PRINIT   697
006245                NEIB(A ,20 ,SW ,3.98 ,360.9);                          PRINIT   698
006261                NEIB(B ,1  ,SW ,5.25 ,120.6);                          PRINIT   699
006276                NEIB(A ,2  ,W  ,2.1  ,270.1);                          PRINIT   700
006313                NEIB(A ,2  ,NW ,2.1  ,270.1);                          PRINIT   701
006330                NEIB(A ,3  ,N  ,4.2  ,248.7);                          PRINIT   702
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006344                INVEGGS:= INVE0;                                          PRINIT    703
006345                EGGS:= TRUNC(EGGS0*TREES);                                PRINIT    704
006352                EMIGRATORS:= EMIG;                                        PRINIT    705
006353                RAWFIBER:= RAWFI0;                                        PRINIT    706
006354                (*1**********)                                            PRINIT    707
006354                (*2**********)                                            PRINIT    708
006354                WIND.LULL.FREQUENCY:= 0.55;                               PRINIT    716
006356                WIND.TURB.FREQUENCY:= TU0;                                PRINIT    717
006361                WIND.FIELD.WEAK.FREQUENCY:= 0.25;                         PRINIT    718
006362                WIND.FIELD.STRONG.FREQUENCY:= 0.2;                        PRINIT    719
006364                WFD('W',SITE0EXPOSITION,0.05);    (*LAKE WIND*)           PRINIT    721
006373                WFD('W',REVERSE(EXPOSITION),0.75);                        PRINIT    722
006412                WFD('W',REVERSE(SITE0EXPOSITION),0.2);                    PRINIT    723
006430                WFD('S',REVERSE(EXPOSITION),0.75);                        PRINIT    724
006447                WFD('S',REVERSE(SITE0EXPOSITION),0.25);                   PRINIT    725
006465              END;                                                        PRINIT    726
006466           20: BEGIN                                                      PRINIT    727
006466                MOVE('SILS MARIA',NAME,'L');                              PRINIT    728
006475                EXPOSITION:= NW;                                          PRINIT    729
006477                TREES:= 27273;                                            PRINIT    730
006500                AREA:= 360.9; (*ESTIMATED FROM THE MAP*)                  PRINIT    731
006502                FORESTAREA:= 339.1; (*ESTIMATED FROM THE MAP*)            PRINIT    732
006503                NEIB(A ,19 ,NE ,3.98 ,491.5);                             PRINIT    733
006516                NEIB(A ,1  ,W  ,2.15 ,304.7);                             PRINIT    734
006532                NEIB(A ,1  ,NW ,2.15 ,304.7);                             PRINIT    735
006546                NEIB(A ,1  ,N  ,2.15 , 65  );                             PRINIT    736
006564                NEIB(B ,2  ,N  ,3.8  ,270.1);                             PRINIT    737
006600                INVEGGS:= INVE0;                                          PRINIT    738
006601                EGGS:= TRUNC(EGGS0*TREES);                                PRINIT    739
006606                EMIGRATORS:= EMIG;                                        PRINIT    740
006607                RAWFIBER:= RAWFI0;                                        PRINIT    741
006610                (*1**********)                                            PRINIT    742
006610                (*2**********)                                            PRINIT    743
006610                WIND.LULL.FREQUENCY:= 0.5;                                PRINIT    751
006612                WIND.TURB.FREQUENCY:= TU0;                                PRINIT    752
006615                WIND.FIELD.WEAK.FREQUENCY:= 0.35;                         PRINIT    753
006616                WIND.FIELD.STRONG.FREQUENCY:= 0.15;                       PRINIT    754
006620                WFD('W',REVERSE(EXPOSITION),0.6);                         PRINIT    756
006637                WFD('W',REVERSE(SITE0EXPOSITION),0.4);                    PRINIT    757
006655                WFD('S',REVERSE(EXPOSITION),0.5);                         PRINIT    758
006674                WFD('S',REVERSE(SITE0EXPOSITION),0.5);                    PRINIT    759
006712              END;                                                        PRINIT    760
006713           0: BEGIN                                                       PRINIT    761
006713                MOVE('UPPER ENGADIN VALLEY',NAME,'L');                    PRINIT    762
006722                EXPOSITION:= SITE0EXPOSITION;                             PRINIT    763
006724                TREES:=0;                                                 PRINIT    764
006725                AREA:= 0;                                                 PRINIT    765
006730                FORESTAREA:= 0;                                           PRINIT    766
006732                FOR I:= 1 TO NROFSITES DO                                 PRINIT    767
006733                BEGIN                                                     PRINIT    768
006735                  SITE[SNR].LARCH.TREES:=SITE[SNR].LARCH.TREES            PRINIT    769
006743                                       + SITE[I].LARCH.TREES;             PRINIT    770
006750                  SITE[SNR].AREA:=SITE[SNR].AREA+SITE[I].AREA;            PRINIT    771
006762                  SITE[SNR].FORESTAREA:=SITE[SNR].FORESTAREA              PRINIT    772
006767                                      + SITE[I].FORESTAREA;               PRINIT    773
006774                END;                                                      PRINIT    774
006776                INVEGGS:= INVE0;                                          PRINIT    782
006777                EGGS:=TRUNC(EGGS0*TREES);                                 PRINIT    783
007004                EMIGRATORS:= EMIG;                                        PRINIT    784
007005                RAWFIBER:= RAWFI0;                                        PRINIT    785
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007006              (*1**********)                                          PRINIT    786
007006              (*2**********)                                          PRINIT    787
007006                                                                      PRINIT    788
007006              (*FINAL INITIALIZATION OF SIMULATION, I.E. STARTING      PRINIT    789
007006              SIMULATION AFTER INITIAL VALUES HAVE BEEN ASSIGNED*)     PRINIT    790
007006              IF GETSEGMENT(OBSERVATIONS,2) THEN;                      PRINIT    791
007011              (*SKIP OBSERVED DATA FOR YEARS BEFORE TBEG*)             PRINIT    792
007011              FOR J:=1949 TO TBEG-1 DO                                 PRINIT    793
007014              FOR I:=1 TO NROFSITES DO READ(OBSERVATIONS,EGGS0);       PRINIT    794
007030                                                                       PRINIT    795
007030              (*PRINT INITIAL VALUES OF STATE VARIABLES*)              PRINIT    796
007030              PRINVAL(OUTPUT);                                         PRINIT    797
007032              PRINVAL(COM2);                                           PRINIT    798
007034                                                                       PRINIT    799
007034              PAGE(OUTPUT);                                            PRINIT    800
007040              WRITELN;                                                 PRINIT    801
007041              WRITELN;                                                 PRINIT    802
007042              WRITE  (' ','VALUES OF VARIOUS MODEL PARAMETERS:');      PRINIT    803
007051              WRITELN(' ',SIMSPEC.MODEL);                              PRINIT    804
007061              WRITELN(' ','---------------------------------');        PRINIT    805
007071              WRITELN(' ',SIMSPEC.SUBTITLE);                           PRINIT    806
007101              WRITE  (' ','INTERNAL SIMULATION IDENTIFIER S=');        PRINIT    807
007110              WITH SIMSPEC DO                                          PRINIT    808
007110              WRITELN(    SIMID,'   ',DATE,' ',TIME);                  PRINIT    809
007137              WRITELN;                                                 PRINIT    810
007140              STARTFLAG:=TRUE;                                         PRINIT    811
007141              LNCOUNTER:=0;                                            PRINIT    812
007142                                                                       PRINIT    813
007142              PAGE(COM2);                                              PRINIT    814
007146              WRITELN(COM2);                                           PRINIT    815
007147              WRITELN(COM2);                                           PRINIT    816
007150              WRITE  (COM2,' ','VALUES OF VARIOUS MODEL PARAMETERS:'); PRINIT    817
007157              WRITELN(COM2,' ',SIMSPEC.MODEL);                         PRINIT    818
007167              WRITELN(COM2,' ','---------------------------------');   PRINIT    819
007177              WRITELN(COM2,' ',SIMSPEC.SUBTITLE);                      PRINIT    820
007207              WRITE  (COM2,' ','INTERNAL SIMULATION IDENTIFIER S=');   PRINIT    821
007216              WITH SIMSPEC DO                                          PRINIT    822
007216              WRITELN(COM2,SIMID,'   ',DATE,' ',TIME);                 PRINIT    823
007245              WRITELN(COM2);                                           PRINIT    824
007246            END(*CASE SNR=0*);                                         PRINIT    825
007247          END(*CASE*);                                                 PRINIT    826
007274        END(*WITH SITE[SNR] ETC ...*);                                 PRINIT    827
007274                                                                       PRINIT    828
007274        WITH R0 DO                                                     PRINIT    829
007274        BEGIN                                                          PRINIT    830
007274          SITENR:= 0;                                                  PRINIT    831
007275          FOR IV:= T TO UNDEF DO Z[IV]:=0;                             PRINIT    832
007310        END(*WITH*);                                                   PRINIT    833
007310        R[SNR]:=R0;                                                    PRINIT    834
007320        RR:=R0;                                                        PRINIT    835
007323      END(*INITIALIZATION*);                                           PRINIT    836
007707                                                                       PPSAVE      2
007707    PROCEDURE SAVE(WHEN: INTEGER; SNR: SITEINDEX);                     PPSAVE      3
000005      (*SAVES VALUES OF STATE VARIABLES, PARAMETERS ETC. OF SITE       PPSAVE      4
000005      SNR INTO THE INTERMEDIATE STORAGE VARIABLE R *)                  PPSAVE      5
000005                                                                       PPSAVE      6
000005      BEGIN(*SAVE*)                                                    PPSAVE      7
000005        WITH SITE[SNR],BUDMOTH,LARCH,GRAZING DO                        PPSAVE      8
000016        BEGIN                                                          PPSAVE      9
000016          IF DEBUG THEN                                                PPSAVE     10
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000017          WRITE(' ','FROM SAVE(',WHEN:1,'), SITE ',SNR:1,', ',YEAR:1,    PPSAVE     11
000054                ':');                                                    PPSAVE     12
000056          CASE WHEN OF                                                   PPSAVE     13
000063          -2:BEGIN (*INITIALIZATION OF THE WHOLE ARRAY R*)               PPSAVE     14
000063               R0.Z[SQLADE]:=R[SNR].Z[SQLADE];                           PPSAVE     15
000070               R0.Z[WSQLD ]:=R[SNR].Z[WSQLD ];                           PPSAVE     16
000074               R0.Z[SQOUT ]:=R[SNR].Z[SQOUT ];                           PPSAVE     17
000077               R[SNR]:=R0;                                               PPSAVE     18
000106               R[SNR].SITENR:=SNR;                                       PPSAVE     19
000112             END;                                                        PPSAVE     20
000113          -1:BEGIN (*INITIALIZATION OF VARIABLES USED BY SPATIAL         PPSAVE     21
000113                   DYNAMICS*)                                            PPSAVE     22
000113               R[SNR].Z[IMM   ]:=0;                                      PPSAVE     23
000122               R[SNR].Z[EMI   ]:=0;                                      PPSAVE     24
000127               R[SNR].Z[ACTF  ]:=0;                                      PPSAVE     25
000134               R[SNR].Z[DOWF  ]:=0;                                      PPSAVE     26
000141               R[SNR].Z[FUG   ]:=0;                                      PPSAVE     27
000146               AUTOCHEGGS:=0;                                            PPSAVE     28
000150               STRANGEGGS:=0;                                            PPSAVE     29
000150             END;                                                        PPSAVE     30
000151          0: BEGIN (*FINAL ASSIGNMENTS AND WRITING ONTO FILE RESULTS*)   PPSAVE     31
000151               IF (1949<=YEAR)AND(YEAR<=1977) THEN                       PPSAVE     32
000155               BEGIN                                                     PPSAVE     33
000155                 IF (SNR>=1)AND(SNR<=SAVNROFSITES) THEN                  PPSAVE     34
000157                 BEGIN (*IMMIGRATION, BOTH*)                             PPSAVE     35
000157                   R[SNR].Z[OLADEN]:= OLADEUNDEF;                        PPSAVE     36
000163                   READ(OBSERVATIONS,R[SNR].Z[OLADE ]);                  PPSAVE     37
000171                   WITH R[SNR] DO                                        PPSAVE     38
000176                   BEGIN                                                 PPSAVE     39
000176                     Z[SQLADE]:= Z[SQLADE]+SQR(Z[OLADE]-Z[LADE]);        PPSAVE     40
000201                     Z[WSQLD ]:= Z[OLADE]-Z[LADE];                       PPSAVE     41
000202                     Z[SQOUT ]:= 0;                                      PPSAVE     42
000205                   END;                                                  PPSAVE     43
000205                   R[SNR].Z[OLADEX]:= OLADEUNDEF;                        PPSAVE     44
000211                 END ELSE                                                PPSAVE     45
000211                 BEGIN (*NOMIGRATION, IMMIGRATION*)                      PPSAVE     46
000211                   R[SNR].Z[OLADEN]:= OLADEMIN[YEAR];                    PPSAVE     47
000220                   R[SNR].Z[OLADE ]:= OBSERVEDLADENS[YEAR];              PPSAVE     48
000226                   WITH R[SNR] DO                                        PPSAVE     49
000232                   Z[SQLADE]:= Z[SQLADE]+SQR(Z[OLADE]-Z[LADE]);          PPSAVE     50
000235                   R[SNR].Z[OLADEX]:= OLADEMAX[YEAR];                    PPSAVE     51
000245                   WITH R[SNR] DO                                        PPSAVE     52
000251                   BEGIN                                                 PPSAVE     53
000251                     IF Z[LADE]>Z[OLADEX]                                PPSAVE     54
000251                     THEN Z[SQOUT]:=Z[SQOUT]+SQR(Z[LADE]-Z[OLADEX])      PPSAVE     55
000253                     ELSE                                                PPSAVE     56
000255                     IF Z[LADE]<Z[OLADEN]                                PPSAVE     57
000255                     THEN Z[SQOUT]:=Z[SQOUT]+SQR(Z[OLADEN]-Z[LADE]);     PPSAVE     58
000261                   END(*WITH*);                                          PPSAVE     59
000261                 END;                                                    PPSAVE     60
000261               END ELSE                                                  PPSAVE     61
000262               BEGIN                                                     PPSAVE     62
000262                 R[SNR].Z[OLADEN]:= OLADEUNDEF;                          PPSAVE     63
000267                 R[SNR].Z[OLADE ]:= OLADEUNDEF;                          PPSAVE     64
000273                 R[SNR].Z[SQLADE]:= 0;                                   PPSAVE     65
000300                 R[SNR].Z[WSQLD ]:= 0;                                   PPSAVE     66
000306                 R[SNR].Z[SQOUT ]:= 0;                                   PPSAVE     67
000313                 R[SNR].Z[OLADEX]:= OLADEUNDEF;                          PPSAVE     68
000317               END;                                                      PPSAVE     69
000317               R[SNR].Z[T]:= YEAR;                                       PPSAVE     70
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000327              IF DEBUG THEN                                          PPSAVE     71
000330              BEGIN                                                  PPSAVE     72
000330                WRITE(' ','OLADEN',R[SNR].Z[OLADEN]:8:3);            PPSAVE     73
000350                WRITE(',','LADE'  ,R[SNR].Z[LADE  ]:8:3);            PPSAVE     74
000370                WRITE(',','OLADE' ,R[SNR].Z[OLADE ]:8:3);            PPSAVE     75
000410                WRITE(',','OLADEX',R[SNR].Z[OLADEX]:8:3);            PPSAVE     76
000430              END;                                                   PPSAVE     77
000430              WRITE(RESULTS,R[SNR]);                                 PPSAVE     78
000441            END;                                                     PPSAVE     79
000442          1: BEGIN (*SAVING RESULTS OF LOCAL DYNAMICS*)              PPSAVE     80
000442              R[SNR].Z[IMM   ]:= IMMIGRATORS;                        PPSAVE     81
000451              R[SNR].Z[EGG   ]:= EGGS;                               PPSAVE     82
000457              R[SNR].Z[SML   ]:= SMALLARVAE;                         PPSAVE     83
000465              R[SNR].Z[MSML  ]:= MORTSMALL;                          PPSAVE     84
000470              R[SNR].Z[LAL   ]:= LARGELARVAE;                        PPSAVE     85
000476              R[SNR].Z[PUPW  ]:= FEMPUPWEIGHT;                       PPSAVE     86
000502              R[SNR].Z[MLLPM ]:= MORTLARGELAPUMO;                    PPSAVE     87
000505              R[SNR].Z[FEM   ]:= FEMALES;                            PPSAVE     88
000513              R[SNR].Z[FEMW  ]:= FEMOWEIGHT;                         PPSAVE     89
000517              R[SNR].Z[EMI   ]:= EMIGRATORS;                         PPSAVE     90
000525              R[SNR].Z[FOL   ]:= FOLIAGE;                            PPSAVE     91
000531              R[SNR].Z[RF    ]:= RAWFIBER;                           PPSAVE     93
000534              R[SNR].Z[DEFOL ]:= DEFOLIATION;                        PPSAVE     94
000540              R[SNR].Z[FEC   ]:= FECUNDITY;                          PPSAVE     95
000544              R[SNR].Z[DEM   ]:= FOODDEMAND;                         PPSAVE     96
000550              R[SNR].Z[EAT   ]:= EATEN;                              PPSAVE    101
000554              R[SNR].Z[STARV ]:= STARVATION;                         PPSAVE    102
000557                                                                     PPSAVE    103
000557              IF DEBUG THEN                                          PPSAVE    104
000560              BEGIN                                                  PPSAVE    105
000560                WRITE(' ','RF'   ,RAWFIBER:5:1);                     PPSAVE    106
000574                WRITE(',','EGG'  ,EGGS:14);                          PPSAVE    107
000610                WRITE(',','MSML' ,MORTSMALL:6:3);                    PPSAVE    108
000624                WRITE(',','LAL'  ,LARGELARVAE:10);                   PPSAVE    109
000640                WRITE(',','STARV',STARVATION:6:3);                   PPSAVE    110
000654                WRITE(',','FEM'  ,FEMALES:8);                        PPSAVE    111
000670                WRITE(',','FEC'  ,FECUNDITY:4:1);                    PPSAVE    112
000704              END;                                                   PPSAVE    113
000704            END;                                                     PPSAVE    114
000705          2: BEGIN                                                   PPSAVE    115
000705              (*SUMMING UP TOTAL OF FEMALES EMIGRATING FROM THE SITE*) PPSAVE    116
000705              R[SNR].Z[EMI   ]:= R[SNR].Z[EMI   ]+EMIGRATORS;        PPSAVE    117
000721              IF DEBUG THEN WRITE(' ','EMI'   ,EMIGRATORS:8);        PPSAVE    118
000736            END;                                                     PPSAVE    119
000737          3: BEGIN                                                   PPSAVE    120
000737              (*SUMMING UP TOTAL OF FEMALES ACTIVELY FLYING OUT OF   PPSAVE    121
000737              SITE*)                                                 PPSAVE    122
000737              R[SNR].Z[ACTF  ]:= R[SNR].Z[ACTF  ]+EMIGRATORS;        PPSAVE    123
000753              IF DEBUG THEN WRITE(',','ACTF'  ,EMIGRATORS:8);        PPSAVE    124
000770            END;                                                     PPSAVE    125
000771          4: BEGIN                                                   PPSAVE    126
000771              (*SUMMING UP TOTAL OF FEMALES PASSIVELY FLYING OUT OF  PPSAVE    127
000771              SITE*)                                                 PPSAVE    128
000771              R[SNR].Z[DOWF  ]:= R[SNR].Z[DOWF  ]+EMIGRATORS;        PPSAVE    129
001005              IF DEBUG THEN WRITE(',','DOWF'  ,EMIGRATORS:8);        PPSAVE    130
001022            END;                                                     PPSAVE    131
001023          5: BEGIN (*SUMMING UP FEMALES IMMIGRATED AND LAYING EGGS*) PPSAVE    132
001023              R[SNR].Z[IMM   ]:=R[SNR].Z[IMM   ]+IMMIGRATORS;        PPSAVE    133
001036              IF DEBUG THEN WRITE(',','IMM'   ,IMMIGRATORS:8);       PPSAVE    134
001052            END;                                                     PPSAVE    135
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001053          6: BEGIN (*SUMMING UP EGGS LOST TO THE SYSTEM BECAUSE          PPSAVE    136
001053                   CARRIED AWAY BY THE FUGITIVE FEMALES*)                PPSAVE    137
001053               R[SNR].Z[FUG   ]:=R[SNR].Z[FUG   ]+EMIGRATORS;            PPSAVE    138
001067               IF DEBUG THEN WRITE(',','FUG'   ,EMIGRATORS:8);           PPSAVE    139
001104             END;                                                        PPSAVE    140
001105          7: BEGIN                                                       PPSAVE    141
001105               (*SAVING FINAL RESULTS OF MIGRATION PROCESS SIMULATED     PPSAVE    142
001105               FOR FEMALES PRODUCED BY SITE SNR*)                        PPSAVE    143
001105               R[SNR].Z[AEGG  ]:= AUTOCHEGGS;                            PPSAVE    144
001115               R[SNR].Z[SEGG  ]:= STRANGEGGS;                            PPSAVE    145
001122               R[SNR].Z[INV   ]:= INVEGGS;                               PPSAVE    146
001130               R[SNR].Z[NETMIG]:=R[SNR].Z[IMM   ]-R[SNR].Z[EMI   ];      PPSAVE    147
001142               IF DEBUG THEN                                             PPSAVE    148
001143               BEGIN                                                     PPSAVE    149
001143                 WRITE(',','AEGG'  ,AUTOCHEGGS:10);                      PPSAVE    150
001157                 WRITE(',','SEGG'  ,STRANGEGGS:10);                      PPSAVE    151
001173                 WRITE(',','INV'   ,INVEGGS:10);                         PPSAVE    152
001206               END;                                                      PPSAVE    153
001206             END;                                                        PPSAVE    154
001207          END(*CASE*);                                                   PPSAVE    155
001221          IF DEBUG AND (WHEN<>-2) THEN WRITELN;                          PPSAVE    156
001226        END(*WITH*);                                                     PPSAVE    157
001226      END(*SAVE*);                                                       PPSAVE    158
001264                                                                         PPSAMPLE    2
001264      PROCEDURE SAMPLING(SNR: SITEINDEX);                                PPSAMPLE    3
000004        (*SAMPLING OF LARVAL DENSITIES AND CALCULATING OF LADE, SO       PPSAMPLE    4
000004        IN FACT SIMULATION OF REAL LARVAL CENSUS IN THE FIELD*)           PPSAMPLE    5
000004                                                                         PPSAMPLE    6
000004        CONST  PROPSML = 0.05     (*PROPORTION OD SMALL LARVAE OF        PPSAMPLE    7
000004                                  LARCH BUD MOTH LARVAE*);               PPSAMPLE    8
000004                                  (*AUE 74,10 FOR WEEKNO. 27*)           PPSAMPLE    9
000004               PROPLAL = 0.95     (*PROPORTION OF LARGE LARVAE           PPSAMPLE   10
000004                                  OF LARCH BUD MOTH LARVAE*);            PPSAMPLE   11
000004                                  (*AUE 74,10 FOR WEEKNO. 27*)           PPSAMPLE   12
000004                                                                         PPSAMPLE   13
000004        BEGIN(*SAMPLING*)                                                PPSAMPLE   14
000004          OUTPARAM('PROPSML',PROPSML,5,2,                                PPSAMPLE   15
000012          'PROPORTION OF SMALL LARVAE. AUE 74,10 FOR WEEKNO. 27');       PPSAMPLE   16
000015          OUTPARAM('PROPLAL',PROPLAL,5,2,                                PPSAMPLE   17
000020          'PROPORTION OF LARGE LARVAE. AUE 74,10 FOR WEEKNO. 27');       PPSAMPLE   18
000023          WITH SITE[SNR],BUDMOTH,LARCH DO                                PPSAMPLE   19
000032          R[SNR].Z[LADE  ]:=(PROPSML*SMALLARVAE                          PPSAMPLE   20
000035                             + PROPLAL*LARGELARVAE)                      PPSAMPLE   21
000044                             /LARCH.TREES/BRANCHPERTREE;                 PPSAMPLE   22
000051        END(*SAMPLING*);                                                 PPSAMPLE   23
000105                                                                         PPMODELB    2
000105                                                                         DPSITEDYN   2
000105      PROCEDURE SITEDYNAMICS(SNR:SITEINDEX );                            DPSITEDYN   3
000004        (*LOCAL DYNAMICS OF THE SNR'TH SITE (MIGRATION EXCLUDED)*)       DPSITEDYN   4
000004                                                                         DPSITEDYN   5
000004        (************************************************)               DPSITEDYN   6
000004        (*                                              *)               DPSITEDYN   7
000004        (*  MODEL B: LARCH-LARCH BUD MOTH RELATIONSHIP  *)               DPSITEDYN  11
000004        (*                                              *)               DPSITEDYN  29
000004        (************************************************)               DPSITEDYN  30
000004                                                                         DCSITEDYN   2
000004        CONST                                                            DCSITEDYN   3
000004          MORTEGGS = 0.5728;  (*/D*) (*EGGMORTALITY*)                    DCSITEDYN   9
000004          LARGELIFE = 34.2;   (*D*)  (*AVERAGE NUMBER OF DAYS THE        DCSITEDYN  19
000004                                     LIFE SPAN OF LARGE LARVAE LASTS*)   DCSITEDYN  20
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000004                              (*MA6,293: 40-50 MINUS 15 DAYS FOR    DCSITEDYN  21
000004                              L1L2 RESULTS IN A MEAN OF 30 DAYS.    DCSITEDYN  22
000004                              30 DAYS MINUS THE HALF OF L3, WHICH   DCSITEDYN  23
000004                              LASTS 6 DAYS AFTER BE2,219, RESULTS   DCSITEDYN  24
000004                              IN 27 DAYS. WHILE THESE DAYS A SUB-   DCSITEDYN  25
000004                              STANTIAL AMOUNT OF FOLIAGE IS CON-    DCSITEDYN  26
000004                              SUMED*)                               DCSITEDYN  27
000004        DAYNEED = 0.00004;  (*KG/D*) (*DAYLY NEEDLEMASSDEMAND OF A  DCSITEDYN  30
000004                            LARGELARVAE*)                           DCSITEDYN  31
000004        WASTEFACTOR = 4.0;  (*FACTOR TO CALCULATE FROM FOODDEMAND   DCSITEDYN  45
000004                            THE REAL DEFOLIATION (INCLUDING EATEN   DCSITEDYN  47
000004                            AND WASTED FOLIAGE) *)                  DCSITEDYN  48
000004        DEFOLTHRESHOLD = 0.4; (*PERCENT*)                           DCSITEDYN  62
000004        MAXRAWFIB = 18.0;   (*PERCENT*)                             DCSITEDYN  64
000004        MINRAWFIB = 11.99;  (*FI UNPUBL. DATA*)                     DCSITEDYN  69
000004        RAWFIBDECR = 0.425; (*PERCENT*) (*WHEN NO DEFOLIATION       DCSITEDYN  70
000004                            OCCURS THE LARCHTREE RECOVERS BY        DCSITEDYN  71
000004                            DECREASING RAWFIBER CONTENT IN THE      DCSITEDYN  72
000004                            FOLIAGE*)                               DCSITEDYN  73
000004        SEXRATIO = 0.44;    (*FRACTION OF FEMALES IN THE MOTH       DCSITEDYN  80
000004                            POPULATION*)                            DCSITEDYN  81
000004                                                                    PFMORTSMA   2
000004      FUNCTION FMORTSMALL(RF: REAL ): REAL;                         PFMORTSMA   3
000004        (*DETERMINES MORTALITY OF SMALL LARCH BUD MOTH LARVAE (L1L2) AS PFMORTSMA   4
000004        FUNCTION OF RAWFIBER RF*)                                   PFMORTSMA   5
000004                                                                    PFMORTSMA   6
000004        CONST                                                       PFMORTSMA   7
000004          M=  0.051116;                                             PFMORTSMA  40
000004          C= -0.179318;                                             PFMORTSMA  41
000004                                                                    PFMORTSMA  43
000004        VAR                                                         PFMORTSMA  44
000004          MORT: REAL;                                               PFMORTSMA  45
000005                                                                    PFMORTSMA  46
000005        BEGIN(*FMORTSMALL*)                                         PFMORTSMA  47
000005          MORT:= M*RF+C;                                            PFMORTSMA  48
000011          OUTPARAM('C2',M,9,6,                                      PFMORTSMA  49
000013                   'SLOPE L.R. MORTALITY OF L1L2 VS RF');           PFMORTSMA  50
000016          OUTPARAM('C3',C,9,6,                                      PFMORTSMA  51
000021                   'Y-INTERCEPT (OM3,TAB5, 16 U. 10/BE2,204 ABB.2)'); PFMORTSMA  56
000024          IF MORT<0 THEN MORT:=0;                                   PFMORTSMA  58
000033          IF MORT>1-REFUGE THEN MORT:=1-REFUGE;                     PFMORTSMA  59
000043          OUTPARAM('REFUGE',REFUGE,6,3,                             PFMORTSMA  60
000046          'FMORTSMALL=1-REFUGE IF MORT>1 ELSE FMORTSMALL=MORT');    PFMORTSMA  61
000051          FMORTSMALL:=MORT;                                         PFMORTSMA  62
000053        END(*FMORTSMALL*);                                          PFMORTSMA  63
000124                                                                    PFFOLIAGE   2
000124      FUNCTION FFOLIAGE(RF: REAL; SNR: SITEINDEX): REAL;            PFFOLIAGE   3
000005        (*DETERMINES FOLIAGE (KG NEEDLES / SITE) OF LARCH AS        PFFOLIAGE   4
000005        FUNCTION OF RAWFIBER*)                                      PFFOLIAGE   5
000005                                                                    PFFOLIAGE   6
000005        CONST                                                       PFFOLIAGE   7
000005          MAXNEEDLELENGTH = 28.67; (*MM*)                           PFFOLIAGE   8
000005          (*BALTENSWEILER UNPUBL. DATA*)                            PFFOLIAGE   9
000005          MINNEEDLELENGTH = 19.01; (*MM*)                           PFFOLIAGE  10
000005          (*BALTENSWEILER UNPUBL. DATA*)                            PFFOLIAGE  11
000005                                                                    PFFOLIAGE  12
000005        VAR                                                         PFFOLIAGE  13
000005          ACTUALNEEDLELENGTH: REAL;(*MM*)                           PFFOLIAGE  14
000006          M,C: REAL;                                                PFFOLIAGE  15
000010          C4DASH,C5DASH: REAL;                                      PFFOLIAGE  16
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000012          C4,C5: REAL;                                                    PFFOLIAGE  17
000014          SNO: INTEGER; (*LOCALLY USED SITENUMBER FOR OUTPARAM*)          PFFOLIAGE  18
000015                                                                          PFFOLIAGE  19
000015        BEGIN(*FFOLIAGE*)                                                 PFFOLIAGE  20
000015          M:= (MINNEEDLELENGTH-MAXNEEDLELENGTH)/(MAXRAWFIB-MINRAWFIB);   PFFOLIAGE  21
000013          C:= MINNEEDLELENGTH - M*MAXRAWFIB;                              PFFOLIAGE  32
000015          ACTUALNEEDLELENGTH:= M*RF+C;                                    PFFOLIAGE  34
000016          OUTPARAM('MAXNEEDLELENGTH',MAXNEEDLELENGTH,6,2,                 PFFOLIAGE  35
000021          'IN MM. BALTENSWEILER UNPUBL.DATA');                            PFFOLIAGE  36
000024          OUTPARAM('MINNEEDLELENGTH',MINNEEDLELENGTH,6,2,                 PFFOLIAGE  37
000027          'S.A.');                                                        PFFOLIAGE  38
000032          ACTUALNEEDLELENGTH:= M*RF+C;                                    PFFOLIAGE  39
000035          C4DASH:=M*FOLPERTREE/MAXNEEDLELENGTH;                           PFFOLIAGE  40
000037          C5DASH:=C*FOLPERTREE/MAXNEEDLELENGTH;                           PFFOLIAGE  41
000040          OUTPARAM('C4'''',C4DASH,9,6,                                    PFFOLIAGE  42
000043          'COEFF. IN GFOL=NROFTREES*(C4''*RF+C5'')');                     PFFOLIAGE  43
000046          OUTPARAM('C5'''',C5DASH,10,6,                                   PFFOLIAGE  44
000051          'IN GFOL S.A. (LINE BASED ON MIN/MAXNL,MIN/MAXRF,FOLPERTREE');  PFFOLIAGE  45
000054          IF SIMKIND<>BOTH THEN SNO:= SNR ELSE SNO:=0;                    PFFOLIAGE  46
000062          C4:=SITE[SNR].LARCH.TREES*C4DASH;                               PFFOLIAGE  47
000073          C5:=SITE[SNR].LARCH.TREES*C5DASH;                               PFFOLIAGE  48
000101          OUTPARAM('C4',SITE[SNO].LARCH.TREES*C4DASH,10,1,                PFFOLIAGE  49
000111          'SLOPE IN GFOL=C4*RF+C5 (C4=NROFTREES*C4'')');                  PFFOLIAGE  50
000114          OUTPARAM('C5',SITE[SNO].LARCH.TREES*C5DASH,11,1,                PFFOLIAGE  51
000126          'Y-INTERCEPT IN GFOL S.A. (C5=NROFTREES*C5'')');                PFFOLIAGE  52
000131          OUTPARAM('NROFTREES',SITE[SNO].LARCH.TREES,7,0,                 PFFOLIAGE  53
000143          'NUMBER OF TREES IN SITE SNR (WIRTSCH.PLAENE)');                PFFOLIAGE  54
000146          OUTPARAM('SNR',SNO,3,0,                                         PFFOLIAGE  55
000153          'SITE NUMBER (SNR) WITH NROFTREES AS ABOVE');                   PFFOLIAGE  56
000156          OUTPARAM('NAME OF SITE',SITE[SNO].CODE,3,0,SITE[SNO].NAME);     PFFOLIAGE  57
000176          FFOLIAGE:= C4*RF+C5;                                            PFFOLIAGE  61
000201        END(*FFOLIAGE*);                                                  PFFOLIAGE  62
000362                                                                          PFSTARVAT   2
000362      FUNCTION FSTARVATION(FOL,DEM: REAL): REAL;                          PFSTARVAT   3
000005        (*CALCULATES STARVATIONMORTALITY OF LARGELARVAE AS FUNCTION        PFSTARVAT   4
000005        OF AVAILABLE LARCH FOLIAGE AND FOODDEMAND *)                      PFSTARVAT   5
000005                                                                          PFSTARVAT   6
000005        BEGIN(*STARVATION*)                                               PFSTARVAT   7
000005          IF DEM=0 THEN FSTARVATION:=0                                    PFSTARVAT  13
000012                   ELSE FSTARVATION:=EXP(-FOL/DEM);                       PFSTARVAT  14
000021        END(*STARVATION*);                                                PFSTARVAT  16
000031                                                                          PFMORTLAR   2
000031      FUNCTION FMORTLARGELAPUMO(RF: REAL): REAL;                          PFMORTLAR   3
000004        (*DETERMINES MORTALITY OF LARGELARVAE(L3L4L5), PUPAE AND          PFMORTLAR   4
000004        FRESHLY EMERGED MOTHS AS FUNCTION OF THE RAWFIBER CONTENT         PFMORTLAR   5
000004        RF IN LARCH FOLIAGE*)                                             PFMORTLAR   6
000004                                                                          PFMORTLAR   7
000004        CONST                                                             PFMORTLAR   8
000004          M=  0.124017;  (*L.R. II  BE2,211 TAB.8 ONLY OE EXCEPT*)        PFMORTLAR  41
000004          C= -1.435284;  (*S-CHANF 24 TREE AND LARVAE*)                   PFMORTLAR  42
000004                                                                          PFMORTLAR  44
000004        VAR MORT: REAL;                                                   PFMORTLAR  45
000005                                                                          PFMORTLAR  46
000005        BEGIN(*FMORTLARGELAPUMO*)                                         PFMORTLAR  47
000005          MORT:= M*RF+C;                                                  PFMORTLAR  48
000011          OUTPARAM('C7',M,9,6,                                            PFMORTLAR  50
000013                   'SLOPE L.R. MORTALITY OF L3L4L5P VS RF');              PFMORTLAR  51
000016          OUTPARAM('C8',C,9,6,                                            PFMORTLAR  52
000021          'Y-INTERCEPT L.R. S.A. (BE2,211 TAB8 OE EXCEPT SCHANF 24)');    PFMORTLAR  54
000024          IF MORT<0 THEN MORT:=0;                                         PFMORTLAR  64
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000033          IF MORT>1-REFUGE THEN MORT:=1-REFUGE;                          PFMORTLAR  65
000043          FMORTLARGELAPUMO:= MORT;                                       PFMORTLAR  66
000045        END(*FMORTLARGELAPUMO*);                                         PFMORTLAR  67
000103                                                                         PFFEPUPW    2
000103      FUNCTION FFEMPUPW (RF: REAL): REAL;                                PFFEPUPW    4
000004        (*DETERMINES WEIGHT OF A FEMALE PUPA FPW IN FUNCTION OF          PFFEPUPW    7
000004        RAWFIBER RF*)                                                    PFFEPUPW    9
000004                                                                         PFFEPUPW   14
000004        CONST                                                            PFFEPUPW   15
000004          M1=-2.03027;  (*SLOPE IN L.R. FPW VS RF*)                      PFFEPUPW   16
000004          C1=56.2996;   (*Y-INTERCEPT IN L.R. S.A.*)                     PFFEPUPW   17
000004                                                                         PFFEPUPW   33
000004        BEGIN(*FFEMPUPW*)                                                PFFEPUPW   34
000004          OUTPARAM('C10''',M1,10,6,                                      PFFEPUPW   56
000012          'SLOPE IN L.R. IV FPW VS RF (BE2,211 TAB.8)');                 PFFEPUPW   57
000015          OUTPARAM('C11''',C1,10,6,                                      PFFEPUPW   58
000020          'Y-INTERCEPT IN L.R. S.A. (OE EXCEPT S-CHANF24 PLUS ALBULA)'); PFFEPUPW   59
000023                                                                         PFFEPUPW   60
000023          FFEMPUPW:=M1*RF+C1;                                            PFFEPUPW   61
000026        END(*FFEMPUPW*);                                                 PFFEPUPW   78
000063                                                                         PFFEMOW     2
000063      FUNCTION FFEMOW (PW: REAL): REAL;                                  PFFEMOW     3
000004        (*DETERMINES WEIGHT OF A FEMALE MOTH IN FUNCTION OF THE WEIGHT   PFFEMOW     4
000004        OF A PUPA PW*)                                                   PFFEMOW     5
000004                                                                         PFFEMOW     6
000004        CONST                                                            PFFEMOW     7
000004          M=  0.68;   (*VA4,114 ABB.3*)                                  PFFEMOW     8
000004          C=  -4.5;                                                      PFFEMOW     9
000004                                                                         PFFEMOW    10
000004        BEGIN(*FFEMOW*)                                                  PFFEMOW    11
000004          OUTPARAM('SLOPE',M,5,1,                                        PFFEMOW    12
000012          'M IN L.R. FEMOW=M*PUPW+C. VA4,114 FIG.3');                    PFFEMOW    13
000015          OUTPARAM('Y-INTERCEPT',C,5,1,                                  PFFEMOW    14
000020          'C IN L.R. ABOVE');                                            PFFEMOW    15
000023          FFEMOW:= M*PW + C;                                             PFFEMOW    16
000026        END(*FFEMOW*);                                                   PFFEMOW    17
000062                                                                         PFFECUND    2
000062      FUNCTION FFECUNDITY(FPW: REAL): REAL;                              PFFECUND    6
000004        (*DETERMINES FECUNDITY OF LARCH BUD MOTH IN FUNCTION OF          PFFECUND    7
000004        FEMALE PUPA WEIGHT FPW*)                                         PFFECUND   11
000004                                                                         PFFECUND   12
000004        CONST                                                            PFFECUND   13
000004          M=       9.1;    (*SLOPE L.R. BE2,203 ABB.2*)                  PFFECUND   15
000004          C=    -155.6;    (*Y-INTERCEPT IN L.R. S.A.*)                   PFFECUND   16
000004          FERTILITY= 1;    (*FRACTION OF FERTILE EGGS IN LAID EGGS*)      PFFECUND   23
000004          MINFEC=    0;    (*IN ANY CASE KEPT MINIMAL FECUNDITY*)         PFFECUND   24
000004        VAR                                                              PFFECUND   26
000004          FEC: REAL;                                                     PFFECUND   27
000005          C10,C11: REAL;                                                 PFFECUND   28
000007          START: BOOLEAN;   (*USED TO SAVE VALUE OF STARTFLAG*)          PFFECUND   29
000010                                                                         PFFECUND   34
000010        BEGIN(*FFECUNDITY*)                                              PFFECUND   35
000010          OUTPARAM('C10''''',M,4,1,                                      PFFECUND   53
000012          'SLOPE FROM L.R. GFEC=M*FPW+C (BE2,203 ABB.2)');               PFFECUND   56
000015          OUTPARAM('C11''''',C,6,1,                                      PFFECUND   58
000020          'Y-INTERCEPT FROM L.R S.A.');                                  PFFECUND   61
000023          START:=STARTFLAG;                                              PFFECUND   63
000027          STARTFLAG:=FALSE; (*TO OMIT UNNECESSARY OUTPARAM OUTPUT        PFFECUND   64
000027                            BY CALLING FFEMPUPW STARTFLAG MUST BE        PFFECUND   65
000027                            CLEARED*)                                    PFFECUND   66
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000027          C10:=M*(FFEMPUPW(1)-FFEMPUPW(0));                                PFFECUND   67
000043          STARTFLAG:=START;                                                PFFECUND   68
000046          OUTPARAM('C10',C10,10,6,                                         PFFECUND   69
000051          'C10=C10''*C10'''' SLOPE IN L.R. GFEC=M*RF+C');                  PFFECUND   70
000054          START:=STARTFLAG;                                                PFFECUND   71
000060          STARTFLAG:=FALSE;                                                PFFECUND   72
000060          C11:=C+M*FFEMPUPW(0);                                            PFFECUND   73
000067          STARTFLAG:=START;                                                PFFECUND   74
000072          OUTPARAM('C11',C11,11,6,                                         PFFECUND   75
000075          'C11=C11''''+C10''''*C11'' Y-INTERCEPT IN L.R. S.A.');           PFFECUND   76
000100          OUTPARAM('FERTILITY',FERTILITY,6,3,                              PFFECUND   78
000105          'FRACTION OF FERTILE EGGS IN LAID EGGS');                        PFFECUND   79
000110          OUTPARAM('MINFEC',MINFEC,6,2,                                    PFFECUND   80
000115          'IN ANY CASE KEPT MINIMAL FECUNDITY');                           PFFECUND   81
000120                                                                           PFFECUND   82
000120          FEC:=M*FPW+C;                                                    PFFECUND   84
000123          FEC:=FERTILITY*FEC;                                              PFFECUND   85
000126          IF FEC>=MINFEC THEN FFECUNDITY:=FEC ELSE FFECUNDITY:=MINFEC;     PFFECUND   86
000135        END(*FFECUNDITY*);                                                 PFFECUND   87
000252                                                                           PFRFTRANS   2
000252      FUNCTION RFTRANSFORM(RF,DEFOL: REAL): REAL;                          PFRFTRANS   3
000005        (*CALCULATES NEW VALUE OF RAWFIBER AS FUNCTION OF DEFOLIATION      PFRFTRANS   4
000005        DEFOL AND OLD RAWFIBER VALUE RF*)                                  PFRFTRANS   5
000005                                                                           PFRFTRANS   6
000005        CONST                                                              PFRFTRANS   7
000005          DEFOLMAX=0.80;                                                   PFRFTRANS  11
000005                                                                           PFRFTRANS  12
000005        BEGIN(*RFTRANSFORM*)                                               PFRFTRANS  13
000005          OUTPARAM('C12',MINRAWFIB,6,2,                                    PFRFTRANS  29
000012          'MINRAWFIB [PERCENTS] FI UNPUBL.DATA');                          PFRFTRANS  30
000015          OUTPARAM('C13',RAWFIBDECR,6,3,                                   PFRFTRANS  31
000020          'RAWFIBDECR [PERCENTS] ESTIMATION');                             PFRFTRANS  32
000023          OUTPARAM('C14',MAXRAWFIB,5,1,                                    PFRFTRANS  33
000026          'MAXRAWFIB [PERCENTS] BE2');                                     PFRFTRANS  34
000031          OUTPARAM('C15',DEFOLTHRESHOLD,5,2,                               PFRFTRANS  35
000034          'DEFOLTHRESHOLD [PERCENTS] ESTIMATION');                         PFRFTRANS  36
000037          OUTPARAM('C16',DEFOLMAX,5,2,                                     PFRFTRANS  37
000042          'DEFOLMAX: DEFOLIATION ABOVE WHICH RF INCREASES TO MAX');        PFRFTRANS  38
000045                                                                           PFRFTRANS  52
000045          WITH SITE[SNR],LARCH DO                                          PFRFTRANS  53
000054          BEGIN                                                            PFRFTRANS  54
000054            IF DEFOL < DEFOLTHRESHOLD THEN                                 PFRFTRANS  55
000056            BEGIN                                                          PFRFTRANS  56
000056              IF RF=MINRAWFIB THEN RFTRANSFORM:=1                          PFRFTRANS  63
000060              ELSE                                                         PFRFTRANS  64
000063              IF (RF-MINRAWFIB)<(RAWFIBDECR+ABS((MAXRAWFIB-RF)/            PFRFTRANS  65
000065                                 (RF-MINRAWFIB)))                          PFRFTRANS  66
000067              THEN RFTRANSFORM:=MINRAWFIB/RF                               PFRFTRANS  67
000070              ELSE RFTRANSFORM:=(RF-(RAWFIBDECR+ABS((MAXRAWFIB-RF)/        PFRFTRANS  68
000072                                    (RF-MINRAWFIB))))/RF;                  PFRFTRANS  69
000075            END ELSE                                                       PFRFTRANS  71
000076            IF DEFOL<DEFOLMAX THEN                                         PFRFTRANS  72
000100            RFTRANSFORM:= ((DEFOL-DEFOLTHRESHOLD)*(MAXRAWFIB-RF)           PFRFTRANS  73
000102                          /((DEFOLMAX-DEFOLTHRESHOLD)*RF))+1               PFRFTRANS  74
000103            ELSE                                                           PFRFTRANS  75
000107            RFTRANSFORM:= MAXRAWFIB/RF;                                    PFRFTRANS  76
000111                                                                           PFRFTRANS  77
000111          END(*WITH*);                                                     PFRFTRANS  78
000111        END(*RFTRANSFORM*);                                                PFRFTRANS  79
000202                                                                           PRSITEDYB   2
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000202 (*$L+*)                                                          PRSITEDYB   3
000202       BEGIN(*SITEDYNAMICS*)                                      PRSITEDYB   4
000202         SAVE(-2,SNR);                                            PRSITEDYB   5
000014         IF SIMKIND=IMMIGRATION THEN SAVE(-1,SNR);                PRSITEDYB   6
000023         WITH SITE[SNR],BUDMOTH,LARCH,GRAZING DO                  PRSITEDYB   7
000033         BEGIN                                                    PRSITEDYB   8
000033           (*STARTING AT THE BEGINNING OF THE WINTER*)            PRSITEDYB   9
000033           IF SIMKIND<>BOTH                                       PRSITEDYB  10
000033           THEN EGGS:=EGGS + INVEGGS                              PRSITEDYB  11
000035           ELSE EGGS:=EGGS + AUTOCHEGGS + STRANGEGGS + INVEGGS;   PRSITEDYB  12
000042           EGGS:= TRUNC(EGGS*(1-MORTEGGS));                       PRSITEDYB  13
000052                                                                  PRSITEDYB  14
000052           OUTPARAM('C1',MORTEGGS,7,4,                            PRSITEDYB  20
000055           '/D MORTEGGS: EGGMORTALITY. MA6,311,TAB.17 U. DE5');   PRSITEDYB  21
000060                                                                  PRSITEDYB  23
000060           (*HATCHING OF EGGS*)                                   PRSITEDYB  24
000060           SMALLARVAE:= EGGS;                                     PRSITEDYB  25
000062                                                                  PRSITEDYB  26
000062           (*DEVELOPMENT OF SMALL LARVAE (L1,L2)*)                PRSITEDYB  27
000062           MORTSMALL:= FMORTSMALL(RAWFIBER);                      PRSITEDYB  28
000066           SMALLARVAE:= TRUNC(SMALLARVAE*(1-MORTSMALL));          PRSITEDYB  29
000075                                                                  PRSITEDYB  30
000075           (*HATCHING AND DEVELOPMENT OF LARGE LARVAE (L3,L4,L5)*) PRSITEDYB  31
000075           LARGELARVAE:= SMALLARVAE;                              PRSITEDYB  32
000075                                                                  PRSITEDYB  33
000075           (*CENSUS*)                                             PRSITEDYB  34
000075           SAMPLING(SNR);                                         PRSITEDYB  35
000102           OUTPARAM('BRANCHPERTREE',BRANCHPERTREE,5,1,            PRSITEDYB  36
000105           'KG BRANCHES PER LARCH TREE. AU9,126');                PRSITEDYB  37
000110           OUTPARAM('OLADEUNDEF',OLADEUNDEF,8,5,                  PRSITEDYB  38
000113           'OBSERVED LARVAL DENSITY IF NO OBSERVATION HAS BEEN MADE'); PRSITEDYB  39
000116                                                                  PRSITEDYB  53
000116           (*DYNAMICS OF LARCH FOLIAGE*)                          PRSITEDYB  54
000116           FOLIAGE:= FFOLIAGE(RAWFIBER,SNR);                      PRSITEDYB  55
000126           OUTPARAM('FOLPERTREE',FOLPERTREE,6,2,                  PRSITEDYB  56
000131           'KG NEEDLES PER LARCH TREE. AU9,126');                 PRSITEDYB  57
000134                                                                  PRSITEDYB  58
000134           (*GRAZING*)                                            PRSITEDYB  59
000134                                                                  PRSITEDYB  71
000134           OUTPARAM('LARGELIFE',LARGELIFE,6,2,                    PRSITEDYB  72
000137           'IN D. NUMBER OF DAYS LIFE SPAN OF A LARGE LARVAE LASTS'); PRSITEDYB  73
000142           OUTPARAM('WASTEFACTOR',WASTEFACTOR,4,1,                PRSITEDYB  74
000145           'FACTOR TO CALCULATE FROM FOODDEMAND THE REAL DEFOLIATION'); PRSITEDYB  75
000150           OUTPARAM('DAYNEED',DAYNEED,10,7,                       PRSITEDYB  77
000153           'DAYLY NEED OF FOLIAGE OF A LARGELARVAE (GE2,139)');   PRSITEDYB  78
000156           OUTPARAM('C6',WASTEFACTOR*LARGELIFE*DAYNEED,10,7,      PRSITEDYB  82
000163           'C6 = WASTEFACTOR*LARGELIFE*DAYNEED');                 PRSITEDYB  83
000166                                                                  PRSITEDYB 147
000166           (*FOLIAGE REQUIRED FOR SURVIVAL OF ALL LARGELARVAE*)   PRSITEDYB 150
000166           FOODDEMAND:=WASTEFACTOR*DAYNEED*LARGELIFE*LARGELARVAE; PRSITEDYB 151
000175                                                                  PRSITEDYB 155
000175           (*STARVATION OF LARGE LARVAE*)                         PRSITEDYB 156
000175           STARVATION:=FSTARVATION(FOLIAGE,FOODDEMAND);           PRSITEDYB 158
000202           (*MORTALITY BY STARVATION*)                            PRSITEDYB 161
000202           LARGELARVAE:=TRUNC(LARGELARVAE*(1-STARVATION));        PRSITEDYB 162
000212                                                                  PRSITEDYB 171
000212           (*GRAZING AND CONSEQUENCES OF GRAZING ON LARCH TREES*) PRSITEDYB 172
000212           EATEN:=WASTEFACTOR*DAYNEED*LARGELIFE*LARGELARVAE;      PRSITEDYB 196
000217           DEFOLIATION:= EATEN/FOLIAGE;                           PRSITEDYB 202
000220           FOLIAGE:= FOLIAGE-EATEN;                               PRSITEDYB 204
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000222                                                                  PRSITEDYB 205
000222          IF DEBUG THEN                                           PRSITEDYB 206
000223          BEGIN                                                   PRSITEDYB 207
000223            WRITE  (' ','FROM SITEDYNAMICS:');                    PRSITEDYB 208
000232            WRITE  ('   DC:',DAYCONSUMPTION:14:2);                PRSITEDYB 209
000244            WRITE  ('   CONSUMERDAYS:',CONSUMERDAYS:14:2);        PRSITEDYB 210
000256            WRITE  ('   EAT:',EATEN:13:1);                        PRSITEDYB 211
000270            WRITE  ('   FOL:',FOLIAGE:13:1);                      PRSITEDYB 212
000302            WRITE  ('   DEM:',FOODDEMAND:13:1);                   PRSITEDYB 213
000314            WRITELN('   MSTAR:',STARVATION:8:3);                  PRSITEDYB 214
000327            WRITE  ('   PIONEERS:',PIONEERS:13);                  PRSITEDYB 215
000341            WRITELN('   SURVIVORS:',SURVIVORS:13);                PRSITEDYB 216
000354          END;                                                    PRSITEDYB 217
000354          (*END GRAZING*)                                         PRSITEDYB 218
000354                                                                  PRSITEDYB 230
000354          (*PUPATION AND EMERGENCE OF FEMALES*)                   PRSITEDYB 231
000354          (*DEATH BY FOOD QUALITY*)                               PRSITEDYB 232
000354          MORTLARGELAPUMO:= FMORTLARGELAPUMO(RAWFIBER);           PRSITEDYB 233
000361          FEMALES:= TRUNC(SEXRATIO*LARGELARVAE*(1-MORTLARGELAPUMO));  PRSITEDYB 234
000371          OUTPARAM('C9',SEXRATIO,5,2,                             PRSITEDYB 236
000374          'SEXRATIO: FRACTION OF FEMALES IN THE MOTH POPULATION');  PRSITEDYB 239
000377                                                                  PRSITEDYB 240
000377          (*CHARACTERISTICS OF FEMALES*)                          PRSITEDYB 241
000377          FEMPUPWEIGHT:= FFEMPUPW(RAWFIBER);                      PRSITEDYB 243
000404          FECUNDITY:= FFECUNDITY(FEMPUPWEIGHT);                   PRSITEDYB 249
000411          FEMOWEIGHT:= FFEMOW(FEMPUPWEIGHT);                      PRSITEDYB 250
000416                                                                  PRSITEDYB 251
000416          SAVE(1,SNR);                                            PRSITEDYB 252
000423          (*PHYSIOLOGICAL REACTION OF THE LARCH TREE*)             PRSITEDYB 254
000423          RAWFIBER:= RFTRANSFORM(RAWFIBER,DEFOLIATION)*RAWFIBER;  PRSITEDYB 255
000432                                                                  PRSITEDYB 257
000432          (*NEXT GENERATION OF LARCH BUD MOTH*)                   PRSITEDYB 258
000432          CASE SIMKIND OF                                         PRSITEDYB 259
000437          NOMIGRATION:                                            PRSITEDYB 260
000437            BEGIN                                                 PRSITEDYB 261
000437              SAVE(0,SNR);                                        PRSITEDYB 262
000444              EGGS:= TRUNC( (FEMALES-EMIGRATORS)*FECUNDITY );     PRSITEDYB 263
000452            END;                                                  PRSITEDYB 264
000453          IMMIGRATION:                                            PRSITEDYB 265
000453            BEGIN                                                 PRSITEDYB 266
000453              EGGS:= TRUNC( (FEMALES-EMIGRATORS)*FECUNDITY );     PRSITEDYB 267
000461              AUTOCHEGGS:=EGGS;                                   PRSITEDYB 268
000462              STRANGEGGS:=INVEGGS;                                PRSITEDYB 269
000463            END;                                                  PRSITEDYB 270
000463          BOTH:                                                   PRSITEDYB 271
000463            BEGIN                                                 PRSITEDYB 272
000463              SAVE(-1,SNR);                                       PRSITEDYB 273
000470              EGGS:=0;                                            PRSITEDYB 274
000472            END;                                                  PRSITEDYB 275
000472          END(*CASE*);                                            PRSITEDYB 276
000475        END(*WITH*);                                              PRSITEDYB 284
000475        STARTFLAG:=FALSE;                                         PRSITEDYB 285
000476      END(*SITEDYNAMICS*);                                        PRSITEDYB 286
000670 (*$L+*)                                                         PRSITEDYB 287
000670                                                                  PPSPATDYN   2
000670                                                                  DPSPATDYN   2
000670    PROCEDURE SPATIALDYNAMICS (FRSNR: SITEINDEX);                 DPSPATDYN   3
000004      (*CALCULATES SPATIAL DYNAMICS AND OVIPOSITION. THE PROCEDURE  DPSPATDYN   4
000004      STARTS WITH THE NUMBER OF LARCH BUD MOTH FEMALES FROM THE SITE  DPSPATDYN   5
000004      FRSNR*)                                                     DPSPATDYN   6
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000004                                                                  DPSPATDYN   7
000004      CONST                                                       DPSPATDYN   8
000004            MINEXH = 0.0068;  (*=(1-0.966)/5; MINIMAL FRACTION OF DPSPATDYN   9
000004                              EXHAUSTED FEMALES*)                 DPSPATDYN  10
000004                              (*VA4, S.118 FIG.4*)                DPSPATDYN  11
000004            EXHINC = 0.042;   (*=0.21/5; INCREASE IN FRACTION OF  DPSPATDYN  12
000004                              FEMALES EXHAUSTED AFTER HAVING FLOWN DPSPATDYN  13
000004                              1 KM*)                              DPSPATDYN  14
000004                              (*VA4, S.118 FIG.4*)                DPSPATDYN  15
000004            NOTGRASPED = 0.0; (*FRACTION OF FEMALES NOT GRASPED BY DPSPATDYN  16
000004                              THE WIND FIELDS. THEY WILL DISPERSE DPSPATDYN  17
000004                              INDEPENDENTLY OF THE DOMINANT WIND  DPSPATDYN  18
000004                              SYSTEM. HENCE IN THE MODEL THEY WILL DPSPATDYN  19
000004                              BEHAVE LIKE THE CALMFLYERS (SEE BELOW) *) DPSPATDYN  20
000004            ZIGZAGF = 2;      (*=1/COS(X); X = FLIGHT ANGLE BETWEEN DPSPATDYN  21
000004                              WIND VECTOR AND THE INSECT FLIGHT VECTOR. DPSPATDYN  22
000004                              X = 60 DEGREE AT A MEAN WIND SPEED OF DPSPATDYN  23
000004                              THE WEAK WINDS OF 1.93 M/S*)        DPSPATDYN  24
000004            OWNCONTRB= 0.261; (*=1.86/(1.86+5.26); OWN FLIGHT CONTRIBU- DPSPATDYN  25
000004                              TION OF MOTH FLYING WITH WIND AT A MEAN DPSPATDYN  26
000004                              WIND SPEED OF THE STRONG WINDS OF 5.26 DPSPATDYN  27
000004                              M/S; MOTHS WOULD FLY IN CALM WITH A VELO- DPSPATDYN  28
000004                              CITY OF 1.86 M/S (RECALCULATED FROM FLIGHT DPSPATDYN  29
000004                              MILL DATA BY VA4, S.124 FIG. 7 AFTER DPSPATDYN  30
000004                              GR9,292)*)                          DPSPATDYN  31
000004                                                                  DPSPATDYN  32
000004      TYPE                                                        DPSPATDYN  33
000004            FLYTYPE = RECORD                                      DPSPATDYN  34
000004                       FLYERS: INTEGER; (*FEMALES*)               DPSPATDYN  35
000004                       DIST: REAL; (*KM*)                         DPSPATDYN  36
000004                      END(*RECORD*);                              DPSPATDYN  37
000004                                                                  DPSPATDYN  38
000004      VAR                                                         DPSPATDYN  39
000004            EXHAUSTION: REAL;                 (*PERCENTAGE OF     DPSPATDYN  40
000005                                              FEMALES EXHAUSTED PER DPSPATDYN  41
000005                                              FLOWN KM*)          DPSPATDYN  42
000005            FLY: FLYTYPE;                                         DPSPATDYN  43
000007            SETTLING: INTEGER; (*FEMALE*)     (*FEMALES ATTRACTED BY DPSPATDYN  44
000010                                              THE SITE*)          DPSPATDYN  45
000010            POTEMIGRATING: INTEGER; (*FEMALE*) (*FEMALES POTENTIALLY DPSPATDYN  46
000011                                              EMIGRATING*)        DPSPATDYN  47
000011            NOTEMIGRATING: INTEGER; (*FEMALE*) (*FEMALES NOT EMI- DPSPATDYN  48
000012                                              GRATING IN THE VERY END DPSPATDYN  49
000012                                              (FRACTION OF POTEMIGRA- DPSPATDYN  50
000012                                              TING) *)            DPSPATDYN  51
000012            OVIPOSITING: INTEGER; (*FEMALE*)  (*TOTAL OF FEMALES OVI- DPSPATDYN  52
000013                                              POSITING IN THE SITE*) DPSPATDYN  53
000013            ORIGWEIGHT: REAL; (*MG*)          (*WEIGHT OF A FEMALE DPSPATDYN  54
000014                                              IN THE ORIGINAL     DPSPATDYN  55
000014                                              SITE[FRSNR] *)      DPSPATDYN  56
000014            FECUNDITY0: REAL; (*EGG/FEMALE*)  (*OTENTIAL NUMBER OF DPSPATDYN  57
000015                                              EGGS WHICH COULD BE DPSPATDYN  58
000015                                              DEPOSITED BY A FEMALE DPSPATDYN  59
000015                                              IN THE ORIGINAL     DPSPATDYN  60
000015                                              SITE[FRSNR] *)      DPSPATDYN  61
000015            LAIDEGGS: INTEGER; (*EGG*)        (*EGGS LAID IN THE  DPSPATDYN  62
000016                                              SITE*)              DPSPATDYN  63
000016            REST: INTEGER; (*FEMALE*)         (*FEMALES FOR WHICH THE DPSPATDYN  64
000017                                              ALGORITHM HAS NOT YET DPSPATDYN  65
000017                                              DECIDED WHAT WILL HAPPEN DPSPATDYN  66
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000017                                          TO THEM*)                DPSPATDYN  67
000017                                                                   PFGOVIP     2
000017      FUNCTION GOVIP(FD,DEF: REAL): REAL;                          PFGOVIP     3
000005        (*DETERMINES FRACTION OF FEMALES WHICH WILL SETTLE DOWN AND PFGOVIP     4
000005        DEPOSIT EGGS IN A PARTICULAR SITE IN FUNCTION OF THE FLOWN  PFGOVIP     5
000005        DISTANCE FD AND THE DEFOLIATION DEF OF THAT SITE *)         PFGOVIP     6
000005                                                                   PFGOVIP     7
000005        CONST ATTRMAX= 0.95; (*LINEAR REGRESSON FROM VA6,81 U. 84*) PFGOVIP     8
000005              ATTRRED= 0.72;                                       PFGOVIP     9
000005                                                                   PFGOVIP    10
000005        VAR   ATTRACTIVENESS: REAL;                                PFGOVIP    11
000006              FORCED: REAL; (*FRACTION FORCED TO SETTLE DOWN BY     PFGOVIP    12
000007                             EXHAUSTION*)                          PFGOVIP    13
000007        BEGIN(*GOVIP*)                                             PFGOVIP    14
000007          OUTPARAM('C3=ATTRMAX',ATTRMAX,5,2,                       PFGOVIP    15
000012          'LINEAR REGRESSON FROM VA6,81 U. 84');                   PFGOVIP    16
000015          OUTPARAM('C4=ATTRRED',ATTRRED,5,2,                       PFGOVIP    17
000020          'DTO.');                                                 PFGOVIP    18
000023          FORCED:= EXHAUSTION*FD;                                  PFGOVIP    19
000026          IF FORCED > 1 THEN FORCED:= 1;                           PFGOVIP    20
000034          ATTRACTIVENESS:= ATTRMAX-ATTRRED*DEF;                    PFGOVIP    21
000037          GOVIP:= FORCED + (1-FORCED)*ATTRACTIVENESS;              PFGOVIP    22
000043        END(*GOVIP*);                                              PFGOVIP    23
000100                                                                   PPDISPERS   2
000100      PROCEDURE DISPERSAL(TOW: SITEINDEX; F: FLYTYPE);             PPDISPERS   3
000007        (*RECURSIVE PROCESS OF DISPERSAL*)                         PPDISPERS   4
000007                                                                   PPDISPERS   5
000007                                                                   PPDISPERS   6
000007        VAR                                                        PPDISPERS   7
000007          AFD: REAL; (*KM*)                  (*DISTANCE ALREADY FLOWN   PPDISPERS   8
000010                                             BY THE FEMALES WHEN ARRI-  PPDISPERS   9
000010                                             VING AT SITE TOW*)         PPDISPERS  10
000010          FOOLS: INTEGER; (*FEMALE*)         (*POOL OF FEMALES          PPDISPERS  11
000011                                             DETERMINED BY NOTGRASPED*) PPDISPERS  12
000011          CALMFLYERS: INTEGER; (*FEMALE*)    (*POOL OF FEMALES FLYING   PPDISPERS  13
000012                                             ACTIVELY DURING PERIOD OF  PPDISPERS  14
000012                                             CALM*)                     PPDISPERS  15
000012          UPWINDFLYERS: INTEGER; (*FEMALE*)  (*POOL OF FEMALES FLYING   PPDISPERS  16
000013                                             ACTIVELY DURING PERIOD OF  PPDISPERS  17
000013                                             WEAK WIND FIELDS (VELO-    PPDISPERS  18
000013                                             CITY < 2.8 M/S)*)          PPDISPERS  19
000013          DOWNWINDFLYERS: INTEGER; (*FEMALE*) (*POOL OF FEMALES FLYING  PPDISPERS  20
000014                                             PASSIVELY DURING PERIOD    PPDISPERS  21
000014                                             OF STRONG WIND FIELDS      PPDISPERS  22
000014                                             (VELOCITIY > 2.8 M/S)*)    PPDISPERS  23
000014          DI: DIRECT; (*1..NRDIR*)           (*ACTUAL DIRECTION, RESP.  PPDISPERS  24
000015                                             SECTOR OF THE WIND ROSE*)  PPDISPERS  25
000015          POOLDIR: INTEGER; (*FEMALE*)       (*POOL OF FEMALES WHICH    PPDISPERS  26
000016                                             WILL BE DISPERSED TO       PPDISPERS  27
000016                                             NEIGHBOUR A (NEIBOURA)     PPDISPERS  28
000016                                             AND NEIGHBOUR B            PPDISPERS  29
000016                                             (NEIBOURB) IN A SPECI-     PPDISPERS  30
000016                                             FIC DIRECTION*)            PPDISPERS  31
000016          FFC,FU,FD: INTEGER;                 (*FRACTIONS OF POOLDIR:   PPDISPERS  32
000021                                             FFC DENOTES CATEGORY OF    PPDISPERS  33
000021                                             FOOLS AND CALMFLYERS,      PPDISPERS  34
000021                                             FU THE UPWINDFLYERS AND    PPDISPERS  35
000021                                             FD THE DOWNWINDFLYERS*)    PPDISPERS  36
000021          PA: REAL;                          (*PERCENTAGE OF AREA OF    PPDISPERS  37
000022                                             NEIGHBOURING SITE A        PPDISPERS  38
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000022                                      OF THE TOTAL OF THE        PPDISPERS  39
000022                                      NEIGHBOURING AREA          PPDISPERS  40
000022                                      WITHIN THE ACTUAL SEC-     PPDISPERS  41
000022                                      TOR*)                      PPDISPERS  42
000022    W: REAL;                          (*FACTOR WEIGHING PHY-     PPDISPERS  43
000023                                      SIOLOGICAL FLIGHT PER-     PPDISPERS  44
000023                                      FORMANCE*)                 PPDISPERS  45
000023                                                                 PPDISPERS  46
000023  BEGIN(*DISPERSAL*)                                             PPDISPERS  47
000023                                                                 PPDISPERS  48
000023    (*SAVE VALUE OF ALREADY FLOWN DISTANCE*)                     PPDISPERS  49
000023    AFD:=F.DIST;                                                 PPDISPERS  50
000014                                                                 PPDISPERS  51
000014    WITH SITE[TOW], BUDMOTH DO                                   PPDISPERS  52
000022    BEGIN                                                        PPDISPERS  53
000022      (*FRACTION OF FEMALES ATTRACTED BY THE SITE*)              PPDISPERS  54
000022      SETTLING:=TRUNC(GOVIP(F.DIST,LARCH.DEFOLIATION)*F.FLYERS); PPDISPERS  55
000033      POTEMIGRATING:=F.FLYERS-SETTLING;                          PPDISPERS  56
000034                                                                 PPDISPERS  57
000034      (*FRACTION OF FEMALES FORCED TO STAY BY TURBULENCE*)       PPDISPERS  58
000034      NOTEMIGRATING:=TRUNC(WIND.TURB.FREQUENCY*POTEMIGRATING);   PPDISPERS  59
000040      EMIGRATORS:=POTEMIGRATING-NOTEMIGRATING;                   PPDISPERS  60
000041      SAVE(2,TOW);                                               PPDISPERS  61
000046                                                                 PPDISPERS  62
000046      (*PREPARATION OF EMIGRATION*)                              PPDISPERS  63
000046                                                                 PPDISPERS  64
000046      (*FRACTION OF FEMALES FLYING LIKE FOOLS IN ALL DIRECTIONS*) PPDISPERS  65
000046      FOOLS:=TRUNC(NOTGRASPED*EMIGRATORS);                       PPDISPERS  66
000054      REST:=TRUNC((1-NOTGRASPED)*POTEMIGRATING);                 PPDISPERS  67
000064                                                                 PPDISPERS  68
000064      (*FRACTION OF FEMALES CHOOSING FLYING DIRECTION RANDOMLY   PPDISPERS  69
000064      DURING PERIOD OF CALM, I.E. THEY WILL DISPERSE LIKE THE    PPDISPERS  70
000064      FOOLS*)                                                    PPDISPERS  71
000064      CALMFLYERS:=TRUNC(WIND.LULL.FREQUENCY*REST);               PPDISPERS  72
000071                                                                 PPDISPERS  73
000071      (*FRACTION OF FEMALES FLYING ACTIVELY UPWIND AGAINST WEAK  PPDISPERS  74
000071      WINDS WITH VELOCITY < 2.8 M/S *)                           PPDISPERS  75
000071      UPWINDFLYERS:=TRUNC(WIND.FIELD.WEAK.FREQUENCY*REST);       PPDISPERS  76
000075                                                                 PPDISPERS  77
000075      (*TOTAL OF ACTIVELY FLYING FEMALES*)                       PPDISPERS  78
000075      EMIGRATORS:=FOOLS+CALMFLYERS+UPWINDFLYERS;                 PPDISPERS  79
000076      SAVE(3,TOW);                                               PPDISPERS  80
000103                                                                 PPDISPERS  81
000103      (*FRACTION OF FEMALES FLYING PASSIVELY DOWNWIND ON STRONG  PPDISPERS  82
000103      WINDS WITH VELOCITY > 2.8 M/S *)                           PPDISPERS  83
000103      DOWNWINDFLYERS:=TRUNC(WIND.FIELD.STRONG.FREQUENCY          PPDISPERS  84
000104                        *REST);                                  PPDISPERS  85
000111      EMIGRATORS:=DOWNWINDFLYERS;                                PPDISPERS  86
000112      SAVE(4,TOW);                                               PPDISPERS  87
000117                                                                 PPDISPERS  88
000117      (*OVIPOSITION*)                                            PPDISPERS 120
000117      OVIPOSITING:=SETTLING+NOTEMIGRATING;                       PPDISPERS 121
000121      LAIDEGGS:=TRUNC(FECUNDITY0*OVIPOSITING);                   PPDISPERS 123
000125      IF TOW=FRSNR THEN                                          PPDISPERS 124
000127      BEGIN                                                      PPDISPERS 125
000127        IMMIGRATORS:=0;                                          PPDISPERS 126
000130        AUTOCHEGGS:=AUTOCHEGGS+LAIDEGGS                          PPDISPERS 127
000130      END                                                        PPDISPERS 128
000131      ELSE                                                       PPDISPERS 129
000132      BEGIN                                                      PPDISPERS 130
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000132              IMMIGRATORS:=OVIPOSITING;                                   PPDISPERS 131
000133              STRANGEGGS:=STRANGEGGS+LAIDEGGS;                            PPDISPERS 132
000134            END;                                                          PPDISPERS 133
000134            SAVE(5,TOW);                                                  PPDISPERS 134
000141                                                                          PPDISPERS 135
000141            (***********)                                                 PPDISPERS 136
000141            (*DISPERSAL*)                                                 PPDISPERS 137
000141            (***********)                                                 PPDISPERS 138
000141                                                                          PPDISPERS 139
000141            FFC:=TRUNC((FOOLS+CALMFLYERS)/8);                             PPDISPERS 140
000151            FOR DI:=1 TO NRDIR DO                                         PPDISPERS 141
000151            BEGIN                                                         PPDISPERS 142
000155              FU:=TRUNC(WIND.FIELD.WEAK  .DIR[        DI ].FREQUENCY    PPDISPERS 143
000160                  *UPWINDFLYERS);                                         PPDISPERS 144
000165              FD:=TRUNC(WIND.FIELD.STRONG.DIR[REVERSE(DI)].FREQUENCY    PPDISPERS 145
000177                  *DOWNWINDFLYERS);                                       PPDISPERS 146
000204              POOLDIR:=FFC+FU+FD;                                         PPDISPERS 147
000205              IF NEIBOURA[DI].PRES (*OR NEIBOURB[DI].PRES*) THEN          PPDISPERS 148
000211              BEGIN                                                       PPDISPERS 149
000211                IF DEBUG THEN                                             PPDISPERS 150
000212                WRITELN(' ','SITE ',TOW:1,': POOLDIR[',DI:1,'] ',         PPDISPERS 151
000243                        POOLDIR:1);                                       PPDISPERS 152
000250                (*IF NEIBOURA[DI].PRES THEN                               PPDISPERS 153
000250                BEGIN*)                                                   PPDISPERS 154
000250                  W:=(FFC+ZIGZAGF*FU+OWNCONTRB*FD)/POOLDIR;               PPDISPERS 155
000262                  IF NEIBOURB[DI].PRES THEN                               PPDISPERS 156
000267                  BEGIN                                                   PPDISPERS 157
000267                    PA:=NEIBOURA[DI].AREA                                 PPDISPERS 158
000272                        /(NEIBOURA[DI].AREA+NEIBOURB[DI].AREA);           PPDISPERS 159
000303                    F.FLYERS:=TRUNC(POOLDIR*PA);                          PPDISPERS 160
000307                    POOLDIR:=POOLDIR-F.FLYERS;                            PPDISPERS 161
000310                  END                                                     PPDISPERS 162
000310                  ELSE                                                    PPDISPERS 163
000310                  F.FLYERS:=POOLDIR;                                      PPDISPERS 164
000311                                                                          PPDISPERS 165
000311                  IF F.FLYERS > 0 THEN                                    PPDISPERS 166
000313                  BEGIN                                                   PPDISPERS 167
000313                    WITH NEIBOURA[DI] DO                                  PPDISPERS 168
000320                    F.DIST:=AFD+W*DISTANCE;                               PPDISPERS 169
000323                    IF DEBUG THEN WRITELN(' ','DISPERSAL FROM ',TOW:1,    PPDISPERS 170
000337                    ' TO NEIGHBOUR A ',NEIBOURA[DI].SNR:1);               PPDISPERS 171
000355                    STARTFLAG:=FALSE;                                     PPDISPERS 172
000356                    DISPERSAL(NEIBOURA[DI].SNR,F);                        PPDISPERS 173
000367                  END;                                                    PPDISPERS 174
000367                (*END;*)                                                  PPDISPERS 175
000367                                                                          PPDISPERS 176
000367                IF NEIBOURB[DI].PRES THEN                               PPDISPERS 177
000374                BEGIN                                                   PPDISPERS 178
000374                  F.FLYERS:=POOLDIR;                                      PPDISPERS 179
000376                  IF F.FLYERS > 0 THEN                                    PPDISPERS 180
000377                  BEGIN                                                   PPDISPERS 181
000377                    WITH NEIBOURB[DI] DO                                  PPDISPERS 182
000403                    F.DIST:=AFD+W*DISTANCE;                               PPDISPERS 183
000406                    IF DEBUG THEN WRITELN(' ','DISPERSAL FROM ',TOW:1,    PPDISPERS 184
000422                    ' TO NEIGHBOUR B ',NEIBOURB[DI].SNR);                 PPDISPERS 185
000440                    DISPERSAL(NEIBOURB[DI].SNR,F);                        PPDISPERS 186
000451                  END;                                                    PPDISPERS 187
000451                END;                                                      PPDISPERS 188
000451              END(*IF A NEIGHBOUR PRES*)                                  PPDISPERS 189
000451              ELSE                                                        PPDISPERS 190
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000452              BEGIN                                                   PPDISPERS 191
000452                EMIGRATORS:=TRUNC(FECUNDITY0*POOLDIR);                PPDISPERS 192
000460                SAVE(6,TOW);                                          PPDISPERS 193
000465              END(*IF NO NEIGHBOUR PRES*);                            PPDISPERS 194
000465            END(*DIRECTION LOOP*);                                    PPDISPERS 195
000467          END(*WITH SITE[TOW] *);                                     PPDISPERS 196
000467        END(*DISPERSAL*);                                             PPDISPERS 197
000536                                                                      PRSPATDYN   2
000536      BEGIN(*SPATIALDYNAMICS*)                                        PRSPATDYN   3
000536        OUTPARAM('C1=MINEXH',MINEXH,7,4,                              PRSPATDYN   4
000012        'VA4,118 FIG.4');                                             PRSPATDYN   5
000015        OUTPARAM('C2=EXHINC',EXHINC,7,4,                              PRSPATDYN   6
000020        'DTO.');                                                      PRSPATDYN   7
000023        OUTPARAM('C5=NOTGRASPED',NOTGRASPED,5,1,                      PRSPATDYN   8
000026        'ESTIMATED');                                                 PRSPATDYN   9
000031        OUTPARAM('C13=ZIGZAGF',ZIGZAGF,4,1,                           PRSPATDYN  10
000036        '1/COS(ALFA)');                                               PRSPATDYN  11
000041        OUTPARAM('C14=OWNCONTRB',OWNCONTRB,6,3,                       PRSPATDYN  12
000044        '1/86/(1.86+5.26). VA4,124 FIG.7 AND GR9,292');               PRSPATDYN  13
000047        WITH SITE[FRSNR],BUDMOTH,LARCH DO                             PRSPATDYN  14
000056        BEGIN                                                         PRSPATDYN  15
000056          EXHAUSTION:=MINEXH+EXHINC*DEFOLIATION;                      PRSPATDYN  16
000061          FLY.FLYERS:=FEMALES;   FLY.DIST:=0;                         PRSPATDYN  17
000065          FECUNDITY0:= FECUNDITY;                                     PRSPATDYN  18
000066          ORIGWEIGHT:= FEMOWEIGHT;                                    PRSPATDYN  19
000067        END;                                                          PRSPATDYN  20
000067                                                                      PRSPATDYN  21
000067        (*START RECURSIVE PROCESS OF MIGRATION BY TREATING ALL        PRSPATDYN  22
000067        FEMALES AS AIRBORNE*)                                         PRSPATDYN  23
000067        DISPERSAL(FRSNR,FLY);                                         PRSPATDYN  24
000073                                                                      PRSPATDYN  25
000073        STARTFLAG:=FALSE;                                             PRSPATDYN  26
000074      END(*SPATIALDYNAMICS*);                                         PRSPATDYN  27
000170                                                                      PPINVASIO   2
000170    PROCEDURE INVASION(SNR: SITEINDEX);                               PPINVASIO   3
000004      (*THIS PROCEDURE SIMULATES THE IMMIGRATION (INVASION) OF FEMALES, PPINVASIO   4
000004      STEMING FROM OUTSIDE THE LARCH BUD MOTH SYSTEM MODELLED (UPPER   PPINVASIO   5
000004      ENGADINE VALLEY).*)                                             PPINVASIO   6
000004                                                                      PPINVASIO   7
000004      CONST                                                           PPINVASIO   8
000004        INVE0 = 0; (*FEMALES PER SITE*)                               PPINVASIO   9
000004        INVFEC = 30; (*FECUNDITY OF INVADING FEMALES*)                PPINVASIO  10
000004        MUL = 4;                                                      PPINVASIO  11
000004                                                                      PPINVASIO  12
000004      TYPE                                                            PPINVASIO  13
000004        INVTYPE = (CONGLOBATION,TRANSLOCATION);                       PPINVASIO  14
000004                                                                      PPINVASIO  15
000004      VAR                                                             PPINVASIO  16
000004        INVE: REAL; (*EGGS/TREE*)                                     PPINVASIO  17
000005        INVHYPO: INVTYPE;                                             PPINVASIO  18
000006                                                                      PPINVASIO  19
000006      BEGIN(*INVASION*)                                               PPINVASIO  20
000006        INVE:=INVE0*20/SITE[0].LARCH.TREES; (*FEMALES/TREE*)          PPINVASIO  21
000016        OUTPARAM('INVE0',INVE0,10,4,                                  PPINVASIO  22
000023        'FROM OUTSIDE VALLEY INVADING AVERAGE NUMBER OF FEMALES/SITE'); PPINVASIO  23
000026        INVE:=INVFEC*INVE; (*FECUNDITY*)                              PPINVASIO  24
000032        OUTPARAM('INVFEC',INVFEC,7,2,                                 PPINVASIO  25
000037        'FECUNDITY OF INVADING FEMALES');                             PPINVASIO  26
000042        OUTPARAM('INVE',INVE,10,5,                                    PPINVASIO  27
000045        'NUMBER OF INVADING EGGS/TREE IN A WEAKLY INVADED SITE');     PPINVASIO  28
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000050        OUTPARAM('MUL',MUL,6,2,                                          PPINVASIO  29
000055        'MULTIPLICATION FACTOR RELATING WEAK WITH STRONG INVASION');      PPINVASIO  30
000060        INVHYPO:=CONGLOBATION;                                           PPINVASIO  31
000061        CASE INVHYPO OF                                                  PPINVASIO  32
000065        CONGLOBATION:  OUTPARAM('INVHYPO',ORD(INVHYPO),3,0,              PPINVASIO  33
000072                                'CONGLOBATION HYPOTHESIS ON INVASION');  PPINVASIO  34
000076        TRANSLOCATION: OUTPARAM('INVHYPO',ORD(INVHYPO),3,0,              PPINVASIO  35
000103                               'TRANSLOCATION HYPOTHESIS ON INVASION');  PPINVASIO  36
000107        END(*CASE*);                                                     PPINVASIO  37
000111        IF (INVHYPO=TRANSLOCATION)AND(YEAR>=1949)AND(YEAR<=1977) THEN    PPINVASIO  38
000117        CASE YEAR OF                                                     PPINVASIO  39
000123        1954,1963,1973: INVE:=INVE*889.970;   (*CULMINATION YEARS*)      PPINVASIO  40
000125        1955,1964,1974,                                                  PPINVASIO  41
000125        1953,1962,1972: INVE:=INVE*288.630;   (*GRADATION YEARS +-1*)    PPINVASIO  42
000127        1956,1965,1975,                                                  PPINVASIO  43
000127        1952,1961,1971: INVE:=INVE* 39.174;   (*GRADATION YEARS +-2*)    PPINVASIO  44
000131        1957,1966,1976,                                                  PPINVASIO  45
000131        1951,1960,1970: INVE:=INVE*  4.239;   (*GRADATION YEARS +-3*)    PPINVASIO  46
000133        1958,1967,1977,                                                  PPINVASIO  47
000133        1950,1959,1969: INVE:=INVE*  1;       (*GRADATION YEARS +-4*)    PPINVASIO  48
000137        1949,1968     : ;                     (*GRADATION YEAR UNDEF.*)  PPINVASIO  49
000140        END(*CASE*);                                                     PPINVASIO  50
000175        WITH SITE[SNR],BUDMOTH DO                                        PPINVASIO  51
000203        CASE SIMKIND OF                                                  PPINVASIO  52
000210        IMMIGRATION,                                                     PPINVASIO  53
000210        BOTH:        CASE SNR OF                                         PPINVASIO  54
000214                      0: BEGIN                                           PPINVASIO  55
000214                         END;                                            PPINVASIO  56
000215                      1: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  57
000221                         END;                                            PPINVASIO  58
000221                      2: BEGIN                                           PPINVASIO  59
000221                         END;                                            PPINVASIO  60
000222                      3: BEGIN                                           PPINVASIO  61
000222                         END;                                            PPINVASIO  62
000223                      4: BEGIN                                           PPINVASIO  63
000223                         END;                                            PPINVASIO  64
000224                      5: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  65
000230                         END;                                            PPINVASIO  66
000230                      6: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  67
000234                         END;                                            PPINVASIO  68
000234                      7: BEGIN                                           PPINVASIO  69
000234                         END;                                            PPINVASIO  70
000235                      8: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  71
000241                         END;                                            PPINVASIO  72
000241                      9: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  73
000245                         END;                                            PPINVASIO  74
000245                     10: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  75
000251                         END;                                            PPINVASIO  76
000251                     11: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  77
000255                         END;                                            PPINVASIO  78
000255                     12: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  79
000261                         END;                                            PPINVASIO  80
000261                     13: BEGIN                                           PPINVASIO  81
000261                         END;                                            PPINVASIO  82
000262                     14: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  83
000266                         END;                                            PPINVASIO  84
000266                     15: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  85
000272                         END;                                            PPINVASIO  86
000272                     16: BEGIN  INVE:=MUL*INVE;                          PPINVASIO  87
000276                         END;                                            PPINVASIO  88
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000276                  17: BEGIN                                                PPINVASIO  89
000276                      END;                                                 PPINVASIO  90
000277                  18: BEGIN                                                PPINVASIO  91
000277                      END;                                                 PPINVASIO  92
000300                  19: BEGIN                                                PPINVASIO  93
000300                      END;                                                 PPINVASIO  94
000301                  20: BEGIN  INVE:=MUL*INVE;                               PPINVASIO  95
000305                      END;                                                 PPINVASIO  96
000305                  END(*CASE SNR*);                                         PPINVASIO  97
000333        END(*CASE SIMKIND*);                                               PPINVASIO  98
000335        WITH SITE[SNR],BUDMOTH DO                                          PPINVASIO  99
000343        INVEGGS:=TRUNC(LARCH.TREES*INVE);                                  PPINVASIO 100
000350        SAVE(7,SNR);                                                       PPINVASIO 101
000354        SAVE(0,SNR);                                                       PPINVASIO 102
000361        STARTFLAG:=FALSE;                                                  PPINVASIO 103
000362      END(*INVASION*);                                                     PPINVASIO 104
000502                                                                           PPCENSUS    2
000502    PROCEDURE CENSUS(SAVESNR: SITEINDEX; FROM,TILL: SITEINDEX);            PPCENSUS    3
000006      (*MAKES CENSUS IN THE WHOLE UPPER ENGADIN VALLEY FROM SITE 'FROM'    PPCENSUS    4
000006      TO SITE 'TILL' IN CASE SIMKIND OF BOTH BY COMPUTING STATISTICS.      PPCENSUS    5
000006      THE RESULTS OF THE STATISTICS ARE STORED TRANSIENTLY                 PPCENSUS    6
000006      IN THE VARIABLE RR BEFORE WRITING THEM TO FILE RESULTS.              PPCENSUS    7
000006      THESE STATISTICS ARE REFERENCED BY THE ARTIFICIAL SITENUMBER         PPCENSUS    8
000006      SAVESNR, E.G. SAVESNR=0 FOR THE WHOLE UPPER ENGADINE VALLEY*)        PPCENSUS    9
000006                                                                           PPCENSUS   10
000006      VAR                                                                  PPCENSUS   11
000006          SUMOFTREES: INTEGER;                                             PPCENSUS   12
000007          ERRORSUM: REAL;    (*THE DIFFERENCE BETWEEN OLADE AND LADE       PPCENSUS   13
000010                             IS COMPUTED FOR EACH SITE AND SUMMED UP       PPCENSUS   14
000010                             IN THIS VARIABLE; USED TO CALCULATE THE       PPCENSUS   15
000010                             WEIGHTED SUM OF SQUARES WSQLD.*)              PPCENSUS   16
000010          SNR: SITEINDEX;                                                  PPCENSUS   17
000011          N: INTEGER;           (*SAMPLE SIZE*)                            PPCENSUS   18
000012          V: VARTYPE;                                                      PPCENSUS   19
000013                                                                           PPCENSUS   20
000013      BEGIN(*CENSUS*)                                                      PPCENSUS   21
000013        R0.Z[SQLADE]:=RR.Z[SQLADE];                                        PPCENSUS   22
000011        R0.Z[WSQLD ]:=RR.Z[WSQLD ];                                        PPCENSUS   23
000012        R0.Z[SQOUT ]:=RR.Z[SQOUT ];                                        PPCENSUS   24
000013        RR:= R0;                                                           PPCENSUS   25
000016        SUMOFTREES:= 0;                                                    PPCENSUS   26
000017        ERRORSUM:= 0;                                                      PPCENSUS   27
000022        N:= 0;                                                             PPCENSUS   28
000022        RR.SITENR:= SAVESNR;                                               PPCENSUS   29
000024        RR.Z[T]:= YEAR;                                                    PPCENSUS   30
000027        IF (1949<=YEAR)AND(YEAR<=1977) THEN                                PPCENSUS   31
000032        BEGIN                                                              PPCENSUS   32
000032          RR.Z[OLADEN]:=OLADEMIN[YEAR];                                    PPCENSUS   33
000036          RR.Z[OLADE ]:=OBSERVEDLADENS[YEAR];                              PPCENSUS   34
000042          RR.Z[OLADEX]:=OLADEMAX[YEAR];                                    PPCENSUS   35
000047        END ELSE                                                           PPCENSUS   36
000047        BEGIN                                                              PPCENSUS   37
000047          RR.Z[OLADEN]:=OLADEUNDEF;                                        PPCENSUS   38
000051          RR.Z[OLADE ]:=OLADEUNDEF;                                        PPCENSUS   39
000051          RR.Z[OLADEX]:=OLADEUNDEF;                                        PPCENSUS   40
000053        END;                                                               PPCENSUS   41
000053        FOR SNR:= FROM TO TILL DO                                          PPCENSUS   42
000055        BEGIN                                                              PPCENSUS   43
000061          N:= N+1;                                                         PPCENSUS   44
000062          SUMOFTREES:= SUMOFTREES + SITE[SNR].LARCH.TREES;                 PPCENSUS   45
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000067          FOR V:=LADE TO UNDEF DO                                          PPCENSUS   46
000070          IF (V<>SQLADE)AND(V<>WSQLD)AND(V<>SQOUT) THEN                    PPCENSUS   47
000102          BEGIN                                                            PPCENSUS   48
000102            (*EXCLUDE VALUES FOR WHICH A WEIGHTED MEAN WILL BE             PPCENSUS   49
000102            COMPUTED*)                                                     PPCENSUS   50
000102            IF    (V=LADE  )                                               PPCENSUS   51
000103               OR (V=RF    )                                               PPCENSUS   53
000103               OR (V=DEFOL )                                               PPCENSUS   54
000106            THEN RR.Z[V]:=RR.Z[V]+R[SNR].Z[V]*SITE[SNR].LARCH.TREES        PPCENSUS   56
000123            ELSE RR.Z[V]:=RR.Z[V]+R[SNR].Z[V];                             PPCENSUS   57
000145          END;                                                             PPCENSUS   58
000147          ERRORSUM:=ERRORSUM+R[SNR].Z[WSQLD]*SITE[SNR].LARCH.TREES;        PPCENSUS   59
000163        END;                                                               PPCENSUS   60
000164        (*COMPUTE WEIGHTED MEANS*)                                         PPCENSUS   61
000164        RR.Z[LADE  ]:=RR.Z[LADE  ]/SUMOFTREES;                             PPCENSUS   62
000170        RR.Z[RF    ]:=RR.Z[RF    ]/SUMOFTREES;                             PPCENSUS   64
000173        RR.Z[DEFOL ]:=RR.Z[DEFOL ]/SUMOFTREES;                             PPCENSUS   65
000176        (*COMPUTE SUM OF SQAURES*)                                         PPCENSUS   67
000176        RR.Z[SQLADE]:=RR.Z[SQLADE]+SQR(RR.Z[OLADE]-RR.Z[LADE]);            PPCENSUS   68
000201        (*SUM OF SQUARES OF WEIGHTED MEAN OF THE DIFFERENCES BETWEEN       PPCENSUS   69
000201        OLADE AND LADE FROM EACH SITE*)                                    PPCENSUS   70
000201        RR.Z[WSQLD]:= RR.Z[WSQLD]+SQR(ERRORSUM/SUMOFTREES);                PPCENSUS   71
000204        IF RR.Z[LADE]>RR.Z[OLADEX]                                         PPCENSUS   72
000204        THEN RR.Z[SQOUT]:=RR.Z[SQOUT]+SQR(RR.Z[OLADEX]-RR.Z[LADE])         PPCENSUS   73
000206        ELSE                                                               PPCENSUS   74
000210        IF RR.Z[LADE]<RR.Z[OLADEN]                                         PPCENSUS   75
000210        THEN RR.Z[SQOUT]:=RR.Z[SQOUT]+SQR(RR.Z[LADE]-RR.Z[OLADEN]);       PPCENSUS   76
000213        (*COMPUTE UNWEIGHTED MEANS*)                                       PPCENSUS   77
000213        RR.Z[PUPW  ]:=RR.Z[PUPW  ]/N;                                      PPCENSUS   78
000217        RR.Z[FEMW  ]:=RR.Z[FEMW  ]/N;                                      PPCENSUS   79
000222        RR.Z[MSML  ]:=RR.Z[MSML  ]/N;                                      PPCENSUS   80
000225        RR.Z[MLLPM ]:=RR.Z[MLLPM ]/N;                                      PPCENSUS   81
000230        RR.Z[FEC   ]:=RR.Z[FEC   ]/N;                                      PPCENSUS   82
000233        RR.Z[DC    ]:=RR.Z[DC    ]/N;                                      PPCENSUS   83
000236        RR.Z[STARV ]:=RR.Z[STARV ]/N;                                      PPCENSUS   84
000241                                                                           PPCENSUS   85
000241          WRITE(RESULTS,RR);                                               PPCENSUS   86
000245      END(*CENSUS*);                                                       PPCENSUS   87
000271                                                                           PRSIMLW3    2
000271    BEGIN(*SIMULATION*)                                                    PRSIMLW3    3
000271      FOR SITENR:=1 TO NROFSITES DO INITIALIZATION(SITENR);                PRSIMLW3    4
000022      INITIALIZATION(0);                                                   PRSIMLW3    5
000026      CASE SIMKIND OF                                                      PRSIMLW3    6
000033      NOMIGRATION: BEGIN                                                   PRSIMLW3    7
000033                     FOR YEAR:= TBEG TO TEND DO                            PRSIMLW3    8
000035                     BEGIN                                                 PRSIMLW3    9
000037                       SITEDYNAMICS(MSNR);                                 PRSIMLW3   10
000043                       IF YEAR=TBEG THEN                                   PRSIMLW3   11
000045                       BEGIN                                               PRSIMLW3   12
000045                         PAGE(OUTPUT);                                     PRSIMLW3   13
000051                         WRITE  (' ','RUN TIME MESSAGES FROM PROCE');      PRSIMLW3   14
000060                         WRITELN('DURE SIMULATION:');                      PRSIMLW3   15
000066                         WRITE  (' ','--------------------------');        PRSIMLW3   16
000075                         WRITELN('---------------');                       PRSIMLW3   17
000103                       END;                                                PRSIMLW3   18
000103                       IF YEAR=TBEG THEN                                   PRSIMLW3   19
000105                       BEGIN                                               PRSIMLW3   20
000105                         PAGE(COM2);                                       PRSIMLW3   21
000111                         WRITE  (COM2,' ','RUN TIME MESSAGES FROM ');      PRSIMLW3   22
000120                         WRITELN(COM2,'PROCEDURE SIMULATION:');            PRSIMLW3   23
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000126                      WRITE  (COM2,' ','------------------------');    PRSIMLW3   24
000135                      WRITELN(COM2,'--------------------');           PRSIMLW3   25
000143                    END;                                              PRSIMLW3   26
000143                  END;                                                PRSIMLW3   27
000146                END;                                                  PRSIMLW3   28
000147      IMMIGRATION: BEGIN                                              PRSIMLW3   29
000147                  FOR YEAR:= TBEG TO TEND DO                          PRSIMLW3   30
000151                  BEGIN                                               PRSIMLW3   31
000153                    SITEDYNAMICS(MSNR);                               PRSIMLW3   32
000157                    STARTFLAG:=YEAR=TBEG;                             PRSIMLW3   33
000165                    INVASION(MSNR);                                   PRSIMLW3   34
000171                    IF YEAR=TBEG THEN                                 PRSIMLW3   35
000173                    BEGIN                                             PRSIMLW3   36
000173                      PAGE(OUTPUT);                                   PRSIMLW3   37
000177                      WRITE  (' ','RUN TIME MESSAGES FROM PROCE');    PRSIMLW3   38
000206                      WRITELN('DURE SIMULATION:');                    PRSIMLW3   39
000214                      WRITE  (' ','------------------------------');  PRSIMLW3   40
000223                      WRITELN('---------------');                     PRSIMLW3   41
000231                    END;                                              PRSIMLW3   42
000231                    IF YEAR=TBEG THEN                                 PRSIMLW3   43
000233                    BEGIN                                             PRSIMLW3   44
000233                      PAGE(COM2);                                     PRSIMLW3   45
000237                      WRITE  (COM2,' ','RUN TIME MESSAGES FROM ');    PRSIMLW3   46
000246                      WRITELN(COM2,'PROCEDURE SIMULATION:');          PRSIMLW3   47
000254                      WRITE  (COM2,' ','------------------------');   PRSIMLW3   48
000263                      WRITELN(COM2,'--------------------');           PRSIMLW3   49
000271                    END;                                              PRSIMLW3   50
000271                  END;                                                PRSIMLW3   51
000274                END;                                                  PRSIMLW3   52
000275      BOTH       : BEGIN                                              PRSIMLW3   53
000275                  FOR YEAR:= TBEG TO TEND DO                          PRSIMLW3   54
000277                  BEGIN                                               PRSIMLW3   55
000301                    FOR SITENR:= 1 TO NROFSITES                       PRSIMLW3   56
000301                    DO SITEDYNAMICS(SITENR);                          PRSIMLW3   57
000313                    STARTFLAG:=YEAR=TBEG;                             PRSIMLW3   58
000321                    FOR SITENR:= 1 TO NROFSITES                       PRSIMLW3   59
000321                    DO SPATIALDYNAMICS(SITENR);                       PRSIMLW3   60
000333                    STARTFLAG:=YEAR=TBEG;                             PRSIMLW3   61
000341                    FOR SITENR:= 1 TO NROFSITES                       PRSIMLW3   62
000341                    DO INVASION(SITENR);                              PRSIMLW3   63
000353                    CENSUS(MSNR,1,NROFSITES);                         PRSIMLW3   64
000364                    IF YEAR=TBEG THEN                                 PRSIMLW3   65
000366                    BEGIN                                             PRSIMLW3   66
000366                      PAGE(OUTPUT);                                   PRSIMLW3   67
000372                      WRITE  (' ','RUN TIME MESSAGES FROM PROCE');    PRSIMLW3   68
000401                      WRITELN('DURE SIMULATION:');                    PRSIMLW3   69
000407                      WRITE  (' ','------------------------------');  PRSIMLW3   70
000416                      WRITELN('---------------');                     PRSIMLW3   71
000424                    END;                                              PRSIMLW3   72
000424                    WRITE  (' ','SIMULATION FOR YEAR ',YEAR:1);       PRSIMLW3   73
000437                    WRITE  (' FINISHED: CPU MS SO FAR USED ');        PRSIMLW3   74
000444                    WRITE  (CLOCK:10);                                PRSIMLW3   75
000452                    SEC:=CLOCK/1000;                                  PRSIMLW3   76
000461                    MSEC:=SEC-TRUNC(SEC);                             PRSIMLW3   77
000465                    MIN:=TRUNC(SEC/60);                               PRSIMLW3   78
000471                    SEC:=TRUNC(SEC) MOD 60 + MSEC;                    PRSIMLW3   79
000501                    WRITELN(' (',MIN:3,''''',SEC:6:3,''''')');        PRSIMLW3   80
000527                    IF YEAR=TBEG THEN                                 PRSIMLW3   81
000531                    BEGIN                                             PRSIMLW3   82
000531                      PAGE(COM2);                                     PRSIMLW3   83
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000535                       WRITE  (COM2,' ','RUN TIME MESSAGES FROM ');    PRSIMLW3   84
000544                       WRITELN(COM2,'PROCEDURE SIMULATION:');          PRSIMLW3   85
000552                       WRITE  (COM2,' ','-----------------------');    PRSIMLW3   86
000561                       WRITELN(COM2,'--------------------');           PRSIMLW3   87
000567                     END;                                              PRSIMLW3   88
000567                     WRITE  (COM2,' ','SIMULATION FOR YEAR ',YEAR:1);  PRSIMLW3   89
000602                     WRITE  (COM2,' FINISHED: CPU MS SO FAR USED ');   PRSIMLW3   90
000607                     WRITE  (COM2,CLOCK:10);                           PRSIMLW3   91
000615                     WRITELN(COM2,' (',MIN:3,'''',SEC:6:3,''''')');    PRSIMLW3   92
000643                   END;                                                PRSIMLW3   93
000646                 END;                                                  PRSIMLW3   94
000647      END(*CASE*);                                                     PRSIMLW3   95
000652    END(*SIMULATION*);                                                 PRSIMLW3   96
000733                                                                       PRLWMOD3    2
000733  BEGIN(*MAINPROGRAM LWMOD3*)                                          PRLWMOD3    4
000733    SIMKIND:=BOTH;                                                     PRLWMOD3    8
000113    STARTSIMULATION;                                                   PRLWMOD3    9
000114    STARTFLAG:=FALSE;                                                  PRLWMOD3   10
000115    REPRES:=[ ];                                                       PRLWMOD3   11
000116    DEBUG:=FALSE;                                                      PRLWMOD3   12
000116                                                                       PRLWMOD3   13
000116    CASE SIMKIND OF                                                    PRLWMOD3   14
000123                                                                       PRLWMOD3   15
000123    (**********)                                                       PRLWMOD3   16
000123    NOMIGRATION:                                                       PRLWMOD3   17
000123    (**********)                                                       PRLWMOD3   18
000123                                                                       PRLWMOD3   19
000123    BEGIN                                                              PRLWMOD3   20
000123      (*DECLARATIONS FOR REPRESENTATION OF SIMULATION RESULTS*)         PRLWMOD3   21
000123      MOVE('DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN',                 PRLWMOD3   29
000125           TITLE,'L');                                                 PRLWMOD3   30
000132      MOVE('ABUNDANZDYNAMIK',                                          PRLWMOD3   31
000134           SUBTITLE,'L');                                              PRLWMOD3   32
000141      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                     PRLWMOD3   35
000147        COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3   36
000161        COLUMN(LADE  ,'A', 9,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3   37
000174        COLUMN(OLADE ,'O', 9,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3   38
000207        COLUMN(SQLADE,'Q',12,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3   39
000222        COLUMN(SQOUT ,'U',12,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3   40
000235        COLUMN(RF    ,'R', 6,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3   42
000247        COLUMN(EGG   ,'E',14,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3   45
000261        COLUMN(FOL   ,'F',10,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3   49
000273        COLUMN(DEFOL ,'D', 7,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3   50
000306        COLUMN(MSML  ,'M', 6,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3   51
000321        COLUMN(STARV ,'S', 6,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3   52
000333        COLUMN(MLLPM ,'L', 6,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3   53
000345        COLUMN(FEC   ,'4', 6,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3   56
000357                                                                       PRLWMOD3   57
000357      AVERAGECYCLE(TITLE,SUBTITLE,ROOTAVCY,SENTINEL,AAVCY);            PRLWMOD3   58
000365        ROW(AVCYT ,'T',2,0,VARDES,SENTINEL,AAVCY);                     PRLWMOD3   59
000377        ROW(RF    ,'R',6,1,VARDES,SENTINEL,AAVCY);                     PRLWMOD3   61
000411        ROW(LADE  ,'A',9,3,VARDES,SENTINEL,AAVCY);                     PRLWMOD3   64
000424        ROW(OLADE ,'O',9,3,VARDES,SENTINEL,AAVCY);                     PRLWMOD3   65
000437        ROW(OLADEN,'M',9,3,VARDES,SENTINEL,AAVCY);                     PRLWMOD3   66
000452        ROW(OLADEX,'X',9,3,VARDES,SENTINEL,AAVCY);                     PRLWMOD3   67
000464                                                                       PRLWMOD3   68
000464      PRINTPLOT(TITLE,SUBTITLE,LOG,0.001,1000,                         PRLWMOD3   69
000475                ROOTPRPL,SENTINEL,APRPL);                              PRLWMOD3   70
000501        VARIABLE(LADE ,'A',SENTINEL,APRPL);                            PRLWMOD3   71
000511        VARIABLE(OLADE,'0',SENTINEL,APRPL);                            PRLWMOD3   72
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000521                                                                  PRLWMOD3   74
000521       GRAPH(TITLE,SUBTITLE,                                      PRLWMOD3   75
000524             VARLAB[T],LIN,                                       PRLWMOD3   76
000530             TIMEBEGIN,TIMEEND,1,2,                               PRLWMOD3   77
000543             VARLAB[LADE],LOG,                                    PRLWMOD3   78
000550             0.001,1000,0,0,                                      PRLWMOD3   79
000561             TRUE(*GRID*),                                        PRLWMOD3   80
000563             ROOTPLOT,SENTINEL,APLOT);                            PRLWMOD3   81
000566         CURVE(T,LADE,                                            PRLWMOD3   82
000573               RED,1,                                             PRLWMOD3   83
000574               FALSE(*NO SCATTER*),' ',                           PRLWMOD3   84
000601               'SIMULIERTE','RAUPENDICHTE',                       PRLWMOD3   88
000605               0,999,                                             PRLWMOD3   89
000606               SENTINEL,APLOT);                                   PRLWMOD3   90
000611         CURVE(T,OLADE,                                           PRLWMOD3   91
000616               BLACK,2,                                           PRLWMOD3   92
000617               FALSE(*NO SCATTER*),' ',                           PRLWMOD3   93
000624               'BEOBACHTETES','MITTEL',                           PRLWMOD3   97
000630               0,999,                                             PRLWMOD3   98
000631               SENTINEL,APLOT);                                   PRLWMOD3   99
000634         CURVE(T,OLADEX,                                          PRLWMOD3  100
000641               BLUE,3,                                            PRLWMOD3  101
000642               FALSE(*NO SCATTER*),' ',                           PRLWMOD3  102
000647               'BEOBACHTETES','MAXIMUM',                          PRLWMOD3  106
000653               0,999,                                             PRLWMOD3  107
000654               SENTINEL,APLOT);                                   PRLWMOD3  108
000657         CURVE(T,OLADEN,                                          PRLWMOD3  109
000664               BLUE,4,                                            PRLWMOD3  110
000665               FALSE(*NO SCATTER*),' ',                           PRLWMOD3  111
000673               'BEOBACHTETES','MINIMUM',                          PRLWMOD3  115
000677               0,999,                                             PRLWMOD3  116
000700               SENTINEL,APLOT);                                   PRLWMOD3  117
000703       GRAPH(TITLE,SUBTITLE,                                      PRLWMOD3  119
000706             VARLAB[RF],LIN,                                      PRLWMOD3  120
000712             10,20,1,2,                                           PRLWMOD3  121
000725             VARLAB[LADE],LOG,                                    PRLWMOD3  122
000732             0.001,1000,0,0,                                      PRLWMOD3  123
000743             TRUE(*GRID*),                                        PRLWMOD3  124
000745             ROOTPLOT,SENTINEL,APLOT);                            PRLWMOD3  125
000750         CURVE(RF,LADE,                                           PRLWMOD3  126
000755               RED,1,                                             PRLWMOD3  127
000756               FALSE(*NO SCATTER*),' ',                           PRLWMOD3  128
000763               'SIMULIERTE','WERTE',                              PRLWMOD3  132
000767               0,999,                                             PRLWMOD3  133
000770               SENTINEL,APLOT);                                   PRLWMOD3  134
000773                                                                  PRLWMOD3  136
000773       (*SIMULATION AND REPRESENTATION OF RESULTS*)                PRLWMOD3  138
000773       MESSAGE('* SIMULATION (NOMIGRATION) STARTED');             PRLWMOD3  139
000775       MESSAGE(SIMSPEC.MODEL);                                    PRLWMOD3  140
000777       MSNRMIN:=0;                                                PRLWMOD3  142
001000       MSNRMAX:=0;                                                PRLWMOD3  143
001001       IF DEBUG THEN LINELIMIT(OUTPUT,(TIMEEND-TIMEBEGIN+1)       PRLWMOD3  144
001003                     *(MSNRMAX-MSNRMIN+1)*2+(MSNRMAX-MSNRMIN+1)*1200)  PRLWMOD3  145
001007                ELSE LINELIMIT(OUTPUT,(MSNRMAX-MSNRMIN+1)*300+3000);   PRLWMOD3  146
001014       (*FOR EACH SITE 5 PAGES WITH 60 LINES TO REPRESENT THE RESULTS*)  PRLWMOD3  147
001014                                                                  PRLWMOD3  148
001014       FOR MSNR := MSNRMIN TO MSNRMAX DO                          PRLWMOD3  150
001016       BEGIN                                                      PRLWMOD3  151
001022         SIMULATION(TIMEBEGIN,TIMEEND,NOMIGRATION,MSNR);          PRLWMOD3  152
001027         MOVE('* SIMULATION (NOMIGRATION) FINISHED',DYMSG,'L');   PRLWMOD3  153
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001036         DYMSG[37]:='S';                                                    PRLWMOD3  154
001041         IF MSNR DIV 10=0 THEN DYMSG[39]:=' '                               PRLWMOD3  155
001050                          ELSE DYMSG[39]:=CHR(ORD('0')+MSNR DIV 10);        PRLWMOD3  156
001064         DYMSG[40]:=CHR(ORD('0')+MSNR-(MSNR DIV 10)*10);                    PRLWMOD3  157
001100         MESSAGE(DYMSG);                                                    PRLWMOD3  158
001102         PAGE(OUTPUT);                                                      PRLWMOD3  159
001106         PRTABLE(RESULTS,RR,MSNR,SIMSPEC,ATAB,SENTINEL,OUTPUT);             PRLWMOD3  160
001115         PRAAVERAGECYCLES(RESULTS,RR,MSNR,SIMSPEC,XX,YY,ROOTAVCY,           PRLWMOD3  161
001124                          SENTINEL,OUTPUT);                                 PRLWMOD3  162
001127         PAGE(OUTPUT);                                                      PRLWMOD3  163
001133         PRPRINTPLOT(RESULTS,RR,MSNR,SIMSPEC,0,                             PRLWMOD3  164
001136                     ROOTPRPL,SENTINEL,APRPL,OUTPUT);                       PRLWMOD3  165
001143       END;                                                                 PRLWMOD3  166
001145       IF DEBUG THEN COMFICHE(MSNRMIN,MSNRMAX,OUTPUT);                      PRLWMOD3  176
001155       COMFICHE(MSNRMIN,MSNRMAX,COM2);                                      PRLWMOD3  177
001164       (*SAVE MEMORY SPACE*)                                                PRLWMOD3  178
001164       TREESTART(ROOTTAB,SENTINEL);                                         PRLWMOD3  179
001166       TREESTART(ROOTAVCY,SENTINEL);                                        PRLWMOD3  180
001170       TREESTART(ROOTPRPL,SENTINEL);                                        PRLWMOD3  181
001172       MSNR:=MSNRMAX;                                                       PRLWMOD3  183
001176       PLAGRAPHS(RESULTS,RR,MSNR,MSNR,SIMSPEC,                              PRLWMOD3  184
001200                 ROOTPLOT,SENTINEL,COM2,PF1,BENSON);                        PRLWMOD3  185
001210       TREESTART(ROOTPLOT,SENTINEL);                                        PRLWMOD3  191
001212       GRAPH(TITLE,SUBTITLE,                                                PRLWMOD3  192
001215             VARLAB[T],LIN,                                                 PRLWMOD3  193
001221             TIMEBEGIN,TIMEEND,1,2,                                         PRLWMOD3  194
001234             VARLAB[LADE],LOG,                                              PRLWMOD3  195
001241             0.001,1000,0,0,                                                PRLWMOD3  196
001252             TRUE(*GRID*),                                                  PRLWMOD3  197
001254             ROOTPLOT,SENTINEL,APLOT);                                      PRLWMOD3  198
001257         CURVE(T,LADE,                                                      PRLWMOD3  199
001264               RED,1,                                                       PRLWMOD3  200
001265               FALSE(*NO SCATTER*),' ',                                     PRLWMOD3  201
001272               'SIMULIERTE','RAUPENDICHTE',                                 PRLWMOD3  202
001276               0,999,                                                       PRLWMOD3  203
001277               SENTINEL,APLOT);                                             PRLWMOD3  204
001302         CURVE(T,OLADE,                                                     PRLWMOD3  205
001307               BLACK,2,                                                     PRLWMOD3  206
001310               FALSE(*NO SCATTER*),' ',                                     PRLWMOD3  207
001315               'BEOBACHTETES','MITTEL',                                     PRLWMOD3  211
001321               0,999,                                                       PRLWMOD3  212
001322               SENTINEL,APLOT);                                             PRLWMOD3  213
001325         CURVE(T,OLADEX,                                                    PRLWMOD3  214
001332               BLUE,3,                                                      PRLWMOD3  215
001333               FALSE(*NO SCATTER*),' ',                                     PRLWMOD3  216
001340               'BEOBACHTETES','MAXIMUM',                                    PRLWMOD3  220
001344               0,999,                                                       PRLWMOD3  221
001345               SENTINEL,APLOT);                                             PRLWMOD3  222
001350         CURVE(T,OLADEN,                                                    PRLWMOD3  223
001355               BLUE,4,                                                      PRLWMOD3  224
001356               FALSE(*NO SCATTER*),' ',                                     PRLWMOD3  225
001364               'BEOBACHTETES','MINIMUM',                                    PRLWMOD3  229
001370               0,999,                                                       PRLWMOD3  230
001371               SENTINEL,APLOT);                                             PRLWMOD3  231
001374       GRAPH(TITLE,SUBTITLE,                                                PRLWMOD3  232
001377             VARLAB[T],LIN,                                                 PRLWMOD3  233
001403             TIMEBEGIN,TIMEEND,1,2,                                         PRLWMOD3  234
001416             VARLAB[LADE],LOG,                                              PRLWMOD3  235
001423             0.001,1000,0,0,                                                PRLWMOD3  236
001434             TRUE(*GRID*),                                                  PRLWMOD3  237
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001436            ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3  238
001441        CURVE(T,LADE,                                                PRLWMOD3  239
001446              RED,1,                                                 PRLWMOD3  240
001447              FALSE(*NO SCATTER*),' ',                               PRLWMOD3  241
001454              'SIMULIERTE','RAUPENDICHTE',                           PRLWMOD3  242
001460              0,999,                                                 PRLWMOD3  243
001461              SENTINEL,APLOT);                                       PRLWMOD3  244
001464        CURVE(T,OLADE,                                               PRLWMOD3  245
001471              BLACK,2,                                               PRLWMOD3  246
001472              FALSE(*NO SCATTER*),' ',                               PRLWMOD3  247
001477              'BEOBACHTETES','MITTEL',                               PRLWMOD3  251
001503              0,999,                                                 PRLWMOD3  252
001504              SENTINEL,APLOT);                                       PRLWMOD3  253
001507      GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3  254
001512            VARLAB[T],LIN,                                           PRLWMOD3  255
001516            TIMEBEGIN,TIMEEND,1,2,                                   PRLWMOD3  256
001531            VARLAB[LADE],LIN,                                        PRLWMOD3  257
001536            0,500,0,0,                                               PRLWMOD3  258
001550            TRUE(*GRID*),                                            PRLWMOD3  259
001552            ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3  260
001556        CURVE(T,LADE,                                                PRLWMOD3  261
001563              RED,1,                                                 PRLWMOD3  262
001564              FALSE(*NO SCATTER*),' ',                               PRLWMOD3  263
001571              'SIMULIERTE','RAUPENDICHTE',                           PRLWMOD3  264
001575              0,999,                                                 PRLWMOD3  265
001576              SENTINEL,APLOT);                                       PRLWMOD3  266
001601        CURVE(T,OLADE,                                               PRLWMOD3  267
001606              BLACK,2,                                               PRLWMOD3  268
001607              FALSE(*NO SCATTER*),' ',                               PRLWMOD3  269
001614              'BEOBACHTETES','MITTEL',                               PRLWMOD3  273
001620              0,999,                                                 PRLWMOD3  274
001621              SENTINEL,APLOT);                                       PRLWMOD3  275
001624      GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3  277
001627            VARLAB[T],LIN,                                           PRLWMOD3  278
001633            TIMEBEGIN,TIMEEND,1,2,                                   PRLWMOD3  279
001646            VARLAB[LADE],LOG,                                        PRLWMOD3  280
001653            0.001,1000,0,0,                                          PRLWMOD3  281
001664            TRUE(*GRID*),                                            PRLWMOD3  282
001666            ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3  283
001671        CURVE(T,LADE,                                                PRLWMOD3  284
001676              RED,1,                                                 PRLWMOD3  285
001677              FALSE(*NO SCATTER*),' ',                               PRLWMOD3  286
001704              'SIMULIERTE','RAUPENDICHTE',                           PRLWMOD3  290
001710              0,999,                                                 PRLWMOD3  291
001711              SENTINEL,APLOT);                                       PRLWMOD3  292
001714        CURVE(T,OLADE,                                               PRLWMOD3  293
001721              BLACK,2,                                               PRLWMOD3  294
001722              FALSE(*NO SCATTER*),' ',                               PRLWMOD3  295
001727              'BEOBACHTETES','MITTEL',                               PRLWMOD3  299
001733              0,999,                                                 PRLWMOD3  300
001734              SENTINEL,APLOT);                                       PRLWMOD3  301
001737        CURVE(T,OLADEX,                                              PRLWMOD3  302
001744              BLUE,3,                                                PRLWMOD3  303
001745              FALSE(*NO SCATTER*),' ',                               PRLWMOD3  304
001752              'BEOBACHTETES','MAXIMUM',                              PRLWMOD3  308
001756              0,999,                                                 PRLWMOD3  309
001757              SENTINEL,APLOT);                                       PRLWMOD3  310
001762        CURVE(T,OLADEN,                                              PRLWMOD3  311
001767              BLUE,4,                                                PRLWMOD3  312
001770              FALSE(*NO SCATTER*),' ',                               PRLWMOD3  313
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001776              'BEOBACHTETES','MINIMUM',                          PRLWMOD3  317
002002              0,999,                                             PRLWMOD3  318
002003              SENTINEL,APLOT);                                   PRLWMOD3  319
002006        CURVE(T,RF,                                              PRLWMOD3  321
002013              GREEN,6,                                           PRLWMOD3  322
002014              FALSE(*NO SCATTER*),' ',                           PRLWMOD3  323
002022              'SIMULIERTE','ROHFASER',                           PRLWMOD3  327
002026              0,999,                                             PRLWMOD3  328
002027              SENTINEL,APLOT);                                   PRLWMOD3  329
002032      GRAPH(TITLE,SUBTITLE,                                      PRLWMOD3  332
002035            VARLAB[T],LIN,                                       PRLWMOD3  333
002041            TIMEBEGIN,TIMEEND,1,2,                               PRLWMOD3  334
002054            VARLAB[RF],LIN,                                      PRLWMOD3  335
002061            10,20,1,2,                                           PRLWMOD3  336
002074            TRUE(*GRID*),                                        PRLWMOD3  337
002076            ROOTPLOT,SENTINEL,APLOT);                            PRLWMOD3  338
002101        CURVE(T,RF,                                              PRLWMOD3  339
002106              GREEN,6,                                           PRLWMOD3  340
002107              FALSE(*NO SCATTER*),' ',                           PRLWMOD3  341
002115              'SIMULIERTE','ROHFASER',                           PRLWMOD3  345
002121              0,999,                                             PRLWMOD3  346
002122              SENTINEL,APLOT);                                   PRLWMOD3  347
002125      GRAPH(TITLE,SUBTITLE,                                      PRLWMOD3  350
002130            VARLAB[RF],LIN,                                      PRLWMOD3  351
002134            10,20,1,2,                                           PRLWMOD3  352
002147            VARLAB[LADE],LOG,                                    PRLWMOD3  353
002154            0.001,1000,0,0,                                      PRLWMOD3  354
002165            TRUE(*GRID*),                                        PRLWMOD3  355
002167            ROOTPLOT,SENTINEL,APLOT);                            PRLWMOD3  356
002172        CURVE(RF,LADE,                                           PRLWMOD3  357
002177              RED,1,                                             PRLWMOD3  358
002200              FALSE(*NO SCATTER*),' ',                           PRLWMOD3  359
002205              'SIMULIERTE','WERTE',                              PRLWMOD3  363
002211              0,999,                                             PRLWMOD3  364
002212              SENTINEL,APLOT);                                   PRLWMOD3  365
002215      GRAPH(TITLE,SUBTITLE,                                      PRLWMOD3  367
002220            VARLAB[LADE],LOG,                                    PRLWMOD3  368
002224            0.001,1000,0,0,                                      PRLWMOD3  369
002235            VARLAB[FEC],LIN,                                     PRLWMOD3  370
002242            0,150,10,20,                                         PRLWMOD3  371
002255            TRUE(*GRID*),                                        PRLWMOD3  372
002257            ROOTPLOT,SENTINEL,APLOT);                            PRLWMOD3  373
002262        CURVE(LADE,FEC,                                          PRLWMOD3  374
002267              RED,1,                                             PRLWMOD3  375
002270              FALSE(*NO SCATTER*),' ',                           PRLWMOD3  376
002275              'SIMULIERTE','FEKUNDITAET',                        PRLWMOD3  380
002301              0,999,                                             PRLWMOD3  381
002302              SENTINEL,APLOT);                                   PRLWMOD3  382
002305      GRAPH(TITLE,SUBTITLE,                                      PRLWMOD3  383
002310            VARLAB[LADE],LOG,                                    PRLWMOD3  384
002314            0.001,1000,0,0,                                      PRLWMOD3  385
002325            'MG/PUPPE OD. MG/WEIBCHEN',LIN,                      PRLWMOD3  390
002332            0,50,10,20,                                          PRLWMOD3  396
002345            TRUE(*GRID*),                                        PRLWMOD3  397
002347            ROOTPLOT,SENTINEL,APLOT);                            PRLWMOD3  398
002352        CURVE(LADE,PUPW,                                         PRLWMOD3  409
002357              BLACK,1,                                           PRLWMOD3  410
002360              FALSE(*NO SCATTER*),' ',                           PRLWMOD3  411
002365              'PUPPEN','GEWICHT',                                PRLWMOD3  415
002371              0,999,                                             PRLWMOD3  416
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002372              SENTINEL,APLOT);                                    PRLWMOD3  417
002375        CURVE(LADE,FEMW,                                          PRLWMOD3  418
002402              BLUE,2,                                             PRLWMOD3  419
002403              FALSE(*NO SCATTER*),' ',                            PRLWMOD3  420
002411              'WEIBCHEN','GEWICHT',                               PRLWMOD3  424
002415              0,999,                                              PRLWMOD3  425
002416              SENTINEL,APLOT);                                    PRLWMOD3  426
002421      GRAPH(TITLE,SUBTITLE,                                       PRLWMOD3  427
002424            VARLAB[DEFOL],LIN,                                    PRLWMOD3  428
002430            0,1,0.1,0.2,                                          PRLWMOD3  429
002437            VARLAB[FEC],LIN,                                      PRLWMOD3  430
002444            0,150,10,20,                                          PRLWMOD3  431
002457            TRUE(*GRID*),                                         PRLWMOD3  432
002461            ROOTPLOT,SENTINEL,APLOT);                             PRLWMOD3  433
002465        CURVE(DEFOL,FEC,                                          PRLWMOD3  434
002472              RED,1,                                              PRLWMOD3  435
002473              FALSE(*NO SCATTER*),' ',                            PRLWMOD3  436
002500              'SIMULIERTE','FEKUNDITAET',                         PRLWMOD3  440
002504              0,999,                                              PRLWMOD3  441
002505              SENTINEL,APLOT);                                    PRLWMOD3  442
002510      GRAPH(TITLE,SUBTITLE,                                       PRLWMOD3  443
002513            VARLAB[DEFOL],LIN,                                    PRLWMOD3  444
002517            0,1,0.1,0.2,                                          PRLWMOD3  445
002526            'MG/PUPPE OD. MG/WEIBCHEN',LIN,                       PRLWMOD3  450
002533            0,50,10,20,                                           PRLWMOD3  456
002546            TRUE(*GRID*),                                         PRLWMOD3  457
002550            ROOTPLOT,SENTINEL,APLOT);                             PRLWMOD3  458
002554        CURVE(DEFOL,PUPW,                                         PRLWMOD3  469
002561              BLACK,1,                                            PRLWMOD3  470
002562              FALSE(*NO SCATTER*),' ',                            PRLWMOD3  471
002567              'PUPPEN','GEWICHT',                                 PRLWMOD3  475
002573              0,999,                                              PRLWMOD3  476
002574              SENTINEL,APLOT);                                    PRLWMOD3  477
002577        CURVE(DEFOL,PUPW,                                         PRLWMOD3  478
002604              BLUE,2,                                             PRLWMOD3  479
002605              FALSE(*NO SCATTER*),' ',                            PRLWMOD3  480
002613              'WEIBCHEN','GEWICHT',                               PRLWMOD3  484
002617              0,999,                                              PRLWMOD3  485
002620              SENTINEL,APLOT);                                    PRLWMOD3  486
002623                                                                  PRLWMOD3  487
002623      GRAPH(TITLE,SUBTITLE,                                       PRLWMOD3  488
002626            VARLAB[LADE],LIN,                                     PRLWMOD3  489
002632            0,500,1,2,                                            PRLWMOD3  490
002645            VARLAB[DEFOL],LIN,                                    PRLWMOD3  491
002651            0,1,0,0,                                              PRLWMOD3  492
002663            TRUE(*GRID*),                                         PRLWMOD3  493
002665            ROOTPLOT,SENTINEL,APLOT);                             PRLWMOD3  494
002671        CURVE(LADE,DEFOL,                                         PRLWMOD3  495
002676              BLACK,1,                                            PRLWMOD3  496
002677              TRUE(*SCATTER*),'*',                                PRLWMOD3  497
002704              'SIMULIERTER','SCHADEN',                            PRLWMOD3  501
002710              0,999,                                              PRLWMOD3  502
002711              SENTINEL,APLOT);                                    PRLWMOD3  503
002714                                                                  PRLWMOD3  504
002714      PLAGRAPHS(RESULTS,RR,MSNRMIN,MSNRMAX,SIMSPEC,               PRLWMOD3  506
002717                ROOTPLOT,SENTINEL,COM2,PF2,FILM35);               PRLWMOD3  507
002727                                                                  PRLWMOD3  513
002727      MESSAGE('* REPRESENTATION OF RESULTS FINISHED');            PRLWMOD3  514
002731                                                                  PRLWMOD3  515
002731    END(*NOMIGRATION*);                                           PRLWMOD3  516
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002732                                                                  PRLWMOD3  517
002732    (**********)                                                  PRLWMOD3  518
002732    IMMIGRATION:                                                  PRLWMOD3  519
002732    (**********)                                                  PRLWMOD3  520
002732                                                                  PRLWMOD3  521
002732    BEGIN                                                         PRLWMOD3  522
002732      (*DECLARATIONS FOR REPRESENTATION OF SIMULATION RESULTS*)    PRLWMOD3  523
002732      MOVE('DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN',            PRLWMOD3  531
002734           TITLE,'L');                                            PRLWMOD3  532
002741      MOVE('FALTEREINFLUG UND ABUNDANZDYNAMIK',                   PRLWMOD3  533
002743           SUBTITLE,'L');                                         PRLWMOD3  534
002750      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                PRLWMOD3  537
002756        COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);             PRLWMOD3  538
002770        COLUMN(LADE  ,'A', 9,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  539
003003        COLUMN(OLADE ,'O', 9,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  540
003016        COLUMN(SQLADE,'Q',12,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  541
003031        COLUMN(SQOUT ,'U',12,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  542
003044        COLUMN(RF    ,'R', 6,1,VARDES,SENTINEL,ATAB);             PRLWMOD3  544
003056        COLUMN(FEM   ,'H',14,0,VARDES,SENTINEL,ATAB);             PRLWMOD3  547
003070        COLUMN(INV   ,'V',14,0,VARDES,SENTINEL,ATAB);             PRLWMOD3  548
003102        COLUMN(EGG   ,'E',14,0,VARDES,SENTINEL,ATAB);             PRLWMOD3  549
003114      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                PRLWMOD3  551
003122        COLUMN(T     ,'T', 8,0,VARDES,SENTINEL,ATAB);             PRLWMOD3  552
003134        COLUMN(FOL   ,'F',10,0,VARDES,SENTINEL,ATAB);             PRLWMOD3  553
003146        COLUMN(DC    ,'C', 5,1,VARDES,SENTINEL,ATAB);             PRLWMOD3  554
003160        COLUMN(PUPW  ,'P', 7,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  555
003173        COLUMN(DEFOL ,'D', 7,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  556
003206        COLUMN(MSML  ,'M', 6,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  557
003221        COLUMN(STARV ,'S', 6,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  558
003233        COLUMN(MLLPM ,'L', 6,3,VARDES,SENTINEL,ATAB);             PRLWMOD3  559
003245        COLUMN(FEC   ,'4', 6,1,VARDES,SENTINEL,ATAB);             PRLWMOD3  562
003257                                                                  PRLWMOD3  563
003257      AVERAGECYCLE(TITLE,SUBTITLE,ROOTAVCY,SENTINEL,AAVCY);       PRLWMOD3  564
003265        ROW(AVCYT ,'T',2,0,VARDES,SENTINEL,AAVCY);                PRLWMOD3  565
003277        ROW(RF    ,'R',6,1,VARDES,SENTINEL,AAVCY);                PRLWMOD3  567
003311        ROW(LADE  ,'A',9,3,VARDES,SENTINEL,AAVCY);                PRLWMOD3  570
003324        ROW(OLADE ,'O',9,3,VARDES,SENTINEL,AAVCY);                PRLWMOD3  571
003337        ROW(OLADEN,'M',9,3,VARDES,SENTINEL,AAVCY);                PRLWMOD3  572
003352        ROW(OLADEX,'X',9,3,VARDES,SENTINEL,AAVCY);                PRLWMOD3  573
003364                                                                  PRLWMOD3  574
003364      PRINTPLOT(TITLE,SUBTITLE,LOG,0.001,1000,                    PRLWMOD3  575
003375                ROOTPRPL,SENTINEL,APRPL);                         PRLWMOD3  576
003401        VARIABLE(OLADE,'0',SENTINEL,APRPL);                       PRLWMOD3  577
003411        VARIABLE(LADE ,'A',SENTINEL,APRPL);                       PRLWMOD3  578
003421                                                                  PRLWMOD3  580
003421      GRAPH(TITLE,SUBTITLE,                                       PRLWMOD3  581
003424            VARLAB[T],LIN,                                        PRLWMOD3  582
003430            TIMEBEGIN,TIMEEND,1,2,                                PRLWMOD3  583
003443            VARLAB[LADE],LOG,                                     PRLWMOD3  584
003450            0.001,1000,0,0,                                       PRLWMOD3  585
003461            TRUE(*GRID*),                                         PRLWMOD3  586
003463            ROOTPLOT,SENTINEL,APLOT);                             PRLWMOD3  587
003466        CURVE(T,LADE,                                             PRLWMOD3  588
003473              RED,1,                                              PRLWMOD3  589
003474              FALSE(*NO SCATTER*),' ',                            PRLWMOD3  590
003501              'SIMULIERTE','RAUPENDICHTE',                        PRLWMOD3  594
003505              0,999,                                              PRLWMOD3  595
003506              SENTINEL,APLOT);                                    PRLWMOD3  596
003511        CURVE(T,OLADE,                                            PRLWMOD3  597
003516              BLACK,2,                                            PRLWMOD3  598
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003517              FALSE(*NO SCATTER*),' ',                                  PRLWMOD3  599
003524              'BEOBACHTETES','MITTEL',                                  PRLWMOD3  603
003530              0,999,                                                    PRLWMOD3  604
003531              SENTINEL,APLOT);                                          PRLWMOD3  605
003534        CURVE(T,OLADEX,                                                 PRLWMOD3  606
003541              BLUE,3,                                                   PRLWMOD3  607
003542              FALSE(*NO SCATTER*),' ',                                  PRLWMOD3  608
003547              'BEOBACHTETES','MAXIMUM',                                 PRLWMOD3  612
003553              0,999,                                                    PRLWMOD3  613
003554              SENTINEL,APLOT);                                          PRLWMOD3  614
003557        CURVE(T,OLADEN,                                                 PRLWMOD3  615
003564              BLUE,4,                                                   PRLWMOD3  616
003565              FALSE(*NO SCATTER*),' ',                                  PRLWMOD3  617
003573              'BEOBACHTETES','MINIMUM',                                 PRLWMOD3  621
003577              0,999,                                                    PRLWMOD3  622
003600              SENTINEL,APLOT);                                          PRLWMOD3  623
003603      GRAPH(TITLE,SUBTITLE,                                             PRLWMOD3  625
003606            VARLAB[RF],LIN,                                             PRLWMOD3  626
003612            10,20,1,2,                                                  PRLWMOD3  627
003625            VARLAB[LADE],LOG,                                           PRLWMOD3  628
003632            0.001,1000,0,0,                                             PRLWMOD3  629
003643            TRUE(*GRID*),                                               PRLWMOD3  630
003645            ROOTPLOT,SENTINEL,APLOT);                                   PRLWMOD3  631
003650        CURVE(RF,LADE,                                                  PRLWMOD3  632
003655              RED,1,                                                    PRLWMOD3  633
003656              FALSE(*NO SCATTER*),' ',                                  PRLWMOD3  634
003663              'SIMULIERTE','WERTE',                                     PRLWMOD3  638
003667              0,999,                                                    PRLWMOD3  639
003670              SENTINEL,APLOT);                                          PRLWMOD3  640
003673                                                                        PRLWMOD3  642
003673      (*SIMULATION AND REPRESENTATION OF RESULTS*)                      PRLWMOD3  644
003673      MESSAGE('* SIMULATION (IMMIGRATION) STARTED');                    PRLWMOD3  645
003675      MESSAGE(SIMSPEC.MODEL);                                           PRLWMOD3  646
003677      MSNRMIN:=0;                                                       PRLWMOD3  648
003700      MSNRMAX:=0;                                                       PRLWMOD3  649
003701      IF DEBUG THEN LINELIMIT(OUTPUT,(TIMEEND-TIMEBEGIN+1)              PRLWMOD3  652
003703                    *(MSNRMAX-MSNRMIN+1)*2+(MSNRMAX-MSNRMIN+1)*1200)    PRLWMOD3  653
003707               ELSE LINELIMIT(OUTPUT,(MSNRMAX-MSNRMIN+1)*300+3000);     PRLWMOD3  654
003714      (*FOR EACH SITE 5 PAGES WITH 60 LINES TO REPRESENT THE RESULTS*)  PRLWMOD3  655
003714      FOR MSNR:=MSNRMIN TO MSNRMAX DO                                   PRLWMOD3  657
003716      BEGIN                                                             PRLWMOD3  658
003722        SIMULATION(TIMEBEGIN,TIMEEND,IMMIGRATION,MSNR);                 PRLWMOD3  659
003727        MOVE('* SIMULATION (IMMIGRATION) FINISHED',DYMSG,'L');          PRLWMOD3  660
003736        DYMSG[37]:='S';                                                 PRLWMOD3  661
003741        IF MSNR DIV 10=0 THEN DYMSG[39]:=' '                            PRLWMOD3  662
003750                         ELSE DYMSG[39]:=CHR(ORD('0')+MSNR DIV 10);     PRLWMOD3  663
003764        DYMSG[40]:=CHR(ORD('0')+MSNR-(MSNR DIV 10)*10);                 PRLWMOD3  664
004000        MESSAGE(DYMSG);                                                 PRLWMOD3  665
004002        PAGE(OUTPUT);                                                   PRLWMOD3  666
004006        PRATABLES(RESULTS,RR,MSNR,SIMSPEC,ROOTTAB,SENTINEL,OUTPUT);     PRLWMOD3  667
004015        PRAAVERAGECYCLES(RESULTS,RR,MSNR,SIMSPEC,XX,YY,ROOTAVCY,        PRLWMOD3  668
004024                         SENTINEL,OUTPUT);                              PRLWMOD3  669
004027        PAGE(OUTPUT);                                                   PRLWMOD3  670
004033        PRPRINTPLOT(RESULTS,RR,MSNR,SIMSPEC,0,                          PRLWMOD3  671
004036                    ROOTPRPL,SENTINEL,APRPL,OUTPUT);                    PRLWMOD3  672
004043      END;                                                              PRLWMOD3  673
004045                                                                        PRLWMOD3  675
004045      MSNR:=MSNRMAX;                                                    PRLWMOD3  677
004051      PLAGRAPHS(RESULTS,RR,MSNR,MSNR,SIMSPEC,                           PRLWMOD3  678
004053                ROOTPLOT,SENTINEL,DUMMYFILE,PF1,BENSON);                PRLWMOD3  679
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004063       TREESTART(ROOTPLOT,SENTINEL);                                  PRLWMOD3  685
004065       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3  686
004070             VARLAB[T],LIN,                                           PRLWMOD3  687
004074             TIMEBEGIN,TIMEEND,1,2,                                   PRLWMOD3  688
004107             VARLAB[LADE],LOG,                                        PRLWMOD3  689
004114             0.001,1000,0,0,                                          PRLWMOD3  690
004125             TRUE(*GRID*),                                            PRLWMOD3  691
004127             ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3  692
004132         CURVE(T,LADE,                                                PRLWMOD3  693
004137               RED,1,                                                 PRLWMOD3  694
004140               FALSE(*NO SCATTER*),' ',                               PRLWMOD3  695
004145               'SIMULIERTE','RAUPENDICHTE',                           PRLWMOD3  699
004151               0,999,                                                 PRLWMOD3  700
004152               SENTINEL,APLOT);                                       PRLWMOD3  701
004155         CURVE(T,OLADE,                                               PRLWMOD3  702
004162               BLACK,2,                                               PRLWMOD3  703
004163               FALSE(*NO SCATTER*),' ',                               PRLWMOD3  704
004170               'BEOBACHTETES','MITTEL',                               PRLWMOD3  708
004174               0,999,                                                 PRLWMOD3  709
004175               SENTINEL,APLOT);                                       PRLWMOD3  710
004200         CURVE(T,OLADEX,                                              PRLWMOD3  711
004205               BLUE,3,                                                PRLWMOD3  712
004206               FALSE(*NO SCATTER*),' ',                               PRLWMOD3  713
004213               'BEOBACHTETES','MAXIMUM',                              PRLWMOD3  717
004217               0,999,                                                 PRLWMOD3  718
004220               SENTINEL,APLOT);                                       PRLWMOD3  719
004223         CURVE(T,OLADEN,                                              PRLWMOD3  720
004230               BLUE,4,                                                PRLWMOD3  721
004231               FALSE(*NO SCATTER*),' ',                               PRLWMOD3  722
004237               'BEOBACHTETES','MINIMUM',                              PRLWMOD3  726
004243               0,999,                                                 PRLWMOD3  727
004244               SENTINEL,APLOT);                                       PRLWMOD3  728
004247       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3  729
004252             VARLAB[T],LIN,                                           PRLWMOD3  730
004256             TIMEBEGIN,TIMEEND,1,2,                                   PRLWMOD3  731
004271             VARLAB[LADE],LOG,                                        PRLWMOD3  732
004276             0.001,1000,0,0,                                          PRLWMOD3  733
004307             TRUE(*GRID*),                                            PRLWMOD3  734
004311             ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3  735
004314         CURVE(T,LADE,                                                PRLWMOD3  736
004321               RED,1,                                                 PRLWMOD3  737
004322               FALSE(*NO SCATTER*),' ',                               PRLWMOD3  738
004327               'SIMULIERTE','RAUPENDICHTE',                           PRLWMOD3  742
004333               0,999,                                                 PRLWMOD3  743
004334               SENTINEL,APLOT);                                       PRLWMOD3  744
004337         CURVE(T,OLADE,                                               PRLWMOD3  745
004344               BLACK,2,                                               PRLWMOD3  746
004345               FALSE(*NO SCATTER*),' ',                               PRLWMOD3  747
004352               'BEOBACHTETES','MITTEL',                               PRLWMOD3  751
004356               0,999,                                                 PRLWMOD3  752
004357               SENTINEL,APLOT);                                       PRLWMOD3  753
004362       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3  754
004365             VARLAB[T],LIN,                                           PRLWMOD3  755
004371             TIMEBEGIN,TIMEEND,1,2,                                   PRLWMOD3  756
004404             VARLAB[LADE],LIN,                                        PRLWMOD3  757
004411             0,500,0,0,                                               PRLWMOD3  758
004423             TRUE(*GRID*),                                            PRLWMOD3  759
004425             ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3  760
004431         CURVE(T,LADE,                                                PRLWMOD3  761
004436               RED,1,                                                 PRLWMOD3  762
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004437              FALSE(*NO SCATTER*),' ',                                PRLWMOD3  763
004444              'SIMULIERTE','RAUPENDICHTE',                            PRLWMOD3  767
004450              0,999,                                                  PRLWMOD3  768
004451              SENTINEL,APLOT);                                        PRLWMOD3  769
004454        CURVE(T,OLADE,                                                PRLWMOD3  770
004461              BLACK,2,                                                PRLWMOD3  771
004462              FALSE(*NO SCATTER*),' ',                                PRLWMOD3  772
004467              'BEOBACHTETES','MITTEL',                                PRLWMOD3  776
004473              0,999,                                                  PRLWMOD3  777
004474              SENTINEL,APLOT);                                        PRLWMOD3  778
004477      GRAPH(TITLE,SUBTITLE,                                           PRLWMOD3  780
004502            VARLAB[RF],LIN,                                           PRLWMOD3  781
004506            10,20,1,2,                                                PRLWMOD3  782
004521            VARLAB[LADE],LOG,                                         PRLWMOD3  783
004526            0.001,1000,0,0,                                           PRLWMOD3  784
004537            TRUE(*GRID*),                                             PRLWMOD3  785
004541            ROOTPLOT,SENTINEL,APLOT);                                 PRLWMOD3  786
004544        CURVE(RF,LADE,                                                PRLWMOD3  787
004551              RED,1,                                                  PRLWMOD3  788
004552              FALSE(*NO SCATTER*),' ',                                PRLWMOD3  789
004557              'SIMULIERTE','WERTE',                                   PRLWMOD3  793
004563              0,999,                                                  PRLWMOD3  794
004564              SENTINEL,APLOT);                                        PRLWMOD3  795
004567      GRAPH(TITLE,SUBTITLE,                                           PRLWMOD3  797
004572            VARLAB[LADE],LOG,                                         PRLWMOD3  798
004576            0.001,1000,0,0,                                           PRLWMOD3  799
004607            VARLAB[FEC],LIN,                                          PRLWMOD3  800
004614            0,150,10,20,                                              PRLWMOD3  801
004627            TRUE(*GRID*),                                             PRLWMOD3  802
004631            ROOTPLOT,SENTINEL,APLOT);                                 PRLWMOD3  803
004634        CURVE(LADE,FEC,                                               PRLWMOD3  804
004641              RED,1,                                                  PRLWMOD3  805
004642              FALSE(*NO SCATTER*),' ',                                PRLWMOD3  806
004647              'SIMULIERTE','FEKUNDITAET',                             PRLWMOD3  810
004653              0,999,                                                  PRLWMOD3  811
004654              SENTINEL,APLOT);                                        PRLWMOD3  812
004657      GRAPH(TITLE,SUBTITLE,                                           PRLWMOD3  813
004662            VARLAB[LADE],LOG,                                         PRLWMOD3  814
004666            0.001,1000,0,0,                                           PRLWMOD3  815
004677            'MG/PUPPE OD. MG/WEIBCHEN',LIN,                           PRLWMOD3  820
004704            0,50,10,20,                                               PRLWMOD3  826
004717            TRUE(*GRID*),                                             PRLWMOD3  827
004721            ROOTPLOT,SENTINEL,APLOT);                                 PRLWMOD3  828
004724        CURVE(LADE,PUPW,                                              PRLWMOD3  839
004731              BLACK,1,                                                PRLWMOD3  840
004732              FALSE(*NO SCATTER*),' ',                                PRLWMOD3  841
004737              'PUPPEN','GEWICHT',                                     PRLWMOD3  845
004743              0,999,                                                  PRLWMOD3  846
004744              SENTINEL,APLOT);                                        PRLWMOD3  847
004747        CURVE(LADE,FEMW,                                              PRLWMOD3  848
004754              BLUE,2,                                                 PRLWMOD3  849
004755              FALSE(*NO SCATTER*),' ',                                PRLWMOD3  850
004763              'WEIBCHEN','GEWICHT',                                   PRLWMOD3  854
004767              0,999,                                                  PRLWMOD3  855
004770              SENTINEL,APLOT);                                        PRLWMOD3  856
004773      GRAPH(TITLE,SUBTITLE,                                           PRLWMOD3  857
004776            VARLAB[DEFOL],LIN,                                        PRLWMOD3  858
005002            0,1,0.1,0.2,                                              PRLWMOD3  859
005011            VARLAB[FEC],LIN,                                          PRLWMOD3  860
005016            0,150,10,20,                                              PRLWMOD3  861
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005031            TRUE(*GRID*),                                          PRLWMOD3  862
005033            ROOTPLOT,SENTINEL,APLOT);                              PRLWMOD3  863
005037        CURVE(DEFOL,FEC,                                           PRLWMOD3  864
005044              RED,1,                                               PRLWMOD3  865
005045              FALSE(*NO SCATTER*),' ',                             PRLWMOD3  866
005052              'SIMULIERTE','FEKUNDITAET',                          PRLWMOD3  870
005056              0,999,                                               PRLWMOD3  871
005057              SENTINEL,APLOT);                                     PRLWMOD3  872
005062      GRAPH(TITLE,SUBTITLE,                                        PRLWMOD3  873
005065            VARLAB[DEFOL],LIN,                                     PRLWMOD3  874
005071            0,1,0.1,0.2,                                           PRLWMOD3  875
005100            'MG/PUPPE OD. MG/WEIBCHEN',LIN,                        PRLWMOD3  880
005105            0,50,10,20,                                            PRLWMOD3  886
005120            TRUE(*GRID*),                                          PRLWMOD3  887
005122            ROOTPLOT,SENTINEL,APLOT);                              PRLWMOD3  888
005126        CURVE(DEFOL,PUPW,                                          PRLWMOD3  899
005133              BLACK,1,                                             PRLWMOD3  900
005134              FALSE(*NO SCATTER*),' ',                             PRLWMOD3  901
005141              'PUPPEN','GEWICHT',                                  PRLWMOD3  905
005145              0,999,                                               PRLWMOD3  906
005146              SENTINEL,APLOT);                                     PRLWMOD3  907
005151        CURVE(DEFOL,PUPW,                                          PRLWMOD3  908
005156              BLUE,2,                                              PRLWMOD3  909
005157              FALSE(*NO SCATTER*),' ',                             PRLWMOD3  910
005165              'WEIBCHEN','GEWICHT',                                PRLWMOD3  914
005171              0,999,                                               PRLWMOD3  915
005172              SENTINEL,APLOT);                                     PRLWMOD3  916
005175                                                                   PRLWMOD3  917
005175      GRAPH(TITLE,SUBTITLE,                                        PRLWMOD3  918
005200            VARLAB[LADE],LIN,                                      PRLWMOD3  919
005204            0,500,1,2,                                             PRLWMOD3  920
005217            VARLAB[DEFOL],LIN,                                     PRLWMOD3  921
005223            0,1,0,0,                                               PRLWMOD3  922
005235            TRUE(*GRID*),                                          PRLWMOD3  923
005237            ROOTPLOT,SENTINEL,APLOT);                              PRLWMOD3  924
005243        CURVE(LADE,DEFOL,                                          PRLWMOD3  925
005250              BLACK,1,                                             PRLWMOD3  926
005251              TRUE(*SCATTER*),'*',                                 PRLWMOD3  927
005256              'SIMULIERTER','SCHADEN',                             PRLWMOD3  931
005262              0,999,                                               PRLWMOD3  932
005263              SENTINEL,APLOT);                                     PRLWMOD3  933
005266                                                                   PRLWMOD3  934
005266      PLAGRAPHS(RESULTS,RR,MSNRMIN,MSNRMAX,SIMSPEC,                PRLWMOD3  936
005271                ROOTPLOT,SENTINEL,DUMMYFILE,PF2,FILM35);           PRLWMOD3  937
005301                                                                   PRLWMOD3  938
005301      (*SAVE MEMORY SPACE*)                                        PRLWMOD3  951
005301      TREESTART(ROOTPLOT,SENTINEL);                                PRLWMOD3  952
005303      COMFICHE(MSNRMIN,MSNRMAX,COM2);                              PRLWMOD3  953
005312                                                                   PRLWMOD3  954
005312      MESSAGE('* REPRESENTATION OF RESULTS FINISHED');             PRLWMOD3  955
005314                                                                   PRLWMOD3  956
005314    END(*IMMIGRATION*);                                            PRLWMOD3  957
005315                                                                   PRLWMOD3  958
005315    (***)                                                          PRLWMOD3  959
005315    BOTH:                                                          PRLWMOD3  960
005315    (***)                                                          PRLWMOD3  961
005315                                                                   PRLWMOD3  962
005315    BEGIN                                                          PRLWMOD3  963
005315                                                                   PRLWMOD3  965
005315      (*SIMULATION*)                                               PRLWMOD3  966
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005315      MESSAGE('* SIMULATION (BOTH) STARTED');                          PRLWMOD3  967
005317      MESSAGE(SIMSPEC.MODEL);                                          PRLWMOD3  968
005321      SIMULATION(TIMEBEGIN,TIMEEND,BOTH,0);                            PRLWMOD3  969
005325      MESSAGE('* SIMULATION (BOTH) FINISHED');                         PRLWMOD3  970
005327                                                                       PRLWMOD3  971
005327      (*DECLARATIONS FOR REPRESENTATION OF SIMULATION RESULTS*)         PRLWMOD3  972
005327      MOVE('DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN',                 PRLWMOD3  979
005331           TITLE,'L');                                                 PRLWMOD3  980
005336      MOVE('ABUNDANZ- U. DISPERSIONSDYNAMIK',                          PRLWMOD3  981
005340           SUBTITLE,'L');                                              PRLWMOD3  982
005345      IF DEBUG THEN LINELIMIT(OUTPUT,(TIMEEND-TIMEBEGIN+1)*            PRLWMOD3  984
005350                              (SAVNROFSITES+1)*(5+8*15(*TIMES A SITE IN- PRLWMOD3  985
005352                              VOLVED IN RECURSION BY MIGRATION PER     PRLWMOD3  986
005352                              FLIGHT SEASON*))+(SAVNROFSITES+1)*300)   PRLWMOD3  987
005356              ELSE LINELIMIT(OUTPUT,(SAVNROFSITES+1)*300+3000);        PRLWMOD3  988
005363      (*FOR EACH SITE 5 PAGES WITH 60 LINES TO REPRESENT THE RESULTS*) PRLWMOD3  989
005363                                                                       PRLWMOD3  990
005363      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                     PRLWMOD3  991
005371        COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3  992
005403        COLUMN(LADE  ,'A', 9,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3  993
005416        COLUMN(OLADE ,'O', 9,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3  994
005431        COLUMN(SQLADE,'Q',12,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3  995
005444        COLUMN(WSQLD ,'W',12,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3  996
005457        COLUMN(SQOUT ,'U',12,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3  997
005472        COLUMN(RF    ,'R', 6,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3  999
005504        COLUMN(EGG   ,'E',14,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1001
005516        COLUMN(DC    ,'C', 5,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1003
005530        COLUMN(FOL   ,'F',10,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1004
005542        COLUMN(DEFOL ,'D', 7,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1005
005555        COLUMN(MSML  ,'M', 6,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1006
005570        COLUMN(STARV ,'S', 6,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1007
005602        COLUMN(MLLPM ,'L', 6,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1008
005614        COLUMN(FEC   ,'4', 6,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1010
005626                                                                       PRLWMOD3 1011
005626      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                     PRLWMOD3 1012
005634        COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1013
005646        COLUMN(LADE  ,'A',10,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1014
005661        COLUMN(OLADE ,'0',10,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1015
005674        COLUMN(RF    ,'R', 5,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1017
005706        COLUMN(DEFOL ,'D', 7,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1018
005721        COLUMN(FEM   ,'M',12,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1020
005733        COLUMN(INV   ,'V',14,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1021
005745        COLUMN(IMM   ,'I',12,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1022
005757        COLUMN(EMI   ,'O',14,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1023
005771        COLUMN(NETMIG,'N',12,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1024
006003        COLUMN(ACTF  ,'C',12,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1025
006015        COLUMN(DOWF  ,'P',12,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1026
006027                                                                       PRLWMOD3 1027
006027      TABLE(TITLE,SUBTITLE,ROOTTAB,SENTINEL,ATAB);                     PRLWMOD3 1028
006035        COLUMN(T     ,'T', 6,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1029
006047        COLUMN(LADE  ,'A',10,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1030
006062        COLUMN(OLADE ,'0',10,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1031
006075        COLUMN(RF    ,'R', 5,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1033
006107        COLUMN(DEFOL ,'D', 7,3,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1034
006122        COLUMN(IMM   ,'I',12,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1036
006134        COLUMN(FEC   ,'4', 6,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1037
006146        COLUMN(AEGG  ,'H',14,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1038
006160        COLUMN(SEGG  ,'G',14,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1039
006172        COLUMN(EMI   ,'O',12,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1040
006204        COLUMN(FEC   ,'4', 6,1,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1041
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006216         COLUMN(FUG   ,'U',14,0,VARDES,SENTINEL,ATAB);                  PRLWMOD3 1042
006230                                                                        PRLWMOD3 1043
006230       AVERAGECYCLE(TITLE,SUBTITLE,ROOTAVCY,SENTINEL,AAVCY);            PRLWMOD3 1044
006236         ROW(AVCYT ,'T',2,0,VARDES,SENTINEL,AAVCY);                     PRLWMOD3 1045
006250         ROW(RF    ,'R',6,1,VARDES,SENTINEL,AAVCY);                     PRLWMOD3 1047
006262         ROW(LADE  ,'A',9,3,VARDES,SENTINEL,AAVCY);                     PRLWMOD3 1049
006275         ROW(OLADE ,'O',9,3,VARDES,SENTINEL,AAVCY);                     PRLWMOD3 1050
006310         ROW(OLADEN,'M',9,3,VARDES,SENTINEL,AAVCY);                     PRLWMOD3 1051
006323         ROW(OLADEX,'X',9,3,VARDES,SENTINEL,AAVCY);                     PRLWMOD3 1052
006335                                                                        PRLWMOD3 1053
006335       PRINTPLOT(TITLE,SUBTITLE,LOG,0.001,1000,                         PRLWMOD3 1054
006346                 ROOTPRPL,SENTINEL,APRPL);                              PRLWMOD3 1055
006352         VARIABLE(OLADE,'0',SENTINEL,APRPL);                            PRLWMOD3 1056
006362         VARIABLE(LADE ,'A',SENTINEL,APRPL);                            PRLWMOD3 1057
006372                                                                        PRLWMOD3 1058
006372       GRAPH(TITLE,SUBTITLE,                                            PRLWMOD3 1059
006375            VARLAB[T],LIN,                                              PRLWMOD3 1060
006401            TIMEBEGIN,TIMEEND,1,2,                                      PRLWMOD3 1061
006414            VARLAB[LADE],LOG,                                           PRLWMOD3 1062
006421            0.001,1000,0,0,                                             PRLWMOD3 1063
006432            TRUE(*GRID*),                                               PRLWMOD3 1064
006434            ROOTPLOT,SENTINEL,APLOT);                                   PRLWMOD3 1065
006437         CURVE(T,LADE,                                                  PRLWMOD3 1066
006444               RED,1,                                                   PRLWMOD3 1067
006445               FALSE(*NO SCATTER*),' ',                                 PRLWMOD3 1068
006452               'SIMULIERTE','RAUPENDICHTE',                             PRLWMOD3 1072
006456               0,999,                                                   PRLWMOD3 1073
006457               SENTINEL,APLOT);                                         PRLWMOD3 1074
006462         CURVE(T,OLADE,                                                 PRLWMOD3 1075
006467               BLACK,2,                                                 PRLWMOD3 1076
006470               FALSE(*NO SCATTER*),' ',                                 PRLWMOD3 1077
006475               'BEOBACHTETES','MITTEL',                                 PRLWMOD3 1081
006501               0,999,                                                   PRLWMOD3 1082
006502               SENTINEL,APLOT);                                         PRLWMOD3 1083
006505         CURVE(T,OLADEX,                                                PRLWMOD3 1084
006512               BLUE,3,                                                  PRLWMOD3 1085
006513               FALSE(*NO SCATTER*),' ',                                 PRLWMOD3 1086
006520               'BEOBACHTETES','MAXIMUM',                                PRLWMOD3 1090
006524               0,999,                                                   PRLWMOD3 1091
006525               SENTINEL,APLOT);                                         PRLWMOD3 1092
006530         CURVE(T,OLADEN,                                                PRLWMOD3 1093
006535               BLUE,4,                                                  PRLWMOD3 1094
006536               FALSE(*NO SCATTER*),' ',                                 PRLWMOD3 1095
006544               'BEOBACHTETES','MINIMUM',                                PRLWMOD3 1099
006550               0,999,                                                   PRLWMOD3 1100
006551               SENTINEL,APLOT);                                         PRLWMOD3 1101
006554       GRAPH(TITLE,SUBTITLE,                                            PRLWMOD3 1102
006557            VARLAB[T],LIN,                                              PRLWMOD3 1103
006563            TIMEBEGIN,TIMEEND,1,2,                                      PRLWMOD3 1104
006576            VARLAB[LADE],LOG,                                           PRLWMOD3 1105
006603            0.001,1000,0,0,                                             PRLWMOD3 1106
006614            TRUE(*GRID*),                                               PRLWMOD3 1107
006616            ROOTPLOT,SENTINEL,APLOT);                                   PRLWMOD3 1108
006621         CURVE(T,LADE,                                                  PRLWMOD3 1109
006626               RED,1,                                                   PRLWMOD3 1110
006627               FALSE(*NO SCATTER*),' ',                                 PRLWMOD3 1111
006634               'SIMULIERTE','RAUPENDICHTE',                             PRLWMOD3 1115
006640               0,999,                                                   PRLWMOD3 1116
006641               SENTINEL,APLOT);                                         PRLWMOD3 1117
006644         CURVE(T,OLADE,                                                 PRLWMOD3 1118
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006651              BLACK,2,                                                PRLWMOD3 1119
006652              FALSE(*NO SCATTER*),' ',                                PRLWMOD3 1120
006657              'BEOBACHTETES','MITTEL',                                PRLWMOD3 1124
006663              0,999,                                                  PRLWMOD3 1125
006664              SENTINEL,APLOT);                                        PRLWMOD3 1126
006667        GRAPH(TITLE,SUBTITLE,                                         PRLWMOD3 1127
006672             VARLAB[T],LIN,                                           PRLWMOD3 1128
006676             TIMEBEGIN,TIMEEND,1,2,                                   PRLWMOD3 1129
006711             VARLAB[LADE],LIN,                                        PRLWMOD3 1130
006716             0,500,0,0,                                               PRLWMOD3 1131
006730             TRUE(*GRID*),                                            PRLWMOD3 1132
006732             ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3 1133
006736          CURVE(T,LADE,                                               PRLWMOD3 1134
006743                RED,1,                                                PRLWMOD3 1135
006744                FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1136
006751                'SIMULIERTE','RAUPENDICHTE',                          PRLWMOD3 1140
006755                0,999,                                                PRLWMOD3 1141
006756                SENTINEL,APLOT);                                      PRLWMOD3 1142
006761          CURVE(T,OLADE,                                              PRLWMOD3 1143
006766                BLACK,2,                                              PRLWMOD3 1144
006767                FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1145
006774                'BEOBACHTETES','MITTEL',                              PRLWMOD3 1149
007000                0,999,                                                PRLWMOD3 1150
007001                SENTINEL,APLOT);                                      PRLWMOD3 1151
007004                                                                      PRLWMOD3 1152
007004        GRAPH(TITLE,SUBTITLE,                                         PRLWMOD3 1153
007007             VARLAB[T],LIN,                                           PRLWMOD3 1154
007013             TIMEBEGIN,TIMEEND,1,2,                                   PRLWMOD3 1155
007026             VARLAB[LADE],LOG,                                        PRLWMOD3 1156
007033             0.001,1000,0,0,                                          PRLWMOD3 1157
007044             TRUE(*GRID*),                                            PRLWMOD3 1158
007046             ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3 1159
007051          CURVE(T,LADE,                                               PRLWMOD3 1160
007056                RED,1,                                                PRLWMOD3 1161
007057                FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1162
007064                'SIMULIERTE','RAUPENDICHTE',                          PRLWMOD3 1166
007070                0,999,                                                PRLWMOD3 1167
007071                SENTINEL,APLOT);                                      PRLWMOD3 1168
007074          CURVE(T,OLADE,                                              PRLWMOD3 1169
007101                BLACK,2,                                              PRLWMOD3 1170
007102                FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1171
007107                'BEOBACHTETES','MITTEL',                              PRLWMOD3 1175
007113                0,999,                                                PRLWMOD3 1176
007114                SENTINEL,APLOT);                                      PRLWMOD3 1177
007117          CURVE(T,OLADEX,                                             PRLWMOD3 1178
007124                BLUE,3,                                               PRLWMOD3 1179
007125                FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1180
007132                'BEOBACHTETES','MAXIMUM',                             PRLWMOD3 1184
007136                0,999,                                                PRLWMOD3 1185
007137                SENTINEL,APLOT);                                      PRLWMOD3 1186
007142          CURVE(T,OLADEN,                                             PRLWMOD3 1187
007147                BLUE,4,                                               PRLWMOD3 1188
007150                FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1189
007156                'BEOBACHTETES','MINIMUM',                             PRLWMOD3 1193
007162                0,999,                                                PRLWMOD3 1194
007163                SENTINEL,APLOT);                                      PRLWMOD3 1195
007166          CURVE(T,RF,                                                 PRLWMOD3 1197
007173                GREEN,6,                                              PRLWMOD3 1198
007174                FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1199
007202                'SIMULIERTE','ROHFASER',                              PRLWMOD3 1203
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007206              0,999,                                                  PRLWMOD3 1204
007207              SENTINEL,APLOT);                                        PRLWMOD3 1205
007212       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3 1208
007215             VARLAB[T],LIN,                                          PRLWMOD3 1209
007221             TIMEBEGIN,TIMEEND,1,2,                                  PRLWMOD3 1210
007234             VARLAB[RF],LIN,                                         PRLWMOD3 1211
007241             10,20,1,2,                                              PRLWMOD3 1212
007254             TRUE(*GRID*),                                           PRLWMOD3 1213
007256             ROOTPLOT,SENTINEL,APLOT);                               PRLWMOD3 1214
007261         CURVE(T,RF,                                                 PRLWMOD3 1215
007266               GREEN,6,                                              PRLWMOD3 1216
007267               FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1217
007275               'SIMULIERTE','ROHFASER',                              PRLWMOD3 1221
007301               0,999,                                                PRLWMOD3 1222
007302               SENTINEL,APLOT);                                      PRLWMOD3 1223
007305       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3 1226
007310             VARLAB[RF],LIN,                                         PRLWMOD3 1227
007314             10,20,1,2,                                              PRLWMOD3 1228
007327             VARLAB[LADE],LOG,                                       PRLWMOD3 1229
007334             0.001,1000,0,0,                                         PRLWMOD3 1230
007345             TRUE(*GRID*),                                           PRLWMOD3 1231
007347             ROOTPLOT,SENTINEL,APLOT);                               PRLWMOD3 1232
007352         CURVE(RF,LADE,                                              PRLWMOD3 1233
007357               RED,1,                                                PRLWMOD3 1234
007360               FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1235
007365               'SIMULIERTE','WERTE',                                 PRLWMOD3 1239
007371               0,999,                                                PRLWMOD3 1240
007372               SENTINEL,APLOT);                                      PRLWMOD3 1241
007375       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3 1243
007400             VARLAB[LADE],LOG,                                       PRLWMOD3 1244
007404             0.001,1000,0,0,                                         PRLWMOD3 1245
007415             VARLAB[FEC],LIN,                                        PRLWMOD3 1246
007422             0,150,10,20,                                            PRLWMOD3 1247
007435             TRUE(*GRID*),                                           PRLWMOD3 1248
007437             ROOTPLOT,SENTINEL,APLOT);                               PRLWMOD3 1249
007442         CURVE(LADE,FEC,                                             PRLWMOD3 1250
007447               RED,1,                                                PRLWMOD3 1251
007450               FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1252
007455               'SIMULIERTE','FEKUNDITAET',                           PRLWMOD3 1256
007461               0,999,                                                PRLWMOD3 1257
007462               SENTINEL,APLOT);                                      PRLWMOD3 1258
007465       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3 1259
007470             VARLAB[LADE],LOG,                                       PRLWMOD3 1260
007474             0.001,1000,0,0,                                         PRLWMOD3 1261
007505             'MG/PUPPE OD. MG/WEIBCHEN',LIN,                         PRLWMOD3 1266
007512             0,50,10,20,                                             PRLWMOD3 1272
007525             TRUE(*GRID*),                                           PRLWMOD3 1273
007527             ROOTPLOT,SENTINEL,APLOT);                               PRLWMOD3 1274
007532         CURVE(LADE,PUPW,                                            PRLWMOD3 1285
007537               BLACK,1,                                              PRLWMOD3 1286
007540               FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1287
007545               'PUPPEN','GEWICHT',                                   PRLWMOD3 1291
007551               0,999,                                                PRLWMOD3 1292
007552               SENTINEL,APLOT);                                      PRLWMOD3 1293
007555         CURVE(LADE,FEMW,                                            PRLWMOD3 1294
007562               BLUE,2,                                               PRLWMOD3 1295
007563               FALSE(*NO SCATTER*),' ',                              PRLWMOD3 1296
007571               'WEIBCHEN','GEWICHT',                                 PRLWMOD3 1300
007575               0,999,                                                PRLWMOD3 1301
007576               SENTINEL,APLOT);                                      PRLWMOD3 1302
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007601       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3 1303
007604             VARLAB[DEFOL],LIN,                                       PRLWMOD3 1304
007610             0,1,0.1,0.2,                                             PRLWMOD3 1305
007617             VARLAB[FEC],LIN,                                         PRLWMOD3 1306
007624             0,150,10,20,                                             PRLWMOD3 1307
007637             TRUE(*GRID*),                                            PRLWMOD3 1308
007641             ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3 1309
007645         CURVE(DEFOL,FEC,                                             PRLWMOD3 1310
007652               RED,1,                                                 PRLWMOD3 1311
007653               FALSE(*NO SCATTER*),' ',                               PRLWMOD3 1312
007660               'SIMULIERTE','FEKUNDITAET',                            PRLWMOD3 1316
007664               0,999,                                                 PRLWMOD3 1317
007665               SENTINEL,APLOT);                                       PRLWMOD3 1318
007670       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3 1319
007673             VARLAB[DEFOL],LIN,                                       PRLWMOD3 1320
007677             0,1,0.1,0.2,                                             PRLWMOD3 1321
007706             'MG/PUPPE OD. MG/WEIBCHEN',LIN,                          PRLWMOD3 1326
007713             0,50,10,20,                                              PRLWMOD3 1332
007726             TRUE(*GRID*),                                            PRLWMOD3 1333
007730             ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3 1334
007734         CURVE(DEFOL,PUPW,                                            PRLWMOD3 1345
007741               BLACK,1,                                               PRLWMOD3 1346
007742               FALSE(*NO SCATTER*),' ',                               PRLWMOD3 1347
007747               'PUPPEN','GEWICHT',                                    PRLWMOD3 1351
007753               0,999,                                                 PRLWMOD3 1352
007754               SENTINEL,APLOT);                                       PRLWMOD3 1353
007757         CURVE(DEFOL,PUPW,                                            PRLWMOD3 1354
007764               BLUE,2,                                                PRLWMOD3 1355
007765               FALSE(*NO SCATTER*),' ',                               PRLWMOD3 1356
007773               'WEIBCHEN','GEWICHT',                                  PRLWMOD3 1360
007777               0,999,                                                 PRLWMOD3 1361
010000               SENTINEL,APLOT);                                       PRLWMOD3 1362
010003       GRAPH(TITLE,SUBTITLE,                                          PRLWMOD3 1363
010006             VARLAB[LADE],LIN,                                        PRLWMOD3 1364
010012             0,500,0,0,                                               PRLWMOD3 1365
010024             VARLAB[DEFOL],LIN,                                       PRLWMOD3 1366
010031             0,1,0.1,0.2,                                             PRLWMOD3 1367
010040             TRUE(*GRID*),                                            PRLWMOD3 1368
010042             ROOTPLOT,SENTINEL,APLOT);                                PRLWMOD3 1369
010045         CURVE(LADE,DEFOL,                                            PRLWMOD3 1370
010052               GREEN,1,                                               PRLWMOD3 1371
010053               TRUE(*SCATTER*),'*',                                   PRLWMOD3 1372
010060               'SIMULIERTER','SCHADEN',                               PRLWMOD3 1376
010064               0,999,                                                 PRLWMOD3 1377
010065               SENTINEL,APLOT);                                       PRLWMOD3 1378
010070                                                                      PRLWMOD3 1379
010070       (*REPRESENTATION OF SIMULATION RESULTS*)                       PRLWMOD3 1380
010070       REPRES:=[0,1,20,10,11,5,6];                                    PRLWMOD3 1381
010072       FOR MSNR := 0 TO SAVNROFSITES DO IF MSNR IN REPRES THEN        PRLWMOD3 1382
010100       BEGIN                                                          PRLWMOD3 1383
010100         PAGE(OUTPUT);                                                PRLWMOD3 1384
010104         PAGE(OUTPUT);                                                PRLWMOD3 1385
010110         ATAB:=ROOTTAB^.C.NEXT;                                       PRLWMOD3 1386
010113         PRTABLE(RESULTS,RR,MSNR,SIMSPEC,ATAB,SENTINEL,OUTPUT);       PRLWMOD3 1387
010122         AAVCY:=ROOTAVCY^.C.NEXT;                                     PRLWMOD3 1388
010125         PRAVERAGECYCLE(RESULTS,RR,MSNR,SIMSPEC,XX,YY,AAVCY,SENTINEL, PRLWMOD3 1389
010136                        OUTPUT);                                      PRLWMOD3 1390
010137         PAGE(OUTPUT);                                                PRLWMOD3 1391
010143         APRPL:=ROOTPRPL^.C.NEXT;                                     PRLWMOD3 1392
010146         PRPRINTPLOT(RESULTS,RR,MSNR,SIMSPEC,0,                       PRLWMOD3 1393
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010152                  ROOTPRPL,SENTINEL,APRPL,OUTPUT);                    PRLWMOD3 1394
010156                                                                      PRLWMOD3 1395
010156        PRATABLES(RESULTS,RR,MSNR,SIMSPEC,ATAB,SENTINEL,OUTPUT);      PRLWMOD3 1396
010165        PRAAVERAGECYCLES(RESULTS,RR,MSNR,SIMSPEC,XX,YY,AAVCY,SENTINEL,PRLWMOD3 1397
010175                         OUTPUT);                                     PRLWMOD3 1398
010177        PRAPRINTPLOTS(RESULTS,RR,MSNR,SIMSPEC,0,APRPL,SENTINEL,OUTPUT); PRLWMOD3 1399
010206      END;                                                            PRLWMOD3 1400
010210                                                                      PRLWMOD3 1401
010210                                                                      PRLWMOD3 1407
010210      MSNR:=0;                                                        PRLWMOD3 1408
010211      PLAGRAPHS(RESULTS,RR,MSNR,MSNR,SIMSPEC,                         PRLWMOD3 1409
010214                ROOTPLOT,SENTINEL,COM2,PF1,FILM35);                   PRLWMOD3 1410
010223      MSNRMIN:=0;                                                     PRLWMOD3 1411
010224      MSNRMAX:=SAVNROFSITES;                                          PRLWMOD3 1412
010225                                                                      PRLWMOD3 1413
010225      TREESTART(ROOTPLOT,SENTINEL);                                   PRLWMOD3 1414
010227                                                                      PRLWMOD3 1415
010227      GRAPH(TITLE,SUBTITLE,                                           PRLWMOD3 1416
010232            VARLAB[T],LIN,                                            PRLWMOD3 1417
010236            TIMEBEGIN,TIMEEND,1,2,                                    PRLWMOD3 1418
010251            VARLAB[LADE],LOG,                                         PRLWMOD3 1419
010256            0.001,1000,0,0,                                           PRLWMOD3 1420
010267            TRUE(*GRID*),                                             PRLWMOD3 1421
010271            ROOTPLOT,SENTINEL,APLOT);                                 PRLWMOD3 1422
010274        CURVE(T,LADE,                                                 PRLWMOD3 1423
010301              BLACK,1,                                                PRLWMOD3 1424
010302              FALSE(*NO SCATTER*),' ',                                PRLWMOD3 1425
010307              'SIMULIERTE','RAUPENDICHTE',                            PRLWMOD3 1429
010313              0,999,                                                  PRLWMOD3 1430
010314              SENTINEL,APLOT);                                        PRLWMOD3 1431
010317        CURVE(T,OLADE,                                                PRLWMOD3 1432
010324              BLACK,2,                                                PRLWMOD3 1433
010325              FALSE(*NO SCATTER*),' ',                                PRLWMOD3 1434
010332              'BEOBACHTETES','MITTEL',                                PRLWMOD3 1438
010336              0,999,                                                  PRLWMOD3 1439
010337              SENTINEL,APLOT);                                        PRLWMOD3 1440
010342                                                                      PRLWMOD3 1441
010342      GRAPH(TITLE,SUBTITLE,                                           PRLWMOD3 1443
010345            VARLAB[RF],LIN,                                           PRLWMOD3 1444
010351            10,20,1,2,                                                PRLWMOD3 1445
010364            VARLAB[LADE],LOG,                                         PRLWMOD3 1446
010371            0.001,1000,0,0,                                           PRLWMOD3 1447
010402            TRUE(*GRID*),                                             PRLWMOD3 1448
010404            ROOTPLOT,SENTINEL,APLOT);                                 PRLWMOD3 1449
010407        CURVE(RF,LADE,                                                PRLWMOD3 1450
010414              BLACK,1,                                                PRLWMOD3 1451
010415              FALSE(*NO SCATTER*),' ',                                PRLWMOD3 1452
010422              'SIMULIERTE','WERTE',                                   PRLWMOD3 1456
010426              0,999,                                                  PRLWMOD3 1457
010427              SENTINEL,APLOT);                                        PRLWMOD3 1458
010432      MSNRMIN:=0;                                                     PRLWMOD3 1460
010433      MSNRMAX:=SAVNROFSITES;                                          PRLWMOD3 1461
010434      PLAGRAPHS(RESULTS,RR,MSNRMIN,MSNRMAX,SIMSPEC,                   PRLWMOD3 1462
010437                ROOTPLOT,SENTINEL,COM2,PF2,FILM35);                   PRLWMOD3 1463
010446                                                                      PRLWMOD3 1464
010446      IRAMASS(TIMEBEGIN,TIMEEND,SIMSPEC,COM2,RAM,                     PRLWMOD3 1465
010451              RAMPLDEVSEL,FILM35);                                    PRLWMOD3 1466
010456      LINELIMIT(RAM,20000);                                           PRLWMOD3 1467
010457      RAMASS(TITLE,SUBTITLE,                                          PRLWMOD3 1468
010462             LADE  ,VARDES[LADE  ],KARTE,RED,                         PRLWMOD3 1469
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010471              OLADE ,VARDES[OLADE ],KARTE,BLUE,                    PRLWMOD3 1470
010501              VARLAB[LADE],0.001,1000,LOG,                         PRLWMOD3 1471
010512              TIMEBEGIN,TIMEEND,                                   PRLWMOD3 1472
010513              SIMSPEC,                                             PRLWMOD3 1473
010514              RESULTS,RR,                                          PRLWMOD3 1474
010516              COM2,RAM,1,1,RAMPLDEVSEL);                           PRLWMOD3 1475
010531        RAMASS(TITLE,SUBTITLE,                                     PRLWMOD3 1476
010534              LADE  ,VARDES[LADE  ],KARTE,RED,                     PRLWMOD3 1477
010543              OLADE ,VARDES[OLADE ],KARTE,BLUE,                    PRLWMOD3 1478
010553              VARLAB[LADE],0.001,600,LIN,                          PRLWMOD3 1479
010563              TIMEBEGIN,TIMEEND,                                   PRLWMOD3 1480
010565              SIMSPEC,                                             PRLWMOD3 1481
010566              RESULTS,RR,                                          PRLWMOD3 1482
010570              COM2,RAM,1,1,RAMPLDEVSEL);                           PRLWMOD3 1483
010603        RAMASS(TITLE,SUBTITLE,                                     PRLWMOD3 1484
010606              RF    ,VARDES[RF    ],KARTE,GREEN,                   PRLWMOD3 1485
010616              UNDEF ,VARDES[UNDEF ],KARTE,0,                       PRLWMOD3 1486
010625              VARLAB[RF    ],10,20,LIN,                            PRLWMOD3 1487
010637              TIMEBEGIN,TIMEEND,                                   PRLWMOD3 1488
010641              SIMSPEC,                                             PRLWMOD3 1489
010642              RESULTS,RR,                                          PRLWMOD3 1490
010644              COM2,RAM,1,1,RAMPLDEVSEL);                           PRLWMOD3 1491
010657        RAMASS(TITLE,SUBTITLE,                                     PRLWMOD3 1492
010662              ACTF  ,VARDES[ACTF   ],KARTE,RED,                    PRLWMOD3 1493
010671              DOWF  ,VARDES[DOWF  ],KARTE,BLUE,                    PRLWMOD3 1494
010701              VARLAB[FEM],1,1,LIN,                                 PRLWMOD3 1495
010712              TIMEBEGIN,TIMEEND,                                   PRLWMOD3 1496
010714              SIMSPEC,                                             PRLWMOD3 1497
010715              RESULTS,RR,                                          PRLWMOD3 1498
010717              COM2,RAM,1,1,RAMPLDEVSEL);                           PRLWMOD3 1499
010732        RAMASS(TITLE,SUBTITLE,                                     PRLWMOD3 1500
010735              NETMIG,VARDES[NETMIG ],KARTE,BLACK,                  PRLWMOD3 1501
010744              UNDEF ,VARDES[UNDEF ],KARTE,0,                       PRLWMOD3 1502
010753              VARLAB[NETMIG],1,1,LIN,                              PRLWMOD3 1503
010764              TIMEBEGIN,TIMEEND,                                   PRLWMOD3 1504
010766              SIMSPEC,                                             PRLWMOD3 1505
010767              RESULTS,RR,                                          PRLWMOD3 1506
010771              COM2,RAM,1,1,RAMPLDEVSEL);                           PRLWMOD3 1507
011004        RAMASS(TITLE,SUBTITLE,                                     PRLWMOD3 1508
011007              FUG   ,VARDES[FUG    ],KARTE,BLACK,                  PRLWMOD3 1509
011016              UNDEF ,VARDES[UNDEF ],KARTE,0,                       PRLWMOD3 1510
011025              VARLAB[FUG   ],1,1,LIN,                              PRLWMOD3 1511
011036              TIMEBEGIN,TIMEEND,                                   PRLWMOD3 1512
011040              SIMSPEC,                                             PRLWMOD3 1513
011041              RESULTS,RR,                                          PRLWMOD3 1514
011043              COM2,RAM,1,1,RAMPLDEVSEL);                           PRLWMOD3 1515
011056        RAMASS(TITLE,SUBTITLE,                                     PRLWMOD3 1516
011061              AEGG  ,VARDES[AEGG   ],KARTE,BLACK,                  PRLWMOD3 1517
011070              SEGG  ,VARDES[SEGG  ],KARTE,RED,                     PRLWMOD3 1518
011100              VARLAB[EGG   ],1,0,LOG,                              PRLWMOD3 1519
011111              TIMEBEGIN,TIMEEND,                                   PRLWMOD3 1520
011112              SIMSPEC,                                             PRLWMOD3 1521
011113              RESULTS,RR,                                          PRLWMOD3 1522
011115              COM2,RAM,1,1,RAMPLDEVSEL);                           PRLWMOD3 1523
011130        RAMASS(TITLE,SUBTITLE,                                     PRLWMOD3 1524
011133              DEFOL ,VARDES[DEFOL ],KARTE,GREEN,                   PRLWMOD3 1525
011143              UNDEF ,VARDES[UNDEF ],KARTE,0,                       PRLWMOD3 1526
011152              VARLAB[DEFOL],0,1,LIN,                               PRLWMOD3 1527
011163              TIMEBEGIN,TIMEEND,                                   PRLWMOD3 1528
011164              SIMSPEC,                                             PRLWMOD3 1529
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011165              RESULTS,RR,                                                 PRLWMOD3 1530
011167              COM2,RAM,1,1,RAMPLDEVSEL);                                  PRLWMOD3 1531
011202       RAMASS(TITLE,SUBTITLE,                                             PRLWMOD3 1532
011205              LADE  ,VARDES[LADE  ],KARTE,RED,                            PRLWMOD3 1533
011214              UNDEF ,VARDES[UNDEF ],KARTE,0,                              PRLWMOD3 1534
011223              VARLAB[LADE],0.001,600,LIN,                                 PRLWMOD3 1535
011234              TIMEBEGIN,TIMEEND,                                          PRLWMOD3 1536
011235              SIMSPEC,                                                    PRLWMOD3 1537
011236              RESULTS,RR,                                                 PRLWMOD3 1538
011240              COM2,RAM,1,1,RAMPLDEVSEL);                                  PRLWMOD3 1539
011253       RAMASS(TITLE,SUBTITLE,                                             PRLWMOD3 1540
011256              OLADE ,VARDES[OLADE ],KARTE,BLUE,                           PRLWMOD3 1541
011266              UNDEF ,VARDES[UNDEF],KARTE,0,                               PRLWMOD3 1542
011275              VARLAB[LADE],0.001,600,LIN,                                 PRLWMOD3 1543
011305              TIMEBEGIN,TIMEEND,                                          PRLWMOD3 1544
011307              SIMSPEC,                                                    PRLWMOD3 1545
011310              RESULTS,RR,                                                 PRLWMOD3 1546
011312              COM2,RAM,1,1,RAMPLDEVSEL);                                  PRLWMOD3 1547
011325       RAMASS(TITLE,SUBTITLE,                                             PRLWMOD3 1548
011330              LADE  ,VARDES[LADE  ],NETZ,RED,                             PRLWMOD3 1549
011340              OLADE ,VARDES[OLADE ],NETZ,BLUE,                            PRLWMOD3 1550
011347              VARLAB[OLADE],0.001,1000,LOG,                               PRLWMOD3 1551
011360              TIMEBEGIN,TIMEEND,                                          PRLWMOD3 1552
011361              SIMSPEC,                                                    PRLWMOD3 1553
011362              RESULTS,RR,                                                 PRLWMOD3 1554
011364              COM2,RAM,1,1,RAMPLDEVSEL);                                  PRLWMOD3 1555
011377       RAMASS(TITLE,SUBTITLE,                                             PRLWMOD3 1556
011402              LADE  ,VARDES[LADE  ],NETZ,RED,                             PRLWMOD3 1557
011412              OLADE ,VARDES[OLADE ],NETZ,BLUE,                            PRLWMOD3 1558
011421              VARLAB[OLADE],0.001,600,LIN,                                PRLWMOD3 1559
011432              TIMEBEGIN,TIMEEND,                                          PRLWMOD3 1560
011433              SIMSPEC,                                                    PRLWMOD3 1561
011434              RESULTS,RR,                                                 PRLWMOD3 1562
011436              COM2,RAM,1,1,RAMPLDEVSEL);                                  PRLWMOD3 1563
011451                                                                          PRLWMOD3 1564
011451       (*SAVE MEMORY SPACE*)                                              PRLWMOD3 1565
011451       TREESTART(ROOTTAB,SENTINEL);                                       PRLWMOD3 1566
011453       TREESTART(ROOTAVCY,SENTINEL);                                      PRLWMOD3 1567
011455       TREESTART(ROOTPRPL,SENTINEL);                                      PRLWMOD3 1568
011457       TREESTART(ROOTPLOT,SENTINEL);                                      PRLWMOD3 1569
011461       COMFICHE(0,SAVNROFSITES,COM2);                                     PRLWMOD3 1570
011467                                                                          PRLWMOD3 1571
011467       MESSAGE('* REPRESENTATION OF RESULTS FINISHED');                   PRLWMOD3 1572
011471                                                                          PRLWMOD3 1573
011471     END(*BOTH*);                                                         PRLWMOD3 1574
011472                                                                          PRLWMOD3 1575
011472     END(*CASE*);                                                         PRLWMOD3 1576
011475                                                                          PRLWMOD3 1577
011475     DYMSG:='* SIMULATION JOB    FINISHED           ';                   PRLWMOD3 1579
011501     DYMSG[18]:=SIMSPEC.SIMID[1];                                         PRLWMOD3 1580
011506     DYMSG[19]:=SIMSPEC.SIMID[2];                                         PRLWMOD3 1581
011512     MESSAGE(DYMSG);                                                      PRLWMOD3 1582
011514                                                                          PRLWMOD3 1583
011514   END.(*LWMOD3U*)                                                        PRLWMOD3 1584
                                                                              PRLWMOD3 1596
       ************************************************************************ PRLWMOD3 1597
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FWA OF THE LOAD            111
LWA+1 OF THE LOAD        67404

TRANSFER ADDRESS -- LWMOD3         27017

PROGRAM ENTRY POINTS --       PCSYSTM        27017


********* ERROR SUMMARY

 NE4103///DUPLICATE PROGRAM NAME FROM FILE
PROGRAM SKIPPED --- FMORTSM
LAST FILE ACCESSED- LGO

 NE4103///DUPLICATE PROGRAM NAME FROM FILE
PROGRAM SKIPPED --- FFOLIAG
LAST FILE ACCESSED- LGO


PROGRAM AND BLOCK ASSIGNMENTS.
```

BLOCK	ADDRESS	LENGTH	FILE	DATE	PROCSSR	VER LEVEL	HARDWARE	COMMENTS
PCSYSTM	111	1170	PLIB					
GETSEGM	1301	36	LGO	25/01/82	PASCAL	2.4	I	
OUTPARA	1337	370	LGO	25/01/82	PASCAL	2.4	I	
AS	1727	17	LGO	25/01/82	PASCAL	2.4	I	
READOBS	1746	114	LGO	25/01/82	PASCAL	2.4	I	
PRSISPC	2062	367	LGO	25/01/82	PASCAL	2.4	I	
STARTSI	2451	1775	LGO	25/01/82	PASCAL	2.4	I	
COMFICH	4446	2405	LGO	25/01/82	PASCAL	2.4	I	
REVERSE	7053	27	LGO	25/01/82	PASCAL	2.4	I	
NONEIB	7102	57	LGO	25/01/82	PASCAL	2.4	I	
NEIB	7161	65	LGO	25/01/82	PASCAL	2.4	I	
WFD	7246	46	LGO	25/01/82	PASCAL	2.4	I	
PRINVAL	7314	651	LGO	25/01/82	PASCAL	2.4	I	
FMORTSM	10165	124	LGO	25/01/82	PASCAL	2.4	I	
FFOLIAG	10311	362	LGO	25/01/82	PASCAL	2.4	I	
INITIAL	10673	7707	LGO	25/01/82	PASCAL	2.4	I	
SAVE	20602	1264	LGO	25/01/82	PASCAL	2.4	I	
SAMPLIN	22066	105	LGO	25/01/82	PASCAL	2.4	I	
FSTARVA	22173	31	LGO	25/01/82	PASCAL	2.4	I	
FMORTLA	22224	103	LGO	25/01/82	PASCAL	2.4	I	
FFEMPUP	22327	63	LGO	25/01/82	PASCAL	2.4	I	
FFEMOW	22412	62	LGO	25/01/82	PASCAL	2.4	I	
FFECUND	22474	252	LGO	25/01/82	PASCAL	2.4	I	
RFTRANS	22746	202	LGO	25/01/82	PASCAL	2.4	I	
SITEDYN	23150	670	LGO	25/01/82	PASCAL	2.4	I	
GOVIP	24040	100	LGO	25/01/82	PASCAL	2.4	I	
DISPERS	24140	536	LGO	25/01/82	PASCAL	2.4	I	
SPATIAL	24676	170	LGO	25/01/82	PASCAL	2.4	I	
INVASIO	25066	502	LGO	25/01/82	PASCAL	2.4	I	
CENSUS	25570	271	LGO	25/01/82	PASCAL	2.4	I	
SIMULAT	26061	733	LGO	25/01/82	PASCAL	2.4	I	

BLOCK	ADDRESS	LENGTH	FILE	DATE	PROCSSR	VER LEVEL	HARDWARE	COMMENTS
LWMOD3	27014	11772	LGO	25/01/82	PASCAL	2.4	I	
MOVE	41006	234	UL-COMSUB	20/09/77	PASCAL	2.2	I	
TREESTA	41242	52	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
FIND	41314	46	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
SCALEAX	41362	1107	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
TABLE	42471	115	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PRTABLE	42606	651	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
AVERAGE	43457	62	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
CLIMAX	43541	102	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
INTERNO	43643	253	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PRAAVER	44116	101	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
VARIABL	44217	67	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PRPLOT1	44306	334	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PRAPRIN	44642	52	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
CURVE	44714	333	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PLGRAPH	45247	2173	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
RAMDATA	47442	153	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
FINDEND	47615	51	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
INSERT	47666	127	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
SUPPL	50015	24	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
COLUMN	50041	70	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PRATABL	50131	46	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
ROW	50177	37	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
NADIR	50236	102	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PRAVERA	50340	3751	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PRINTPL	54311	132	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PRPRINT	54443	1117	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
VALUES	55562	113	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
GRAPH	55675	246	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
PLAGRAP	56143	3022	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
IRAMASS	61165	1655	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
RAMASS	63042	1654	UL-ENTLIB	20/01/82	PASCAL	2.4	I	
P.EXP	64716	46	SL-PASCLIB	24/02/76	COMPASS	3. 2-406		
PASCPMD	64764	476	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
RDR	65462	251	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
WRI	65733	72	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
WRB	66025	70	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
WRC	66115	26	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
WRS	66143	43	SL-PASCLIB	26/02/76	COMPASS	3. 2-406		
P.LN	66206	52	SL-PASCLIB	24/02/76	COMPASS	3. 2-406		
WRO	66260	30	SL-PASCLIB	25/02/76	COMPASS	3. 2-406		
TEN	66310	70	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
WRE	66400	325	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
RDI	66725	111	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
WRF	67036	345	SL-PASCLIB	25/02/76	PASCAL	2.2	I	
//	67403	1						

2.276 CP SECONDS 104600B CM STORAGE USED 3 TABLE MOVES

S

3 SIMULATION RESULTS

```
SPECIFICATIONS OF SIMULATION: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
----------------------------
ABUNDANZ- U. DISPERSIONSDYNAMIK

TIME BEGIN 1949
TIME END   1977

DATE (DAY/MONTH/YEAR)       25/01/82
SIMULATION STARTED AT TIME  20.36.04.
INTERNAL SIMULATION IDENTIFIER S=SV
SIMKIND=BOTH
MODELL B



INITIAL VALUES OF STATE VARIABLES AT BEGIN OF WINTER 1948/49:
------------------------------------------------------------


R: ROHFASERGEHALT IN PROZENT
E: NUMBER OF EGGS
```

SITE	I	1	2	3	4	5	6	7	8	9	10
	I	11	12	13	14	15	16	17	18	19	20
R	I	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
	I	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
E	I	304107	66602	42362	311004	91618	92074	90522	142805	375886	314202
	I	794419	522401	213635	230793	213118	96120	95176	56755	128709	324933

```
SITE 0  :   R =      15.0   E =   4765975
```

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VALUES OF VARIOUS MODEL PARAMETERS: * MODELL B
----------------------------------
ABUNDANZ- U. DISPERSIONSDYNAMIK
INTERNAL SIMULATION IDENTIFIER S=SV    25/01/82   20.36.04.

                C1 =  0.5728          (/D MORTEGGS: EGGMORTALITY. MA6,311,TAB.17 U. DE5)
                C2 =  0.051116        (SLOPE L.R. MORTALITY OF L1L2 VS RF)
                C3 = -0.179318        (Y-INTERCEPT (OM3,TAB5, 16 U. 10/BE2,204 ABB.2))
            REFUGE =      0           (FMORTSMALL=1-REFUGE IF MORT>1 ELSE FMORTSMALL=MORT)
            PROPSML =  0.05           (PROPORTION OF SMALL LARVAE. AUE 74,10 FOR WEEKNO. 27)
            PROPLAL =  0.95           (PROPORTION OF LARGE LARVAE. AUE 74,10 FOR WEEKNO. 27)
      BRANCHPERTREE =  91.3           (KG BRANCHES PER LARCH TREE. AU9,126)
         OLADEUNDEF =  0.00010        (OBSERVED LARVAL DENSITY IF NO OBSERVATION HAS BEEN MADE)
    MAXNEEDLELENGTH =  28.67          (IN MM. BALTENSWEILER UNPUBL.DATA)
    MINNEEDLELENGTH =  19.01          (S.A.)
               C4' = -2.259332        (COEFF. IN GFOL=NROFTREES*(C4'*RF+C5'))
               C5' =  67.389388       (IN GFOL S.A. (LINE BASED ON MIN/MAXNL,MIN/MAXRF,FOLPERTREE)
                C4 = -1154850.7       (SLOPE IN GFOL=C4*RF+C5 (C4=NROFTREES*C4'))
                C5 =  34445883.4      (Y-INTERCEPT IN GFOL S.A. (C5=NROFTREES*C5'))
          NROFTREES =  511147         (NUMBER OF TREES IN SITE SNR (WIRTSCH.PLAENE))
                SNR =   0             (SITE NUMBER (SNR) WITH NROFTREES AS ABOVE)
        NAME OF SITE =   0            (UPPER ENGADIN VALLEY                    )
          FOLPERTREE =  40.30         (KG NEEDLES PER LARCH TREE. AU9,126)
           LARGELIFE =  34.20         (IN D. NUMBER OF DAYS LIFE SPAN OF A LARGE LARVAE LASTS)
         WASTEFACTOR =  4.0           (FACTOR TO CALCULATE FROM FOODDEMAND THE REAL DEFOLIATION)
             DAYNEED =  0.0000400     (DAYLY NEED OF FOLIAGE OF A LARGELARVAE (GE2,139))
                C6 =  0.0054720       (C6 = WASTEFACTOR*LARGELIFE*DAYNEED)
                C7 =  0.124017        (SLOPE L.R. MORTALITY OF L3L4L5P VS RF)
                C8 = -1.435284        (Y-INTERCEPT L.R. S.A. (BE2,211 TAB8 OE EXCEPT SCHANF 24))
                C9 =  0.44            (SEXRATIO: FRACTION OF FEMALES IN THE MOTH POPULATION)
               C10' =  -2.030270      (SLOPE IN L.R. IV FPW VS RF (BE2,211 TAB.8))
               C11' =  56.299600      (Y-INTERCEPT IN L.R. S.A. (OE EXCEPT S-CHANF24 PLUS ALBULA))
              C10'' =  9.1            (SLOPE FROM L.R. GFEC=M*FPW+C (BE2,203 ABB.2))
              C11'' = -155.6          (Y-INTERCEPT FROM L.R S.A.)
               C10 = -18.475457       (C10=C10'*C10'' SLOPE IN L.R. GFEC=M*RF+C)
               C11 =  356.726360      (C11=C11''+C10''*C11' Y-INTERCEPT IN L.R. S.A.)
          FERTILITY =  1.000          (FRACTION OF FERTILE EGGS IN LAID EGGS)
             MINFEC =      0          (IN ANY CASE KEPT MINIMAL FECUNDITY)
              SLOPE =   0.7           (M IN L.R. FEMOW=M*PUPW+C. VA4,114 FIG.3)
          Y-INTERCEPT =  -4.5         (C IN L.R. ABOVE)
                C12 =  11.99          (MINRAWFIB [PERCENTS] FI UNPUBL.DATA)
                C13 =  0.425          (RAWFIBDECR [PERCENTS] ESTIMATION)
                C14 =  18.0           (MAXRAWFIB [PERCENTS] BE2)
                C15 =  0.40           (DEFOLTHRESHOLD [PERCENTS] ESTIMATION)
                C16 =  0.80           (DEFOLMAX: DEFOLIATION ABOVE WHICH RF INCREASES TO MAX)
           C1=MINEXH =  0.0068        (VA4,118 FIG.4)
           C2=EXHINC =  0.0420        (DTO.)
       C5=NOTGRASPED =     0          (ESTIMATED)
         C13=ZIGZAGF =  2.0           (1/COS(ALFA))
       C14=OWNCONTRB =  0.261         (1/86/(1.86+5.26). VA4,124 FIG.7 AND GR9,292)
          C3=ATTRMAX =  0.95          (LINEAR REGRESSON FROM VA6,81 U. 84)
          C4=ATTRRED =  0.72          (DTO.)
               INVE0 =          0     (FROM OUTSIDE VALLEY INVADING AVERAGE NUMBER OF FEMALES/SITE)
              INVFEC =   30.00        (FECUNDITY OF INVADING FEMALES)
                INVE =          0     (NUMBER OF INVADING EGGS/TREE IN A WEAKLY INVADED SITE)
                 MUL =   4.00         (MULTIPLICATION FACTOR RELATING WEAK WITH STRONG INVASION)
             INVHYPO =   0            (CONGLOBATION HYPOTHESIS ON INVASION)
```

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RUN TIME MESSAGES FROM PROCEDURE SIMULATION:
--------------------------------------------
SIMULATION FOR YEAR 1949 FINISHED: CPU MS SO FAR USED     107931 (  1' 47.931'')
SIMULATION FOR YEAR 1950 FINISHED: CPU MS SO FAR USED     109224 (  1' 49.201'')
SIMULATION FOR YEAR 1951 FINISHED: CPU MS SO FAR USED     112184 (  1' 52.184'')
SIMULATION FOR YEAR 1952 FINISHED: CPU MS SO FAR USED     127164 (  2' 7.164'')
SIMULATION FOR YEAR 1953 FINISHED: CPU MS SO FAR USED     526243 (  8' 46.235'')
SIMULATION FOR YEAR 1954 FINISHED: CPU MS SO FAR USED    1232811 ( 20' 32.811'')
SIMULATION FOR YEAR 1955 FINISHED: CPU MS SO FAR USED    1460401 ( 24' 20.401'')
SIMULATION FOR YEAR 1956 FINISHED: CPU MS SO FAR USED    1469964 ( 24' 29.964'')
SIMULATION FOR YEAR 1957 FINISHED: CPU MS SO FAR USED    1473095 ( 24' 33.095'')
SIMULATION FOR YEAR 1958 FINISHED: CPU MS SO FAR USED    1475879 ( 24' 35.879'')
SIMULATION FOR YEAR 1959 FINISHED: CPU MS SO FAR USED    1478634 ( 24' 38.634'')
SIMULATION FOR YEAR 1960 FINISHED: CPU MS SO FAR USED    1482061 ( 24' 42.061'')
SIMULATION FOR YEAR 1961 FINISHED: CPU MS SO FAR USED    1489014 ( 24' 49.014'')
SIMULATION FOR YEAR 1962 FINISHED: CPU MS SO FAR USED    1539155 ( 25' 39.155'')
SIMULATION FOR YEAR 1963 FINISHED: CPU MS SO FAR USED    2150361 ( 35' 50.361'')
SIMULATION FOR YEAR 1964 FINISHED: CPU MS SO FAR USED    2656868 ( 44' 16.825'')
SIMULATION FOR YEAR 1965 FINISHED: CPU MS SO FAR USED    2749035 ( 45' 49.035'')
SIMULATION FOR YEAR 1966 FINISHED: CPU MS SO FAR USED    2756020 ( 45' 56.020'')
SIMULATION FOR YEAR 1967 FINISHED: CPU MS SO FAR USED    2759078 ( 45' 59.078'')
SIMULATION FOR YEAR 1968 FINISHED: CPU MS SO FAR USED    2761868 ( 46' 1.868'')
SIMULATION FOR YEAR 1969 FINISHED: CPU MS SO FAR USED    2764686 ( 46' 4.686'')
SIMULATION FOR YEAR 1970 FINISHED: CPU MS SO FAR USED    2768566 ( 46' 8.566'')
SIMULATION FOR YEAR 1971 FINISHED: CPU MS SO FAR USED    2781628 ( 46' 21.628'')
SIMULATION FOR YEAR 1972 FINISHED: CPU MS SO FAR USED    2877444 ( 47' 57.444'')
SIMULATION FOR YEAR 1973 FINISHED: CPU MS SO FAR USED    3477316 ( 57' 57.316'')
SIMULATION FOR YEAR 1974 FINISHED: CPU MS SO FAR USED    3932048 ( 65' 32.048'')
SIMULATION FOR YEAR 1975 FINISHED: CPU MS SO FAR USED    4012003 ( 66' 52.003'')
SIMULATION FOR YEAR 1976 FINISHED: CPU MS SO FAR USED    4018379 ( 66' 58.379'')
SIMULATION FOR YEAR 1977 FINISHED: CPU MS SO FAR USED    4021461 ( 67' 1.461'')
```

```
MESSAGES OF PROCEDURE PLAGRAPHS FOR SITE(S) NR.  0 TO  0:
-------------------------------------------------------
TOTAL NUMBER OF PLOTS =        11
SIMPLOT PRODUCED ON DATE 25/01/82 AT TIME 20.36.04. SIMULATION-JOB SV
* MODELL B
SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 CM)


SITE  0:
--------


PLOT  1: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   1 ON MENUFILE
              DATA ARE IN SEGMENT   2 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              4 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL
              CURVE 3: BEOBACHTETES MAXIMUM
              CURVE 4: BEOBACHTETES MINIMUM


PLOT  2: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   3 ON MENUFILE
              DATA ARE IN SEGMENT   4 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT  3: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   5 ON MENUFILE
              DATA ARE IN SEGMENT   6 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LINEAR SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT  4: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   7 ON MENUFILE
              DATA ARE IN SEGMENT   8 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE
```

```
              5 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL
              CURVE 3: BEOBACHTETES MAXIMUM
              CURVE 4: BEOBACHTETES MINIMUM
              CURVE 5: SIMULIERTE   ROHFASER


PLOT  5: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   9 ON MENUFILE
              DATA ARE IN SEGMENT  10 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   ROHFASER


PLOT  6: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  11 ON MENUFILE
              DATA ARE IN SEGMENT  12 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


PLOT  7: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  13 ON MENUFILE
              DATA ARE IN SEGMENT  14 ON DATAFILE
              X-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE
              Y-AXIS: EIER/WEIBCHEN
                      LINEAR SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   FEKUNDITAET


PLOT  8: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  15 ON MENUFILE
              DATA ARE IN SEGMENT  16 ON DATAFILE
              X-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE
              Y-AXIS: MG/PUPPE OD. MG/WEIBCHEN
                      LINEAR SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: PUPPEN       GEWICHT
              CURVE 2: WEIBCHEN     GEWICHT


PLOT  9: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  17 ON MENUFILE
              DATA ARE IN SEGMENT  18 ON DATAFILE
```

```
              X-AXIS: FRASSSCHADENINDEX
                      LINEAR SCALE
              Y-AXIS: EIER/WEIBCHEN
                      LINEAR SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   FEKUNDITAET


PLOT 10: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  19 ON MENUFILE
              DATA ARE IN SEGMENT  20 ON DATAFILE
              X-AXIS: FRASSSCHADENINDEX
                      LINEAR SCALE
              Y-AXIS: MG/PUPPE OD. MG/WEIBCHEN
                      LINEAR SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: PUPPEN       GEWICHT
              CURVE 2: WEIBCHEN     GEWICHT


PLOT 11: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  21 ON MENUFILE
              DATA ARE IN SEGMENT  22 ON DATAFILE
              X-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LINEAR SCALE
              Y-AXIS: FRASSSCHADENINDEX
                      LINEAR SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTER  SCHADEN
```

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MESSAGES OF PROCEDURE PLAGRAPHS FOR SITE(S) NR.  0 TO 20:
-----------------------------------------------------------
TOTAL NUMBER OF PLOTS =        42
SIMPLOT PRODUCED ON DATE 25/01/82 AT TIME 20.36.04. SIMULATION-JOB SV
* MODELL B
SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 CM)


SITE  0:
--------


PLOT  1: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   1 ON MENUFILE
              DATA ARE IN SEGMENT   2 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT  2: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   3 ON MENUFILE
              DATA ARE IN SEGMENT   4 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE  1:
--------


PLOT  3: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   5 ON MENUFILE
              DATA ARE IN SEGMENT   6 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT  4: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   7 ON MENUFILE
              DATA ARE IN SEGMENT   8 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE
```

```
             1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
             CURVE 1: SIMULIERTE   WERTE


SITE  2:
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PLOT  5: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT   9 ON MENUFILE
              DATA ARE IN SEGMENT  10 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT  6: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  11 ON MENUFILE
              DATA ARE IN SEGMENT  12 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE  3:
--------


PLOT  7: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  13 ON MENUFILE
              DATA ARE IN SEGMENT  14 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT  8: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  15 ON MENUFILE
              DATA ARE IN SEGMENT  16 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE
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SITE  4:
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PLOT  9: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  17 ON MENUFILE
              DATA ARE IN SEGMENT  18 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 10: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  19 ON MENUFILE
              DATA ARE IN SEGMENT  20 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE  5:
--------


PLOT 11: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  21 ON MENUFILE
              DATA ARE IN SEGMENT  22 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 12: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  23 ON MENUFILE
              DATA ARE IN SEGMENT  24 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE  6:
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PLOT 13: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  25 ON MENUFILE
              DATA ARE IN SEGMENT  26 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 14: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  27 ON MENUFILE
              DATA ARE IN SEGMENT  28 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE  7:
--------


PLOT 15: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  29 ON MENUFILE
              DATA ARE IN SEGMENT  30 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 16: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  31 ON MENUFILE
              DATA ARE IN SEGMENT  32 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE  8:
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PLOT 17: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK
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              MENU IS  IN SEGMENT  33 ON MENUFILE
              DATA ARE IN SEGMENT  34 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 18: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  35 ON MENUFILE
              DATA ARE IN SEGMENT  36 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE  9:
--------


PLOT 19: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  37 ON MENUFILE
              DATA ARE IN SEGMENT  38 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 20: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  39 ON MENUFILE
              DATA ARE IN SEGMENT  40 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 10:
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PLOT 21: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  41 ON MENUFILE
              DATA ARE IN SEGMENT  42 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
```

```
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 22: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  43 ON MENUFILE
              DATA ARE IN SEGMENT  44 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 11:
--------


PLOT 23: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  45 ON MENUFILE
              DATA ARE IN SEGMENT  46 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 24: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  47 ON MENUFILE
              DATA ARE IN SEGMENT  48 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 12:
--------


PLOT 25: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  49 ON MENUFILE
              DATA ARE IN SEGMENT  50 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
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```
             CURVE 1: SIMULIERTE   RAUPENDICHTE
             CURVE 2: BEOBACHTETES MITTEL


PLOT 26: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  51 ON MENUFILE
              DATA ARE IN SEGMENT  52 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 13:
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PLOT 27: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  53 ON MENUFILE
              DATA ARE IN SEGMENT  54 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 28: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  55 ON MENUFILE
              DATA ARE IN SEGMENT  56 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 14:
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PLOT 29: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  57 ON MENUFILE
              DATA ARE IN SEGMENT  58 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL
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PLOT 30: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  59 ON MENUFILE
              DATA ARE IN SEGMENT  60 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 15:
--------


PLOT 31: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  61 ON MENUFILE
              DATA ARE IN SEGMENT  62 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 32: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  63 ON MENUFILE
              DATA ARE IN SEGMENT  64 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 16:
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PLOT 33: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  65 ON MENUFILE
              DATA ARE IN SEGMENT  66 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 34: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  67 ON MENUFILE
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              DATA ARE IN SEGMENT  68 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 17:
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PLOT 35: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  69 ON MENUFILE
              DATA ARE IN SEGMENT  70 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 36: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  71 ON MENUFILE
              DATA ARE IN SEGMENT  72 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 18:
--------


PLOT 37: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  73 ON MENUFILE
              DATA ARE IN SEGMENT  74 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 38: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  75 ON MENUFILE
              DATA ARE IN SEGMENT  76 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
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                    LOGARITHMIC SCALE

            1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
            CURVE 1: SIMULIERTE   WERTE


SITE 19:
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PLOT 39: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  77 ON MENUFILE
              DATA ARE IN SEGMENT  78 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 40: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  79 ON MENUFILE
              DATA ARE IN SEGMENT  80 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE


SITE 20:
--------


PLOT 41: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  81 ON MENUFILE
              DATA ARE IN SEGMENT  82 ON DATAFILE
              X-AXIS: JAHRE
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              2 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   RAUPENDICHTE
              CURVE 2: BEOBACHTETES MITTEL


PLOT 42: DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
         ABUNDANZ- U. DISPERSIONSDYNAMIK

              MENU IS  IN SEGMENT  83 ON MENUFILE
              DATA ARE IN SEGMENT  84 ON DATAFILE
              X-AXIS: ROHFASERGEHALT DER LAERCHENNADELN
                      LINEAR SCALE
              Y-AXIS: RAUPEN/KG LAERCHENZWEIGE
                      LOGARITHMIC SCALE

              1 CURVE(S)   (MAXIMUM ALLOWED IS 5)
              CURVE 1: SIMULIERTE   WERTE
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MESSAGES OF PROCEDURE RAMASS:
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JOB RAMASS PRODUCED ON DATE 25/01/82 AT TIME  20.36.04.SIMULATION JOB S=SV
* MODELL B
SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 CM)


- REPRESENTATION OF VARIABLE(S):
  SIMULIERTE RAUPENDICHTEN
  BEOBACHTETE RAUPENDICHTEN
    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITHOUT  AUTOMATIC SCALING
    LOGARITHMIC SCALE
    EXTREMES:
    - ON ORDINATE  0.00100 1000.00000
    - IN DATA  0.00010 933.52400
    SCALING FACTOR SX IN HORIZONTAL DIRECTION  1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION  1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)


- REPRESENTATION OF VARIABLE(S):
  SIMULIERTE RAUPENDICHTEN
  BEOBACHTETE RAUPENDICHTEN
    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITHOUT  AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE  0.00100 600.00000
    - IN DATA  0.00010 933.52400
    SCALING FACTOR SX IN HORIZONTAL DIRECTION  1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION  1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)


- REPRESENTATION OF VARIABLE(S):
  ROHFASERGEHALT IN PROZENT

    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITHOUT  AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE  10.00000 20.00000
    - IN DATA  11.99000 18.00000
    SCALING FACTOR SX IN HORIZONTAL DIRECTION  1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION  1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)


- REPRESENTATION OF VARIABLE(S):
  AKTIV FLIEGENDE WEIBCHEN
  MIT DEM WIND FLIEGENDE WEIBCHEN
    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITH  AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE  1.00000 1.00000
    - IN DATA  10.00000 95000068.00000
    SCALING FACTOR SX IN HORIZONTAL DIRECTION  1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION  1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)
```

- REPRESENTATION OF VARIABLE(S):
  DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN

    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITH AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE 1.00000 1.00000
    - IN DATA -83886323.00000 7466471.00000
    SCALING FACTOR SX IN HORIZONTAL DIRECTION 1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION 1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)

- REPRESENTATION OF VARIABLE(S):
  DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER

    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITH AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE 1.00000 1.00000
    - IN DATA 0 7020236505.99997
    SCALING FACTOR SX IN HORIZONTAL DIRECTION 1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION 1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)

- REPRESENTATION OF VARIABLE(S):
  AUTOCHTHONE EIER
  FREMDE EIER
    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITH AUTOMATIC SCALING
    LOGARITHMIC SCALE
    EXTREMES:
    - ON ORDINATE 1.00000 0
    - IN DATA 4456.00000 7250131463.00000
    SCALING FACTOR SX IN HORIZONTAL DIRECTION 1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION 1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)

- REPRESENTATION OF VARIABLE(S):
  SIMULIERTER FRASSSCHADEN

    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITHOUT AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE 0 1.00000
    - IN DATA 0.00009 0.93615
    SCALING FACTOR SX IN HORIZONTAL DIRECTION 1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION 1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)

- REPRESENTATION OF VARIABLE(S):
  SIMULIERTE RAUPENDICHTEN

    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN

```
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITHOUT  AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE  0.00100 600.00000
    - IN DATA  0.00600 562.50910
    SCALING FACTOR SX IN HORIZONTAL DIRECTION  1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION  1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)


- REPRESENTATION OF VARIABLE(S):
  BEOBACHTETE RAUPENDICHTEN

    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITHOUT  AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE  0.00100 600.00000
    - IN DATA  0.00010 933.52400
    SCALING FACTOR SX IN HORIZONTAL DIRECTION  1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION  1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)


- REPRESENTATION OF VARIABLE(S):
  SIMULIERTE RAUPENDICHTEN
  BEOBACHTETE RAUPENDICHTEN
    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITHOUT  AUTOMATIC SCALING
    LOGARITHMIC SCALE
    EXTREMES:
    - ON ORDINATE  0.00100 1000.00000
    - IN DATA  0.00010 933.52400
    SCALING FACTOR SX IN HORIZONTAL DIRECTION  1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION  1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)


- REPRESENTATION OF VARIABLE(S):
  SIMULIERTE RAUPENDICHTEN
  BEOBACHTETE RAUPENDICHTEN
    DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
    ABUNDANZ- U. DISPERSIONSDYNAMIK
    FROM YEAR 1949 UNTIL YEAR 1977
    WITHOUT  AUTOMATIC SCALING
    LINEAR SCALE
    EXTREMES:
    - ON ORDINATE  0.00100 600.00000
    - IN DATA  0.00010 933.52400
    SCALING FACTOR SX IN HORIZONTAL DIRECTION  1.00000
    SCALING FACTOR SY IN HORIZONTAL DIRECTION  1.00000
    SELECTED PLOTTING DEVICE FILM PLOTTER (WIDTH 35 MM)
```

TABLE OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	1925484	794402	0.587	0.017	0.018	17118776.7	0	794402	0.000	0.425	200983	79.6
1950	13.6	6656610	3230098	0.515	0.069	0.082	18747274.0	0.000	3230098	0.001	0.249	1067827	105.9
1951	12.0	47063393	26658443	0.434	0.571	0.444	20453349.1	0.000	26658443	0.007	0.052	11123515	135.2
1952	12.0	624723203	353866427	0.434	7.583	4.174	18665541.1	0.001	353377736	0.094	0.052	147450693	135.2
1953	12.0	7928983933	4491271131	0.434	96.239	68.797	7359694.4	0.389	2419504697	0.643	0.052	1009564634	135.2
1954	15.6	40091243494	15310963932	0.614	328.085	331.760	1548030.4	0.822	2715908194	0.904	0.489	625550285	70.1
1955	18.0	13342435643	3458759581	0.741	74.115	126.541	5543606.4	0.401	1482998049	0.594	0.797	132447019	24.2
1956	17.9	965914015	252524460	0.736	5.411	21.280	12382871.1	0.000	252433608	0.101	0.786	23183929	25.7
1957	17.5	235890060	67305523	0.714	1.442	2.246	13905614.2	0.000	67305518	0.026	0.732	7909444	33.9
1958	16.9	111438325	35068086	0.687	0.751	0.085	14687067.5	0.000	35068086	0.013	0.667	5230121	43.5
1959	16.3	97506992	34354732	0.655	0.736	0.080	15431996.9	0.000	34354731	0.012	0.588	6520218	55.3
1960	15.5	159065827	64251535	0.612	1.377	0.371	16223774.0	0.000	64251527	0.021	0.486	15784484	70.5
1961	14.3	505311296	245428589	0.553	5.259	1.638	16609430.4	0.004	243248415	0.071	0.340	81373094	92.2
1962	12.8	3381930796	1874829959	0.474	40.174	22.878	14032596.6	0.122	1037234480	0.282	0.149	410404667	120.7
1963	13.2	15718479240	6730000125	0.491	144.211	248.817	5092456.5	0.546	2585399189	0.745	0.192	930928557	114.3
1964	16.8	35251935638	11686190458	0.681	250.413	184.272	2894180.6	0.699	2218078570	0.797	0.651	369837117	45.9
1965	18.0	4991937017	1294652567	0.740	27.742	3.116	8135283.1	0.172	1014441424	0.406	0.794	90777857	24.6
1966	17.8	746650539	196245115	0.733	4.205	0.019	12770827.4	0.000	196234197	0.078	0.778	18347200	27.0
1967	17.4	193687405	55928224	0.710	1.198	0.002	14063772.1	0.000	55928222	0.021	0.722	6801381	35.4
1968	16.8	100984821	32588909	0.682	0.698	0.059	14818910.4	0.000	32588908	0.012	0.655	5173754	45.4
1969	16.2	104994398	38925529	0.648	0.834	0.197	15561397.0	0.000	38925527	0.013	0.572	8244723	57.7
1970	15.3	229271394	102684730	0.603	2.200	1.068	16242772.8	0.000	102281339	0.031	0.462	30462585	74.0
1971	14.1	1146806685	611357976	0.541	13.100	10.569	15922318.3	0.034	415042317	0.116	0.313	154093223	96.2
1972	13.0	5840369167	2846546654	0.482	60.996	173.932	12685606.4	0.197	1240909323	0.349	0.170	462262425	117.6
1973	13.8	17323740866	6704408064	0.524	143.663	249.612	4989459.9	0.554	2464840271	0.740	0.272	819985976	102.4
1974	16.9	30880918951	10370438922	0.688	222.219	176.023	3922447.7	0.621	2013917287	0.721	0.669	345315495	43.2
1975	17.9	4951680382	1285596806	0.736	27.548	4.749	8775644.6	0.161	911648964	0.365	0.786	82011309	25.7
1976	17.7	663169335	176439905	0.725	3.781	0.014	13062796.1	0.000	176426555	0.070	0.758	17163280	29.9
1977	17.2	193131749	57162252	0.700	1.225	0.008	14276466.2	0.000	57162251	0.022	0.698	7431838	38.9

TABLE OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.017	0.018	0.006	0.041	0.000	0.000	0
1950	13.6	0.069	0.082	0.006	0.232	0.000	0.000	0
1951	12.0	0.571	0.444	0.001	1.266	0.016	0.016	0
1952	12.0	7.583	4.174	0.191	10.464	11.635	11.973	0
1953	12.0	96.239	68.797	16.667	128.490	764.718	797.185	0
1954	15.6	328.085	331.760	163.340	933.524	778.226	1155.891	0
1955	18.0	74.115	126.541	25.048	317.868	3526.753	4900.411	0
1956	17.9	5.411	21.280	9.888	41.974	3778.575	5120.071	20.042
1957	17.5	1.442	2.246	1.330	4.538	3779.221	5120.964	20.042
1958	16.9	0.751	0.085	0.000	0.359	3779.665	5121.397	20.196
1959	16.3	0.736	0.080	0.000	0.276	3780.095	5121.876	20.408
1960	15.5	1.377	0.371	0.094	1.009	3781.107	5122.833	20.544
1961	14.3	5.259	1.638	0.254	7.906	3794.219	5135.773	20.544
1962	12.8	40.174	22.878	8.400	104.974	4093.371	5363.320	20.544
1963	13.2	144.211	248.817	96.486	494.170	15035.780	17674.729	20.544
1964	16.8	250.413	184.272	39.680	429.000	19410.374	24397.624	20.544
1965	18.0	27.742	3.116	0.680	10.310	20016.810	25008.857	324.416
1966	17.8	4.205	0.019	0.000	0.125	20034.334	25026.395	341.063
1967	17.4	1.198	0.002	0.000	0.100	20035.766	25027.825	342.270
1968	16.8	0.698	0.059	0.000	0.468	20036.174	25028.232	342.323
1969	16.2	0.834	0.197	0.000	1.386	20036.580	25028.638	342.323
1970	15.3	2.200	1.068	0.261	3.430	20037.862	25030.021	342.323
1971	14.1	13.100	10.569	2.348	26.821	20044.269	25035.601	342.323
1972	13.0	60.996	173.932	64.390	431.580	32798.798	38134.082	353.842
1973	13.8	143.663	249.612	103.220	393.560	44024.065	49554.143	353.842
1974	16.9	222.219	176.023	59.540	414.940	46158.105	51418.441	353.842
1975	17.9	27.548	4.749	0.309	36.950	46677.894	51916.859	353.842
1976	17.7	3.781	0.014	0.000	0.097	46692.082	51931.056	367.412
1977	17.2	1.225	0.008	0.000	0.010	46693.563	51932.553	368.888

TABLE OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.017	1925484	794402	0.587	794402	0.425	25.846	200983	79.6	13.075
1950	13.6	0.069	6656610	3230098	0.515	3230098	0.249	28.732	1067827	105.9	15.038
1951	12.0	0.571	47063393	26658443	0.434	26658443	0.052	31.957	11123515	135.2	17.231
1952	12.0	7.583	624723203	353866427	0.434	353377736	0.052	31.957	147450693	135.2	17.231
1953	12.0	96.239	7928983933	4491271131	0.434	2419504697	0.052	31.957	1009564634	135.2	17.231
1954	15.6	328.085	40091243494	15310963932	0.614	2715908194	0.489	24.804	625550285	70.1	12.367
1955	18.0	74.115	13342435643	3458759581	0.741	1482998049	0.797	19.755	132447019	24.2	8.933
1956	17.9	5.411	965914015	252524460	0.736	252433608	0.786	19.927	23183929	25.7	9.051
1957	17.5	1.442	235890060	67305523	0.714	67305518	0.732	20.821	7909444	33.9	9.658
1958	16.9	0.751	111438325	35068086	0.687	35068086	0.667	21.882	5230121	43.5	10.379
1959	16.3	0.736	97506992	34354732	0.655	34354731	0.588	23.179	6520218	55.3	11.262
1960	15.5	1.377	159065827	64251535	0.612	64251527	0.486	24.850	15784484	70.5	12.398
1961	14.3	5.259	505311296	245428589	0.553	243248415	0.340	27.231	81373094	92.2	14.017
1962	12.8	40.174	3381930796	1874829959	0.474	1037234480	0.149	30.360	410404667	120.7	16.145
1963	13.2	144.211	15718479240	6730000125	0.491	2585399189	0.192	29.661	930928557	114.3	15.669
1964	16.8	250.413	35251935638	11686190458	0.681	2218078570	0.651	22.146	369837117	45.9	10.559
1965	18.0	27.742	4991937017	1294652567	0.740	1014441424	0.794	19.798	90777857	24.6	8.963
1966	17.8	4.205	746650539	196245115	0.733	196234197	0.778	20.064	18347200	27.0	9.144
1967	17.4	1.198	193687405	55928224	0.710	55928222	0.722	20.984	6801381	35.4	9.769
1968	16.8	0.698	100984821	32588909	0.682	32588908	0.655	22.083	5173754	45.4	10.516
1969	16.2	0.834	104994398	38925529	0.648	38925527	0.572	23.441	8244723	57.7	11.440
1970	15.3	2.200	229271394	102684730	0.603	102281339	0.462	25.233	30462585	74.0	12.659
1971	14.1	13.100	1146806685	611357976	0.541	415042317	0.313	27.672	154093223	96.2	14.317
1972	13.0	60.996	5840369167	2846546654	0.482	1240909323	0.170	30.026	462262425	117.6	15.918
1973	13.8	143.663	17323740866	6704408064	0.524	2464840271	0.272	28.352	819985976	102.4	14.780
1974	16.9	222.219	30880918951	10370438922	0.688	2013917287	0.669	21.845	345315495	43.2	10.354
1975	17.9	27.548	4951680382	1285596806	0.736	911648964	0.786	19.927	82011309	25.7	9.051
1976	17.7	3.781	663169335	176439905	0.725	176426555	0.758	20.390	17163280	29.9	9.365
1977	17.2	1.225	193131749	57162252	0.700	57162251	0.698	21.373	7431838	38.9	10.034

TABLE OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.017	17118776.7	4347.0	0	4347.0	0.000
1950	13.6	0.069	18747274.0	17675.1	0.000	17675.1	0.001
1951	12.0	0.571	20453349.1	145875.0	0.000	145875.0	0.007
1952	12.0	7.583	18665541.1	1936357.1	0.001	1933683.0	0.094
1953	12.0	96.239	7359694.4	24576235.6	0.389	13239529.7	0.643
1954	15.6	328.085	1548030.4	83781594.6	0.822	14861449.6	0.904
1955	18.0	74.115	5543606.4	18926332.4	0.401	8114965.3	0.594
1956	17.9	5.411	12382871.1	1381813.8	0.000	1381316.7	0.101
1957	17.5	1.442	13905614.2	368295.8	0.000	368295.8	0.026
1958	16.9	0.751	14687067.5	191892.6	0.000	191892.6	0.013
1959	16.3	0.736	15431996.9	187989.1	0.000	187989.1	0.012
1960	15.5	1.377	16223774.0	351584.4	0.000	351584.4	0.021
1961	14.3	5.259	16609430.4	1342985.2	0.004	1331055.3	0.071
1962	12.8	40.174	14032596.6	10259069.5	0.122	5675747.1	0.282
1963	13.2	144.211	5092456.5	36826560.7	0.546	14147304.4	0.745
1964	16.8	250.413	2894180.6	63946834.2	0.699	12137325.9	0.797
1965	18.0	27.742	8135283.1	7084338.8	0.172	5551023.5	0.406
1966	17.8	4.205	12770827.4	1073853.3	0.000	1073793.5	0.078
1967	17.4	1.198	14063772.1	306039.2	0.000	306039.2	0.021
1968	16.8	0.698	14818910.4	178326.5	0.000	178326.5	0.012
1969	16.2	0.834	15561397.0	213000.5	0.000	213000.5	0.013
1970	15.3	2.200	16242772.8	561890.8	0.000	559683.5	0.031
1971	14.1	13.100	15922318.3	3345350.8	0.034	2271111.6	0.116
1972	13.0	60.996	12685606.4	15576303.3	0.197	6790255.8	0.349
1973	13.8	143.663	4989459.9	36686520.9	0.554	13487606.0	0.740
1974	16.9	222.219	3922447.7	56747041.8	0.621	11020155.4	0.721
1975	17.9	27.548	8775644.6	7034785.7	0.161	4988543.1	0.365
1976	17.7	3.781	13062796.1	965479.2	0.000	965406.1	0.070
1977	17.2	1.225	14276466.2	312791.8	0.000	312791.8	0.022

TABLE OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.017	4890	10427	-5537	8735	1499
1950	13.6	0.069	27079	55995	-28916	47364	8220
1951	12.0	0.571	316787	646090	-329303	549261	95737
1952	12.0	7.583	9343989	21089495	-11745506	17959589	3123888
1953	12.0	96.239	201202644	697860780	-496658136	592016865	105672455
1954	15.6	328.085	165598827	679041257	-513442430	565068097	113673728
1955	18.0	74.115	30564835	104194157	-73629322	86390033	17704824
1956	17.9	5.411	1646904	3230830	-1583926	2693491	533432
1957	17.5	1.442	300823	569635	-268812	478879	89558
1958	16.9	0.751	165370	324082	-158712	274815	48273
1959	16.3	0.736	198936	410537	-211601	352141	57379
1960	15.5	1.377	555339	1241543	-686204	1079795	160474
1961	14.3	5.259	5673036	15208462	-9535426	13392428	1813167
1962	12.8	40.174	57968709	219331465	-161362756	193808576	25501819
1963	13.2	144.211	215849142	753721816	-537872674	628343396	125116110
1964	16.8	250.413	91829590	382702204	-290872614	318197294	64288532
1965	18.0	27.742	16741911	46745843	-30003932	38781119	7924465
1966	17.8	4.205	1169365	2238192	-1068827	1859469	375852
1967	17.4	1.198	250348	470747	-220399	392551	77043
1968	16.8	0.698	161163	324349	-163186	272694	50666
1969	16.2	0.834	251656	588412	-336756	503545	83835
1970	15.3	2.200	1395624	4454708	-3059084	3921923	531314
1971	14.1	13.100	17031462	59733364	-42701902	52573585	7154409
1972	13.0	60.996	83340273	298257299	-214917026	256206836	42010746
1973	13.8	143.663	195073045	666626884	-471553839	561267905	105101016
1974	16.9	222.219	82940206	355591319	-272651113	292161954	63233417
1975	17.9	27.548	15175026	45694618	-30519592	37330011	8329724
1976	17.7	3.781	1071632	2045835	-974203	1692930	350287
1977	17.2	1.225	274774	512371	-237597	431858	79348

TABLE OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	380746	389150	15192829
0	2766549	2866493	107300650
0	41321340	42831072	1419535997
0	1374012585	1263358324	17296997354
0	42596022260	27203688312	66642855464
0	20873727844	14539382423	16692910776
0	934111081	738673337	1522361365
0	32251782	40631670	511545463
0	8305266	10055695	250801827
0	6657887	7305665	220941059
0	11853960	11567112	360778013
0	51650690	43435065	1139409757
0	955535107	635981446	7280523251
0	15931540823	7586571089	29207621910
0	37343583142	28181629786	54336946165
0	8770867976	5001000911	6684244937
0	450573191	404745280	1343032227
0	22741325	29592825	423795321
0	7254347	8756734	227630977
0	7734575	7646811	238126620
0	23388162	16520045	520163959
0	324641921	139656702	2544815902
0	5076433762	2130688253	11540587911
0	18011539781	10891627465	29660200423
0	31672202054	24950149387	47336645937
0	9104372426	4769787141	6821225019
0	450166211	367620005	1184742693
0	21553459	28315742	423771712
0	8486530	10527740	272559798

AVERAGE CYCLE FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 328.085   250.413   222.219
MEAN OF MAXIMA: 266.905 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.736   0.698
MEAN OF MINIMA: 0.717 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.017
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 328.085
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 328.068
DIFFERENCE BETWEEN MEANS OF EXTREMES: 266.188 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	1.215	6.310	36.251	128.038	266.905	43.135	4.466	1.289	0.725
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	131664610	566393791	3282341055	13657068013	35408032694	7762017680	791911296	207569738	106211573
1	56722121	294481669	1691747680	5975226440	12455864437	2013002984	208403160	60131999	33828497
3	56587654	228316391	877173846	2489914719	2315968017	1136362812	208364786	60131997	33828497
W	15771632	82196610	340039261	920159722	446900965	101745395	19564803	7380887	5201937

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8564.206
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 51.322

AVERAGE CYCLE FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 328.085   250.413   222.219
MEAN OF MAXIMA: 266.905 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.736   0.698
MEAN OF MINIMA: 0.717 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.017
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 328.085
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 328.068
DIFFERENCE BETWEEN MEANS OF EXTREMES: 266.188 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	14.8	13.5	12.6	13.0	16.4	18.0	17.8	17.3	16.9
A	1.215	6.310	36.251	128.038	266.905	43.135	4.466	1.289	0.725
M	0.577	0.509	0.463	0.483	0.661	0.739	0.731	0.708	0.685
L	0.399	0.235	0.123	0.172	0.603	0.793	0.774	0.717	0.661
S	0.000	0.013	0.107	0.496	0.714	0.245	0.000	0.000	0.000
P	26.272	28.953	30.781	29.990	22.932	19.827	20.127	21.059	21.982
W	13.365	15.188	16.431	15.893	11.094	8.982	9.186	9.820	10.448
4	83.5	107.9	124.5	117.3	53.1	24.8	27.6	36.0	44.4
D	0.018	0.065	0.242	0.709	0.808	0.455	0.083	0.023	0.012

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8564.206
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 51.322

AVERAGE CYCLE FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 328.085   250.413   222.219
MEAN OF MAXIMA: 266.905 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.736   0.698
MEAN OF MINIMA: 0.717 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.017
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 328.085
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 328.068
DIFFERENCE BETWEEN MEANS OF EXTREMES: 266.188 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	14.8	13.5	12.6	13.0	16.4	18.0	17.8	17.3	16.9
A	1.215	6.310	36.251	128.038	266.905	43.135	4.466	1.289	0.725
I	659347	7673761	50217657	204041610	113456207	20827257	1295967	275315	163266
O	1917415	25195972	179559419	706069826	472444926	65544872	2504952	517584	324215
E	-1258068	-17522210	-129341762	-502028216	-358988719	-44717615	-1208985	-242269	-160949
U	126353053	2024430069	11772364396	37203935818	12916322748	611616827	25515522	8015381	7196231
H	1263842103	6746882386	25388273229	56105482522	10066126910	1350045428	453037498	250330867	229533839
G	61986086	936500257	6580518959	26778489161	8103390158	503679540	32846745	9780056	7476238

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8564.206
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 51.322

AVERAGE CYCLE FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

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MEAN OF MINIMA: 0.717 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
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MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 328.085
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 328.068
DIFFERENCE BETWEEN MEANS OF EXTREMES: 266.188 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	14.8	13.5	12.6	13.0	16.4	18.0	17.8	17.3	16.9
A	1.215	6.310	36.251	128.038	266.905	43.135	4.466	1.289	0.725
D	0.018	0.065	0.242	0.709	0.808	0.455	0.083	0.023	0.012
F	17071273.6	17661699.3	15127914.7	5813870.3	2788219.5	7484844.7	12738831.5	14081950.8	14752988.9
*	310383.4	1611403.7	9257243.3	32696439.1	68158490.2	11015152.3	1140382.1	329042.3	185109.5
E	309647.6	1249347.3	4799895.3	13624813.3	12672977.0	6218177.3	1140172.1	329042.3	185109.5

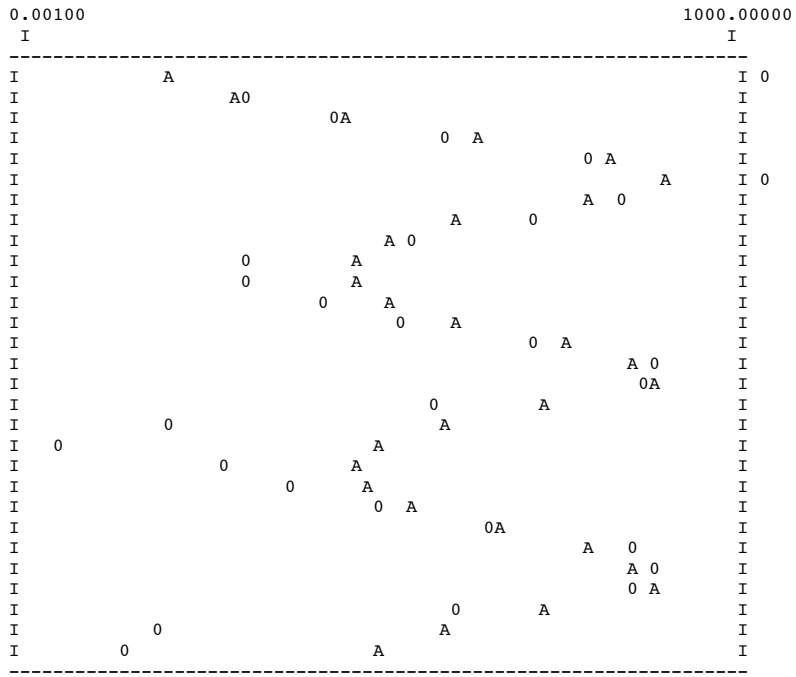
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8564.206
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 51.322

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

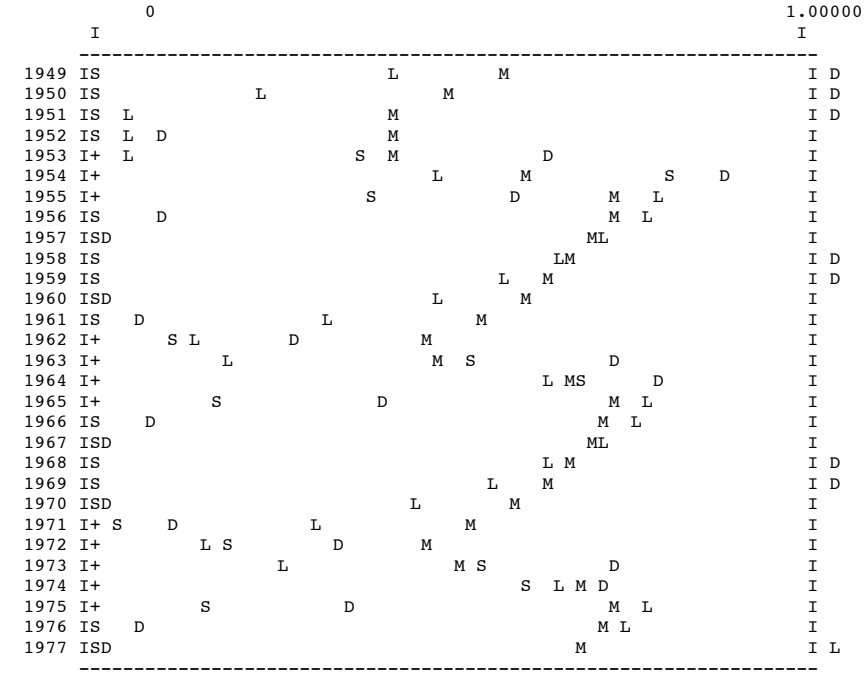


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

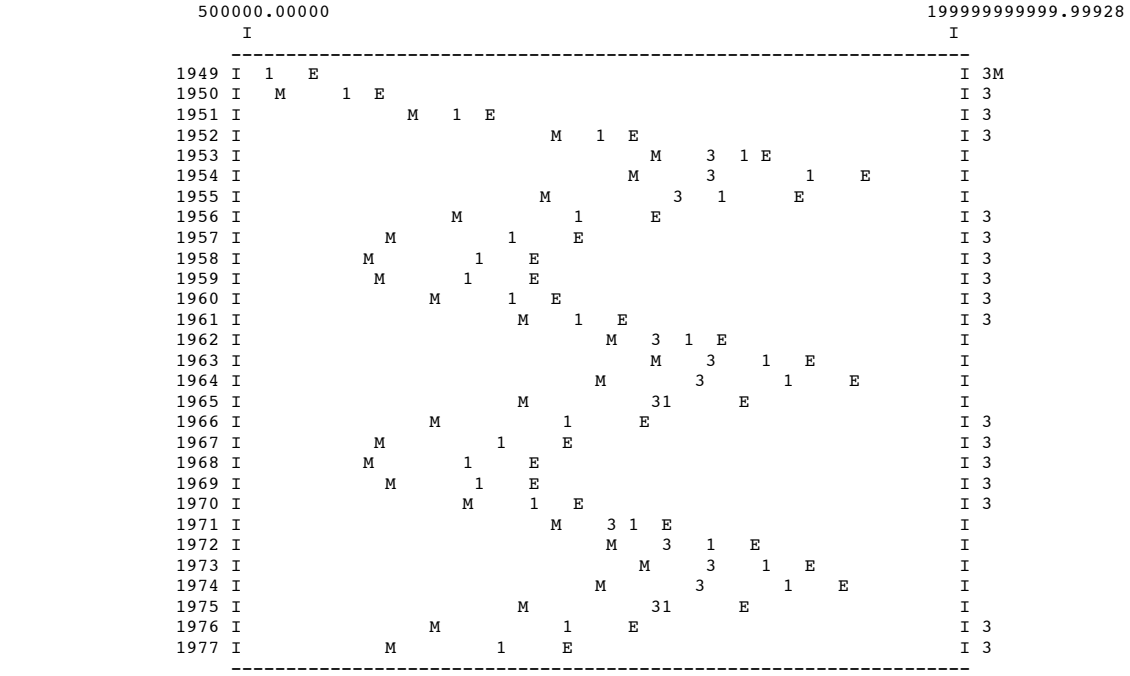


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE



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PRINTPLOT OF SIMULATION RESULTS FOR SITE NR.  0:
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DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B


*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

     LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
     TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C =     0.01000
     EXTREMES FOUND IN DATA:  MIN =  4346.967744   MAX =  83781594.635904


            0                                                      300000000.00000
       I                                                               I
      --------------------------------------------------------------------
 1949 I+                                 *                     F        I E
 1950 I+                                     *                 F        I E
 1951 I+                                          *            F        I E
 1952 I+                                                 *     F        I E
 1953 I+                                                     FE *       I
 1954 I+                                                 F     E   *    I
 1955 I+                                                    FE *        I
 1956 I+                                                *     F         I E
 1957 I+                                             *        F         I E
 1958 I+                                           *          F         I E
 1959 I+                                           *           F        I E
 1960 I+                                             *         F        I E
 1961 I+                                                *      F        I E
 1962 I+                                                    E *         I F
 1963 I+                                                    F E  *      I
 1964 I+                                                  F   E   *     I
 1965 I+                                                    E*          I F
 1966 I+                                                *     F         I E
 1967 I+                                            *         F         I E
 1968 I+                                           *           F        I E
 1969 I+                                           *           F        I E
 1970 I+                                              *        F        I E
 1971 I+                                                  E*   F        I
 1972 I+                                                    E F*        I
 1973 I+                                                    F E  *      I
 1974 I+                                                   F  E   *     I
 1975 I+                                                    E*          I F
 1976 I+                                               *      F         I E
 1977 I+                                            *         F         I E
      --------------------------------------------------------------------
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PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 0:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

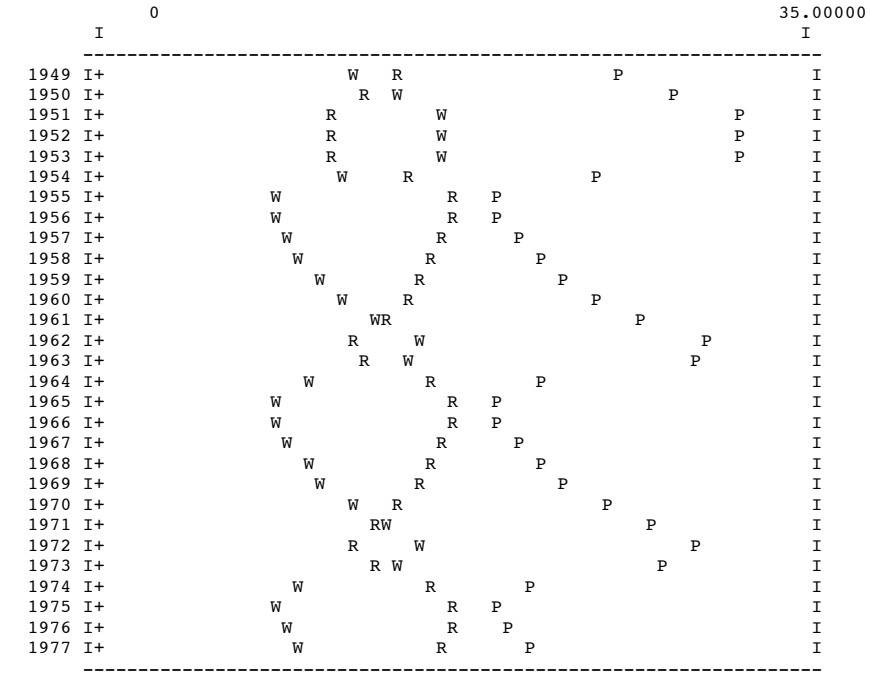


TABLE OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	129914	53599	0.587	0.023	0.023	854779.2	0	53599	0.000	0.425	13561	79.6
1950	13.6	444278	215585	0.515	0.093	0.216	935880.2	0	215585	0.001	0.249	71270	105.9
1951	12.0	3105417	1759023	0.434	0.755	1.266	1019032.1	0.000	1759023	0.009	0.052	733971	135.2
1952	12.0	40671648	23037932	0.434	9.886	10.464	902630.0	0.000	23031345	0.123	0.052	9610079	135.2
1953	12.0	497055791	281550870	0.434	120.815	128.490	278204.9	0.513	137144121	0.730	0.052	57224875	135.2
1954	16.9	1800572655	564191764	0.687	242.097	279.448	82670.7	0.786	120694626	0.889	0.666	17751060	43.7
1955	18.0	412258330	106869726	0.741	45.858	25.048	279438.7	0.312	73579210	0.590	0.797	6571382	24.2
1956	18.0	53112784	13768426	0.741	5.908	18.996	606732.1	0.000	13766814	0.110	0.797	1229518	24.2
1957	17.6	11778484	3309215	0.719	1.420	1.788	688465.6	0.000	3309215	0.026	0.744	372291	32.0
1958	17.1	4900194	1502244	0.693	0.645	0.094	727251.3	0.000	1502244	0.011	0.682	210081	41.3
1959	16.5	3585737	1210559	0.662	0.519	0.276	763862.2	0.000	1210559	0.009	0.607	209398	52.5
1960	15.7	4550741	1714879	0.623	0.736	1.009	805363.5	0.000	1714879	0.012	0.512	368453	66.7
1961	14.7	10162054	4372382	0.570	1.876	7.906	851102.1	0.000	4372382	0.027	0.382	1188827	86.0
1962	13.0	42052015	21706963	0.484	9.315	104.974	853224.6	0.000	21700898	0.122	0.174	7890973	117.0
1963	12.0	366689449	207706530	0.434	89.128	494.170	351852.7	0.405	123685087	0.658	0.052	51608947	135.2
1964	15.9	1968716368	725131877	0.632	311.158	42.080	76432.2	0.816	133171836	0.905	0.532	27403312	63.6
1965	18.0	359036111	93072931	0.741	39.938	10.310	306228.3	0.262	68683457	0.551	0.797	6134141	24.2
1966	18.0	45063719	11681867	0.741	5.013	0.051	618142.5	0.000	11681595	0.094	0.797	1043286	24.2
1967	17.6	10078516	2831602	0.719	1.215	0.000	691079.1	0.000	2831602	0.022	0.744	318559	32.0
1968	17.1	4200580	1287764	0.693	0.553	0.468	728425.0	0.000	1287764	0.010	0.682	180087	41.3
1969	16.5	3076378	1038597	0.662	0.446	1.386	764803.1	0.000	1038597	0.007	0.607	179652	52.5
1970	15.7	3906908	1472260	0.623	0.632	3.430	806691.1	0.000	1472260	0.010	0.512	316324	66.7
1971	14.7	8731340	3756795	0.570	1.612	18.358	854470.6	0.000	3756795	0.023	0.382	1021452	86.0
1972	13.0	36190317	18681194	0.484	8.016	431.580	869756.0	0.000	18679807	0.105	0.174	6792431	117.0
1973	12.0	317896002	180068108	0.434	77.268	393.560	390215.5	0.352	116674348	0.621	0.052	48683640	135.2
1974	15.3	1926387512	764717499	0.603	328.144	71.050	78480.3	0.819	138702988	0.906	0.463	32782529	74.0
1975	18.0	491130498	127315758	0.741	54.632	4.322	247114.2	0.376	79486473	0.638	0.797	7098962	24.2
1976	18.0	47947581	12429451	0.741	5.334	0.031	614053.2	0.000	12428902	0.100	0.797	1110029	24.2
1977	17.6	10683317	3001523	0.719	1.288	0.010	690149.3	0.000	3001523	0.023	0.744	337675	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.023	0.023	0.000	0.000	0.000	0.000	0
1950	13.6	0.093	0.216	0.000	0.000	0.015	0.123	0
1951	12.0	0.755	1.266	0.000	0.000	0.277	0.511	0
1952	12.0	9.886	10.464	0.000	0.000	0.611	0.578	0
1953	12.0	120.815	128.490	0.000	0.000	59.519	7.675	0
1954	16.9	242.097	279.448	0.000	0.000	1454.582	37.351	0
1955	18.0	45.858	25.048	0.000	0.000	1887.652	-20.810	0
1956	18.0	5.908	18.996	0.000	0.000	2058.945	13.088	0
1957	17.6	1.420	1.788	0.000	0.000	2059.081	0.368	0
1958	17.1	0.645	0.094	0.000	0.000	2059.384	-0.551	0
1959	16.5	0.519	0.276	0.000	0.000	2059.443	-0.243	0
1960	15.7	0.736	1.009	0.000	0.000	2059.518	0.273	0
1961	14.7	1.876	7.906	0.000	0.000	2095.876	6.030	0
1962	13.0	9.315	104.974	0.000	0.000	11246.604	95.659	0
1963	12.0	89.128	494.170	0.000	0.000	175305.715	405.042	0
1964	15.9	311.158	42.080	0.000	0.000	247708.491	-269.078	0
1965	18.0	39.938	10.310	0.000	0.000	248586.313	-29.628	0
1966	18.0	5.013	0.051	0.000	0.000	248610.932	-4.962	0
1967	17.6	1.215	0.000	0.000	0.000	248612.408	-1.215	0
1968	17.1	0.553	0.468	0.000	0.000	248612.415	-0.085	0
1969	16.5	0.446	1.386	0.000	0.000	248613.299	0.940	0
1970	15.7	0.632	3.430	0.000	0.000	248621.129	2.798	0
1971	14.7	1.612	18.358	0.000	0.000	248901.556	16.746	0
1972	13.0	8.016	431.580	0.000	0.000	428307.856	423.564	0
1973	12.0	77.268	393.560	0.000	0.000	528348.417	316.292	0
1974	15.3	328.144	71.050	0.000	0.000	594445.754	-257.094	0
1975	18.0	54.632	4.322	0.000	0.000	596976.832	-50.310	0
1976	18.0	5.334	0.031	0.000	0.000	597004.949	-5.303	0
1977	17.6	1.288	0.010	0.000	0.000	597006.582	-1.278	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.023	129914	53599	0.587	53599	0.425	25.846	13561	79.6	13.075
1950	13.6	0.093	444278	215585	0.515	215585	0.249	28.732	71270	105.9	15.038
1951	12.0	0.755	3105417	1759023	0.434	1759023	0.052	31.957	733971	135.2	17.231
1952	12.0	9.886	40671648	23037932	0.434	23031345	0.052	31.957	9610079	135.2	17.231
1953	12.0	120.815	497055791	281550870	0.434	137144121	0.052	31.957	57224875	135.2	17.231
1954	16.9	242.097	1800572655	564191764	0.687	120694626	0.666	21.904	17751060	43.7	10.395
1955	18.0	45.858	412258330	106869726	0.741	73579210	0.797	19.755	6571382	24.2	8.933
1956	18.0	5.908	53112784	13768426	0.741	13766814	0.797	19.755	1229518	24.2	8.933
1957	17.6	1.420	11778484	3309215	0.719	3309215	0.744	20.618	372291	32.0	9.520
1958	17.1	0.645	4900194	1502244	0.693	1502244	0.682	21.635	210081	41.3	10.212
1959	16.5	0.519	3585737	1210559	0.662	1210559	0.607	22.868	209398	52.5	11.050
1960	15.7	0.736	4550741	1714879	0.623	1714879	0.512	24.426	368453	66.7	12.110
1961	14.7	1.876	10162054	4372382	0.570	4372382	0.382	26.548	1188827	86.0	13.553
1962	13.0	9.315	42052015	21706963	0.484	21700898	0.174	29.961	7890973	117.0	15.873
1963	12.0	89.128	366689449	207706530	0.434	123685087	0.052	31.957	51608947	135.2	17.231
1964	15.9	311.158	1968716368	725131877	0.632	133171836	0.532	24.088	27403312	63.6	11.880
1965	18.0	39.938	359036111	93072931	0.741	68683457	0.797	19.755	6134141	24.2	8.933
1966	18.0	5.013	45063719	11681867	0.741	11681595	0.797	19.755	1043286	24.2	8.933
1967	17.6	1.215	10078516	2831602	0.719	2831602	0.744	20.618	318559	32.0	9.520
1968	17.1	0.553	4200580	1287764	0.693	1287764	0.682	21.635	180087	41.3	10.212
1969	16.5	0.446	3076378	1038597	0.662	1038597	0.607	22.868	179652	52.5	11.050
1970	15.7	0.632	3906908	1472260	0.623	1472260	0.512	24.426	316324	66.7	12.110
1971	14.7	1.612	8731340	3756795	0.570	3756795	0.382	26.548	1021452	86.0	13.553
1972	13.0	8.016	36190317	18681194	0.484	18679807	0.174	29.961	6792431	117.0	15.873
1973	12.0	77.268	317896002	180068108	0.434	116674348	0.052	31.957	48683640	135.2	17.231
1974	15.3	328.144	1926387512	764717499	0.603	138702988	0.463	25.226	32782529	74.0	12.653
1975	18.0	54.632	491130498	127315758	0.741	79486473	0.797	19.755	7098962	24.2	8.933
1976	18.0	5.334	47947581	12429451	0.741	12428902	0.797	19.755	1110029	24.2	8.933
1977	17.6	1.288	10683317	3001523	0.719	3001523	0.744	20.618	337675	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.023	854779.2	293.3	0	293.3	0.000
1950	13.6	0.093	935880.2	1179.7	0	1179.7	0.001
1951	12.0	0.755	1019032.1	9625.4	0.000	9625.4	0.009
1952	12.0	9.886	902630.0	126063.6	0.000	126027.5	0.123
1953	12.0	120.815	278204.9	1540646.4	0.513	750452.6	0.730
1954	16.9	242.097	82670.7	3087257.3	0.786	660441.0	0.889
1955	18.0	45.858	279438.7	584791.1	0.312	402625.4	0.590
1956	18.0	5.908	606732.1	75340.8	0.000	75332.0	0.110
1957	17.6	1.420	688465.6	18108.0	0.000	18108.0	0.026
1958	17.1	0.645	727251.3	8220.3	0.000	8220.3	0.011
1959	16.5	0.519	763862.2	6624.2	0.000	6624.2	0.009
1960	15.7	0.736	805363.5	9383.8	0.000	9383.8	0.012
1961	14.7	1.876	851102.1	23925.7	0.000	23925.7	0.027
1962	13.0	9.315	853224.6	118780.5	0.000	118747.3	0.122
1963	12.0	89.128	351852.7	1136570.1	0.405	676804.8	0.658
1964	15.9	311.158	76432.2	3967921.6	0.816	728716.3	0.905
1965	18.0	39.938	306228.3	509295.1	0.262	375835.9	0.551
1966	18.0	5.013	618142.5	63923.2	0.000	63921.7	0.094
1967	17.6	1.215	691079.1	15494.5	0.000	15494.5	0.022
1968	17.1	0.553	728425.0	7046.6	0.000	7046.6	0.010
1969	16.5	0.446	764803.1	5683.2	0.000	5683.2	0.007
1970	15.7	0.632	806691.1	8056.2	0.000	8056.2	0.010
1971	14.7	1.612	854470.6	20557.2	0.000	20557.2	0.023
1972	13.0	8.016	869756.0	102223.5	0.000	102215.9	0.105
1973	12.0	77.268	390215.5	985332.7	0.352	638442.0	0.621
1974	15.3	328.144	78480.3	4184534.2	0.819	758982.8	0.906
1975	18.0	54.632	247114.2	696671.8	0.376	434950.0	0.638
1976	18.0	5.334	614053.2	68014.0	0.000	68011.0	0.100
1977	17.6	1.288	690149.3	16424.3	0.000	16424.3	0.023

TABLE OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.023	187	694	-507	550	137
1950	13.6	0.093	1022	3693	-2671	2944	734
1951	12.0	0.755	11716	42362	-30646	33864	8463
1952	12.0	9.886	316609	1378607	-1061998	1102766	275681
1953	12.0	120.815	6340949	39799600	-33458651	31836454	7958775
1954	16.9	242.097	7598550	19924648	-12326098	15934922	3983280
1955	18.0	45.858	1627172	4085819	-2458647	3266522	816451
1956	18.0	5.908	69486	169189	-99703	135250	33803
1957	17.6	1.420	11336	26318	-14982	21026	5255
1958	17.1	0.645	5430	12541	-7111	10012	2501
1959	16.5	0.519	5264	12093	-6829	9650	2411
1960	15.7	0.736	9738	22089	-12351	17644	4409
1961	14.7	1.876	38490	85675	-47185	68496	17120
1962	13.0	9.315	523017	1167703	-644686	933926	233463
1963	12.0	89.128	8982011	34025831	-25043820	27215854	6803515
1964	15.9	311.158	4723819	25507977	-20784158	20402614	5100273
1965	18.0	39.938	923726	3349351	-2425625	2678338	669452
1966	18.0	5.013	54686	129606	-74920	103604	25893
1967	17.6	1.215	9417	21627	-12210	17272	4317
1968	17.1	0.553	4596	10537	-5941	8406	2101
1969	16.5	0.446	4477	10214	-5737	8148	2035
1970	15.7	0.632	8237	18575	-10338	14832	3706
1971	14.7	1.612	31865	70599	-38734	56434	14105
1972	13.0	8.016	413279	910429	-497150	728130	182016
1973	12.0	77.268	8399958	30214659	-21814701	24167296	6041428
1974	15.3	328.144	5529585	30428186	-24898601	24338530	6084234
1975	18.0	54.632	1093586	4494251	-3400665	3594064	898359
1976	18.0	5.334	59052	143104	-84052	114392	28592
1977	17.6	1.288	9972	23253	-13281	18574	4641

TABLE OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	35736	14881	1025097
0	255645	108187	7161049
0	3774798	1584063	93621106
0	122993534	42807281	1120712830
0	3550752515	857331085	3357492546
0	787073833	712613372	252410810
0	65087895	39325028	85002652
0	2694519	1679320	25892038
0	554870	362975	11107518
0	340164	224134	8169446
0	417119	276326	10376159
0	968918	649279	23138301
0	4856290	3309641	95126726
0	90161851	61216651	797138801
0	3035231952	1214416915	3394001551
0	1076944646	293910066	546530270
0	53374783	22324418	83161816
0	2064172	1321637	22270396
0	455674	301528	9531292
0	285635	189708	7011553
0	351760	235014	8910371
0	814503	549199	19889331
0	4001064	2739974	81975189
0	70290370	48373118	695765464
0	2695237948	1135696622	3373637443
0	1485707518	391441047	758208996
0	71627541	26429557	85807291
0	2279052	1427288	23580478
0	489774	319299	10093086

AVERAGE CYCLE FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 242.097   311.158   328.144
MEAN OF MAXIMA: 293.800 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.519   0.446
MEAN OF MINIMA: 0.483 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.023
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 328.144
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 328.121
DIFFERENCE BETWEEN MEANS OF EXTREMES: 293.317 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.487	1.414	9.072	95.737	293.800	46.809	5.418	1.308	0.599
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	2967309	7332937	39637993	393880414	1898558845	420808313	48708028	10846772	4550387
1	1134241	3296066	21142029	223108502	684680380	109086138	12626581	3047446	1395004
3	1134241	3296066	21137350	125834518	130856483	73916380	12625770	3047446	1395004
W	252015	981416	8097827	52505820	25978967	6601495	1127611	342841	195084

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8946.932
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 242.097   311.158   328.144
MEAN OF MAXIMA: 293.800 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.519   0.446
MEAN OF MINIMA: 0.483 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.023
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 328.144
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 328.121
DIFFERENCE BETWEEN MEANS OF EXTREMES: 293.317 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.0	18.0	18.0	17.6	17.1
A	0.487	1.414	9.072	95.737	293.800	46.809	5.418	1.308	0.599
M	0.587	0.524	0.467	0.434	0.640	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.554	0.797	0.797	0.744	0.682
S	0.000	0.000	0.000	0.423	0.807	0.316	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	23.739	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	11.643	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	60.4	24.2	24.2	32.0	41.3
D	0.008	0.020	0.117	0.669	0.900	0.593	0.101	0.024	0.010

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8946.932
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 242.097   311.158   328.144
MEAN OF MAXIMA: 293.800 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.519   0.446
MEAN OF MINIMA: 0.483 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.023
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 328.144
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 328.121
DIFFERENCE BETWEEN MEANS OF EXTREMES: 293.317 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.0	18.0	18.0	17.6	17.1
A	0.487	1.414	9.072	95.737	293.800	46.809	5.418	1.308	0.599
I	6332	27357	417635	7907639	5950651	1214828	61074	10241	5013
O	14785	66212	1152246	34680030	25286937	3976473	147299	23732	11539
E	-8453	-38855	-734611	-26772390	-19336285	-2761645	-86225	-13491	-6526
U	679688	4210717	94481918	3093740805	1116575332	63363406	2345914	500106	312899
H	16729560	90241007	871205698	3375043846	519050025	84657253	23914304	10243965	7590499
G	435555	2544559	50799016	1069148207	465988161	29359667	1476081	327934	206921

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8946.932
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 242.097   311.158   328.144
MEAN OF MAXIMA: 293.800 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.519   0.446
MEAN OF MINIMA: 0.483 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.023
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 328.144
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 328.121
DIFFERENCE BETWEEN MEANS OF EXTREMES: 293.317 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.0	18.0	18.0	17.6	17.1
A	0.487	1.414	9.072	95.737	293.800	46.809	5.418	1.308	0.599
D	0.008	0.020	0.117	0.669	0.900	0.593	0.101	0.024	0.010
F	849311.6	908201.6	875203.5	340091.0	79194.4	277593.7	612975.9	689898.0	727838.2
*	6206.6	18036.1	115689.2	1220849.7	3746571.0	596919.3	69092.7	16675.6	7633.5
E	6206.6	18036.1	115663.6	688566.5	716046.7	404470.4	69088.2	16675.6	7633.5

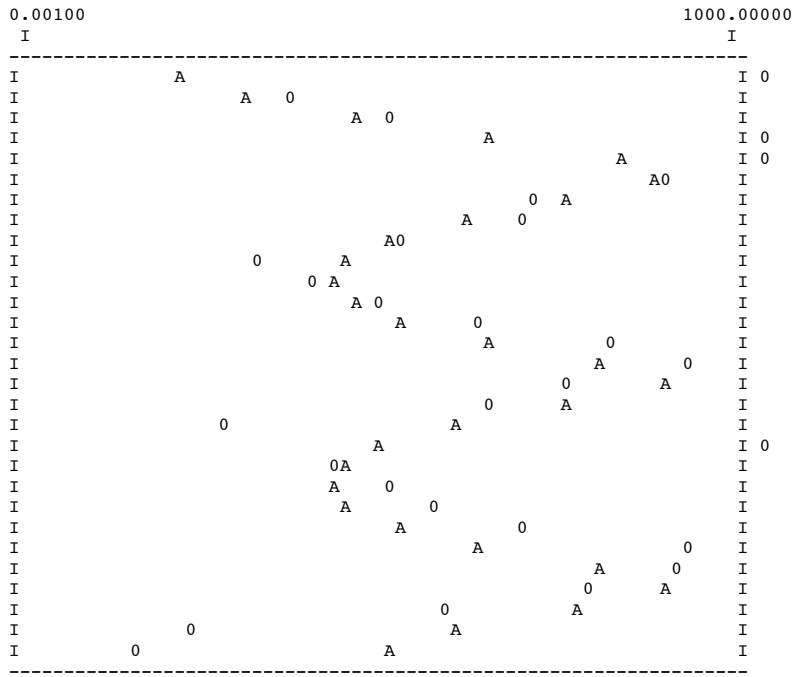
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8946.932
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

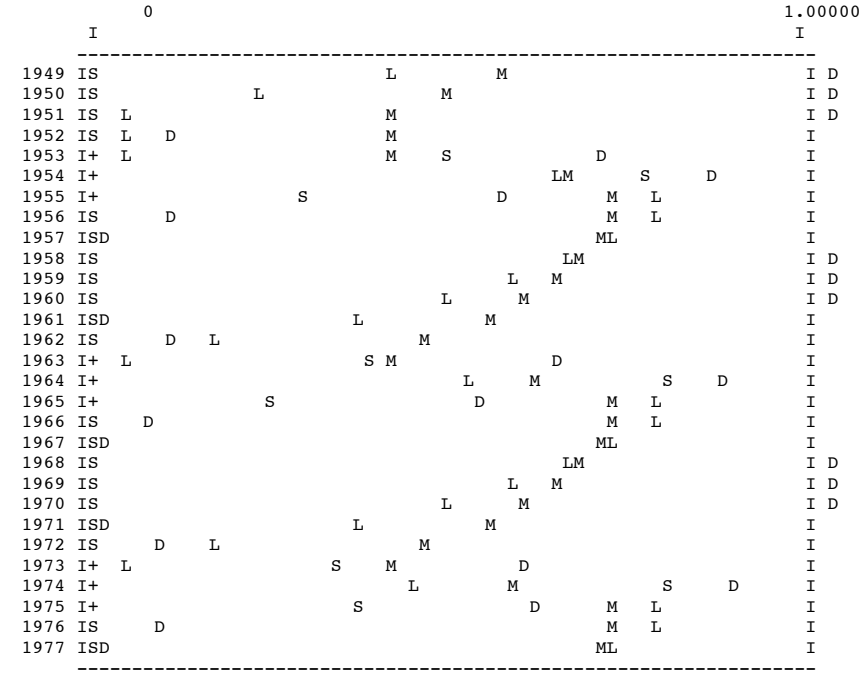


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

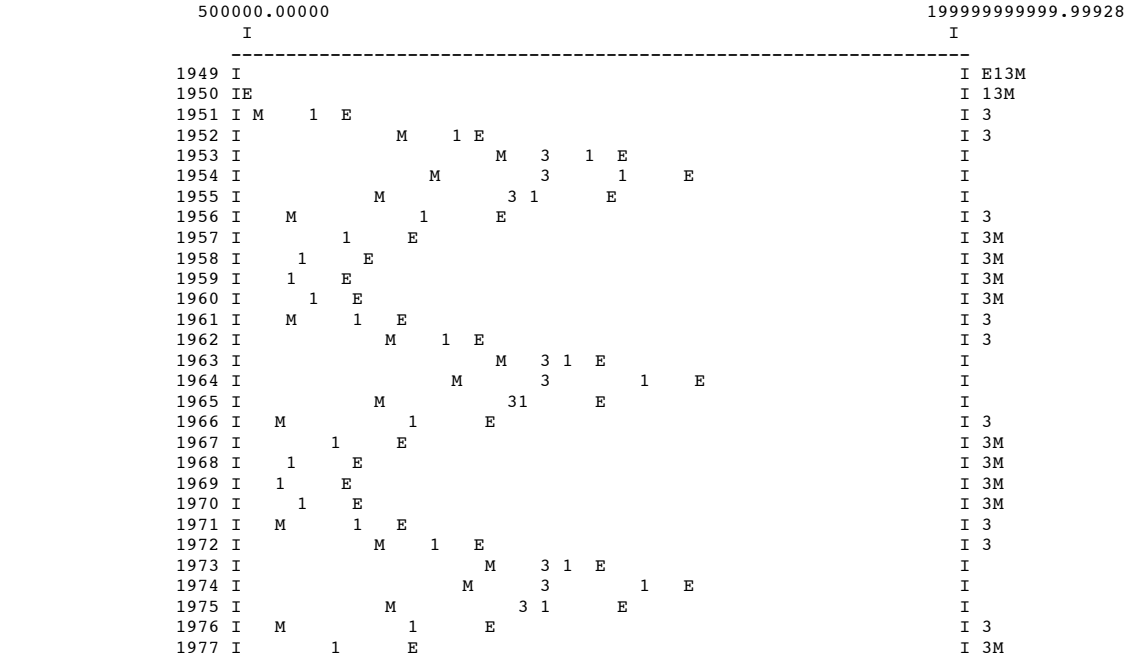


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE



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PRINTPLOT OF SIMULATION RESULTS FOR SITE NR.  1:
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DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B


*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

     LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
     TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C =     0.01000
     EXTREMES FOUND IN DATA:  MIN =  293.293728   MAX =  4184534.154528


            0                                                      300000000.00000
       I                                                               I
      -------------------------------------------------------------------
 1949 I+                          *                    F                I E
 1950 I+                             *                 F                I E
 1951 I+                                   *           F                I E
 1952 I+                                          *    F                I E
 1953 I+                                            F  E *              I
 1954 I+                                         F    E   *             I
 1955 I+                                            FE*                 I
 1956 I+                                         *    F                 I E
 1957 I+                                     *        F                 I E
 1958 I+                                   *           F                I E
 1959 I+                                  *            F                I E
 1960 I+                                   *           F                I E
 1961 I+                                     *         F                I E
 1962 I+                                          *    F                I E
 1963 I+                                             FE *               I
 1964 I+                                         F     E   *            I
 1965 I+                                            FE*                 I
 1966 I+                                        *     F                 I E
 1967 I+                                    *         F                 I E
 1968 I+                                  *            F                I E
 1969 I+                                  *            F                I E
 1970 I+                                   *           F                I E
 1971 I+                                     *         F                I E
 1972 I+                                         *     F                I E
 1973 I+                                             FE*                I
 1974 I+                                         F     E   *            I
 1975 I+                                            FE*                 I
 1976 I+                                        *     F                 I E
 1977 I+                                    *         F                 I E
      -------------------------------------------------------------------
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PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 1:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

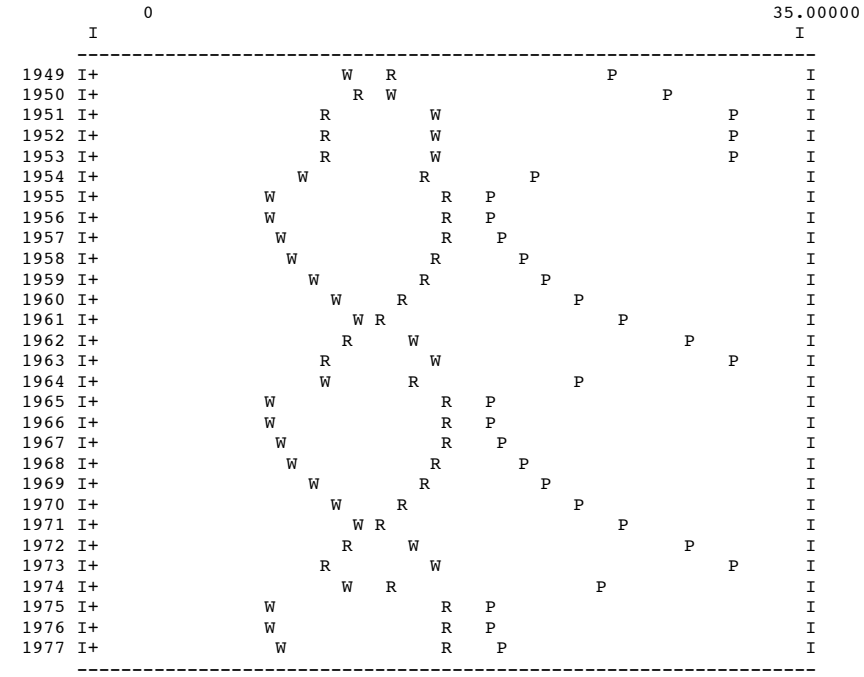

TABLE OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	28452	11738	0.587	0.008	0.008	538338.3	0	11738	0.000	0.425	2969	79.6
1950	13.6	102618	49795	0.515	0.034	0.056	589754.0	0	49795	0.000	0.249	16461	105.9
1951	12.0	756906	428739	0.434	0.292	0.376	645355.5	0.000	428739	0.004	0.052	178896	135.2
1952	12.0	10525339	5961943	0.434	4.063	7.281	615077.9	0.000	5961942	0.050	0.052	2487685	135.2
1953	12.0	150881280	85464763	0.434	58.243	52.780	297108.6	0.250	64070353	0.541	0.052	26734051	135.2
1954	14.1	1454050194	665846812	0.542	453.768	933.524	42438.6	0.855	96523792	0.926	0.315	29094427	96.0
1955	18.0	852639841	221029825	0.741	150.630	217.940	67971.1	0.701	66062766	0.842	0.797	5900086	24.2
1956	18.0	42397585	10990725	0.741	7.490	23.368	369373.0	0.001	10982020	0.140	0.797	980807	24.2
1957	17.6	9675381	2718339	0.719	1.853	2.457	430024.4	0.000	2718338	0.033	0.744	305817	32.0
1958	17.1	4107343	1259181	0.693	0.858	0.000	456204.8	0.000	1259181	0.015	0.682	176090	41.3
1959	16.5	3060928	1033381	0.662	0.704	0.024	479487.6	0.000	1033381	0.012	0.607	178750	52.5
1960	15.7	3952609	1489482	0.623	1.015	0.303	504861.1	0.000	1489482	0.016	0.512	320025	66.7
1961	14.7	8974732	3861518	0.570	2.632	1.667	529837.3	0.000	3861517	0.038	0.382	1049925	86.0
1962	13.0	37720759	19471198	0.484	13.269	23.727	505803.8	0.003	19408856	0.174	0.174	7057531	117.0
1963	12.0	330590640	187258823	0.434	127.615	478.550	167612.2	0.531	87735643	0.741	0.052	36608651	135.2
1964	17.1	1613434412	491087522	0.696	334.671	308.910	37459.9	0.842	77499329	0.919	0.687	10656357	40.5
1965	18.0	226405117	58690998	0.741	39.997	7.090	192634.9	0.263	43280656	0.551	0.797	3865409	24.2
1966	18.0	35828261	9287760	0.741	6.330	0.000	378654.8	0.000	9285773	0.118	0.797	829315	24.2
1967	17.6	8218966	2309153	0.719	1.574	0.000	432263.5	0.000	2309153	0.028	0.744	259783	32.0
1968	17.1	3492607	1070722	0.693	0.730	0.100	457236.0	0.000	1070722	0.013	0.682	149735	41.3
1969	16.5	2603750	879036	0.662	0.599	0.169	480332.2	0.000	879036	0.010	0.607	152052	52.5
1970	15.7	3363384	1267441	0.623	0.864	1.707	506076.1	0.000	1267441	0.014	0.512	272318	66.7
1971	14.7	7640650	3287509	0.570	2.240	9.613	532978.3	0.000	3287508	0.033	0.382	893855	86.0
1972	13.0	32163274	16602462	0.484	11.314	171.840	521268.2	0.001	16582759	0.148	0.174	6029894	117.0
1973	12.0	286051383	162030133	0.434	110.422	319.180	188124.3	0.482	83987077	0.710	0.052	35044521	135.2
1974	16.6	1604115685	527267194	0.671	359.327	268.790	37621.2	0.847	80627419	0.921	0.628	13179951	49.3
1975	18.0	298649493	77418908	0.741	52.760	24.441	159547.2	0.363	49327368	0.628	0.797	4405443	24.2
1976	18.0	37858765	9814127	0.741	6.688	0.000	375781.8	0.000	9810825	0.125	0.797	876207	24.2
1977	17.6	8624734	2423156	0.719	1.651	0.010	431639.7	0.000	2423156	0.030	0.744	272608	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.008	0.008	0.000	0.000	0.000	0.000	0
1950	13.6	0.034	0.056	0.000	0.000	0.000	0.022	0
1951	12.0	0.292	0.376	0.000	0.000	0.008	0.084	0
1952	12.0	4.063	7.281	0.000	0.000	10.363	3.218	0
1953	12.0	58.243	52.780	0.000	0.000	40.211	-5.463	0
1954	14.1	453.768	933.524	0.000	0.000	230206.274	479.756	0
1955	18.0	150.630	217.940	0.000	0.000	234736.971	67.310	0
1956	18.0	7.490	23.368	0.000	0.000	234989.079	15.878	0
1957	17.6	1.853	2.457	0.000	0.000	234989.445	0.604	0
1958	17.1	0.858	0.000	0.000	0.000	234990.181	-0.858	0
1959	16.5	0.704	0.024	0.000	0.000	234990.644	-0.680	0
1960	15.7	1.015	0.303	0.000	0.000	234991.151	-0.712	0
1961	14.7	2.632	1.667	0.000	0.000	234992.081	-0.965	0
1962	13.0	13.269	23.727	0.000	0.000	235101.442	10.458	0
1963	12.0	127.615	478.550	0.000	0.000	358256.845	350.935	0
1964	17.1	334.671	308.910	0.000	0.000	358920.478	-25.761	0
1965	18.0	39.997	7.090	0.000	0.000	360003.369	-32.907	0
1966	18.0	6.330	0.000	0.000	0.000	360043.431	-6.329	0
1967	17.6	1.574	0.000	0.000	0.000	360045.907	-1.574	0
1968	17.1	0.730	0.100	0.000	0.000	360046.303	-0.630	0
1969	16.5	0.599	0.169	0.000	0.000	360046.488	-0.430	0
1970	15.7	0.864	1.707	0.000	0.000	360047.199	0.843	0
1971	14.7	2.240	9.613	0.000	0.000	360101.555	7.373	0
1972	13.0	11.314	171.840	0.000	0.000	385870.021	160.526	0
1973	12.0	110.422	319.180	0.000	0.000	429449.979	208.758	0
1974	16.6	359.327	268.790	0.000	0.000	437646.957	-90.537	0
1975	18.0	52.760	24.441	0.000	0.000	438448.933	-28.319	0
1976	18.0	6.688	0.000	0.000	0.000	438493.664	-6.688	0
1977	17.6	1.651	0.010	0.000	0.000	438496.358	-1.641	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.008	28452	11738	0.587	11738	0.425	25.846	2969	79.6	13.075
1950	13.6	0.034	102618	49795	0.515	49795	0.249	28.732	16461	105.9	15.038
1951	12.0	0.292	756906	428739	0.434	428739	0.052	31.957	178896	135.2	17.231
1952	12.0	4.063	10525339	5961943	0.434	5961942	0.052	31.957	2487685	135.2	17.231
1953	12.0	58.243	150881280	85464763	0.434	64070353	0.052	31.957	26734051	135.2	17.231
1954	14.1	453.768	1454050194	665846812	0.542	96523792	0.315	27.647	29094427	96.0	14.300
1955	18.0	150.630	852639841	221029825	0.741	66062766	0.797	19.755	5900086	24.2	8.933
1956	18.0	7.490	42397585	10990725	0.741	10982020	0.797	19.755	980807	24.2	8.933
1957	17.6	1.853	9675381	2718339	0.719	2718338	0.744	20.618	305817	32.0	9.520
1958	17.1	0.858	4107343	1259181	0.693	1259181	0.682	21.635	176090	41.3	10.212
1959	16.5	0.704	3060928	1033381	0.662	1033381	0.607	22.868	178750	52.5	11.050
1960	15.7	1.015	3952609	1489482	0.623	1489482	0.512	24.426	320025	66.7	12.110
1961	14.7	2.632	8974732	3861518	0.570	3861517	0.382	26.548	1049925	86.0	13.553
1962	13.0	13.269	37720759	19471198	0.484	19408856	0.174	29.961	7057531	117.0	15.873
1963	12.0	127.615	330590640	187258823	0.434	87735643	0.052	31.957	36608651	135.2	17.231
1964	17.1	334.671	1613434412	491087522	0.696	77499329	0.687	21.548	10656357	40.5	10.153
1965	18.0	39.997	226405117	58690998	0.741	43280656	0.797	19.755	3865409	24.2	8.933
1966	18.0	6.330	35828261	9287760	0.741	9285773	0.797	19.755	829315	24.2	8.933
1967	17.6	1.574	8218966	2309153	0.719	2309153	0.744	20.618	259783	32.0	9.520
1968	17.1	0.730	3492607	1070722	0.693	1070722	0.682	21.635	149735	41.3	10.212
1969	16.5	0.599	2603750	879036	0.662	879036	0.607	22.868	152052	52.5	11.050
1970	15.7	0.864	3363384	1267441	0.623	1267441	0.512	24.426	272318	66.7	12.110
1971	14.7	2.240	7640650	3287509	0.570	3287508	0.382	26.548	893855	86.0	13.553
1972	13.0	11.314	32163274	16602462	0.484	16582759	0.174	29.961	6029894	117.0	15.873
1973	12.0	110.422	286051383	162030133	0.434	83987077	0.052	31.957	35044521	135.2	17.231
1974	16.6	359.327	1604115685	527267194	0.671	80627419	0.628	22.514	13179951	49.3	10.809
1975	18.0	52.760	298649493	77418908	0.741	49327368	0.797	19.755	4405443	24.2	8.933
1976	18.0	6.688	37858765	9814127	0.741	9810825	0.797	19.755	876207	24.2	8.933
1977	17.6	1.651	8624734	2423156	0.719	2423156	0.744	20.618	272608	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.008	538338.3	64.2	0	64.2	0.000
1950	13.6	0.034	589754.0	272.5	0	272.5	0.000
1951	12.0	0.292	645355.5	2346.1	0.000	2346.1	0.004
1952	12.0	4.063	615077.9	32623.8	0.000	32623.7	0.050
1953	12.0	58.243	297108.6	467663.2	0.250	350593.0	0.541
1954	14.1	453.768	42438.6	3643513.8	0.855	528178.2	0.926
1955	18.0	150.630	67971.1	1209475.2	0.701	361495.5	0.842
1956	18.0	7.490	369373.0	60141.2	0.001	60093.6	0.140
1957	17.6	1.853	430024.4	14874.8	0.000	14874.7	0.033
1958	17.1	0.858	456204.8	6890.2	0.000	6890.2	0.015
1959	16.5	0.704	479487.6	5654.7	0.000	5654.7	0.012
1960	15.7	1.015	504861.1	8150.4	0.000	8150.4	0.016
1961	14.7	2.632	529837.3	21130.2	0.000	21130.2	0.038
1962	13.0	13.269	505803.8	106546.4	0.003	106205.3	0.174
1963	12.0	127.615	167612.2	1024680.3	0.531	480089.4	0.741
1964	17.1	334.671	37459.9	2687230.9	0.842	424076.3	0.919
1965	18.0	39.997	192634.9	321157.1	0.263	236831.7	0.551
1966	18.0	6.330	378654.8	50822.6	0.000	50811.7	0.118
1967	17.6	1.574	432263.5	12635.7	0.000	12635.7	0.028
1968	17.1	0.730	457236.0	5859.0	0.000	5859.0	0.013
1969	16.5	0.599	480332.2	4810.1	0.000	4810.1	0.010
1970	15.7	0.864	506076.1	6935.4	0.000	6935.4	0.014
1971	14.7	2.240	532978.3	17989.2	0.000	17989.2	0.033
1972	13.0	11.314	521268.2	90848.7	0.001	90740.9	0.148
1973	12.0	110.422	188124.3	886628.9	0.482	459577.3	0.710
1974	16.6	359.327	37621.2	2885206.1	0.847	441193.2	0.921
1975	18.0	52.760	159547.2	423636.3	0.363	269919.4	0.628
1976	18.0	6.688	375781.8	53702.9	0.000	53684.8	0.125
1977	17.6	1.651	431639.7	13259.5	0.000	13259.5	0.030

TABLE OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.008	198	162	36	122	29
1950	13.6	0.034	1105	895	210	706	176
1951	12.0	0.292	12716	10130	2586	8070	2015
1952	12.0	4.063	337469	245513	91956	196262	49057
1953	12.0	58.243	9884326	18133848	-8249522	14503190	3625327
1954	14.1	453.768	11324979	37541612	-26216633	30025708	7505482
1955	18.0	150.630	1975003	6389693	-4414690	5108668	1276743
1956	18.0	7.490	102777	165531	-62754	132290	33061
1957	17.6	1.853	16995	24009	-7014	19174	4788
1958	17.1	0.858	8145	11232	-3087	8956	2237
1959	16.5	0.704	7906	10943	-3037	8728	2179
1960	15.7	1.015	14646	20625	-5979	16468	4116
1961	14.7	2.632	58003	86291	-28288	68990	17243
1962	13.0	13.269	775747	1392078	-616331	1113370	278304
1963	12.0	127.615	12125149	33728340	-21603191	26976056	6743147
1964	17.1	334.671	6473985	17126765	-10652780	13695770	3423238
1965	18.0	39.997	1290272	2616082	-1325810	2091520	522687
1966	18.0	6.330	77903	124024	-46121	99114	24770
1967	17.6	1.574	13764	19347	-5583	15444	3859
1968	17.1	0.730	6745	9292	-2547	7404	1850
1969	16.5	0.599	6588	9105	-2517	7254	1813
1970	15.7	0.864	12135	17048	-4913	13604	3400
1971	14.7	2.240	47056	69388	-22332	55462	13861
1972	13.0	11.314	626349	1056142	-429793	844614	211122
1973	12.0	110.422	11876392	30668394	-18792002	24528522	6131354
1974	16.6	359.327	7197845	20419544	-13221699	16329768	4081697
1975	18.0	52.760	1419314	3415100	-1995786	2730578	682427
1976	18.0	6.688	80591	135518	-54927	108316	27070
1977	17.6	1.651	14288	20579	-6291	16430	4105

TABLE OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	3501	15757	224456
0	27942	116972	1654813
0	421021	1719262	22918704
0	10273567	45627656	307558863
0	759488553	1336415036	2067260512
0	1145740691	1141663034	854216745
0	47785795	47731073	51514211
0	1237040	2483885	20164481
0	237390	544175	9070392
0	142606	336199	6828896
0	176794	415015	8837349
0	424983	976520	20031748
0	2295330	4987511	83310148
0	50471303	90797587	683056909
0	1412681605	1639380331	2137385615
0	280128041	395894153	134080374
0	19561389	31182982	52684672
0	926511	1882767	17356387
0	191059	440717	7734862
0	117962	278413	5816508
0	147241	345828	7527264
0	350638	809134	17076285
0	1845275	4050123	71238440
0	38285632	73393233	596202702
0	1284474523	1604942139	2150010308
0	386621434	498391732	200694160
0	25542507	34301674	54319031
0	1012958	1952153	18236832
0	203459	458664	8107961

AVERAGE CYCLE FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 453.768   334.671   359.327
MEAN OF MAXIMA: 382.589 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.704   0.599
MEAN OF MINIMA: 0.652 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.008
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 453.768
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 453.760
DIFFERENCE BETWEEN MEANS OF EXTREMES: 381.937 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.638	1.721	9.549	98.760	382.589	81.129	6.836	1.693	0.794
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	2472870	5790762	26803124	255841101	1557200097	459231483	38694870	8839693	3799975
1	935572	2525922	14011867	144917906	561400509	119046577	10030870	2483549	1164951
3	935572	2525921	13984519	78597691	84883513	52890263	10026206	2483549	1164951
W	202934	707558	5191703	32795741	17643578	4723646	895443	279402	162912

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 32838.638
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 368.973

AVERAGE CYCLE FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

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MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 453.760
DIFFERENCE BETWEEN MEANS OF EXTREMES: 381.937 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.0	18.0	18.0	17.6	17.1
A	0.638	1.721	9.549	98.760	382.589	81.129	6.836	1.693	0.794
M	0.587	0.524	0.467	0.434	0.636	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.544	0.797	0.797	0.744	0.682
S	0.000	0.000	0.001	0.421	0.848	0.442	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	23.903	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	11.754	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	61.9	24.2	24.2	32.0	41.3
D	0.010	0.025	0.124	0.664	0.922	0.674	0.128	0.031	0.014

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 32838.638
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 368.973

AVERAGE CYCLE FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
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MEAN OF MINIMA: 0.652 (SIMULATED),   0.099 (OBSERVED)

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T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.0	18.0	18.0	17.6	17.1
A	0.638	1.721	9.549	98.760	382.589	81.129	6.836	1.693	0.794
I	9295	39258	579855	11295289	8332269	1561529	87090	15015	7445
O	12856	55269	897911	27510194	25029307	4140291	141691	21311	10262
E	-3560	-16011	-318056	-16214905	-16697037	-2578762	-54600	-6296	-2817
U	267854	1520542	33010167	1152214893	604163388	30963230	1058836	210636	130284
H	12920948	59155764	528939491	2118218811	396330426	52839304	18585900	8304405	6322702
G	634208	3585632	69939492	1526912502	678649639	37738576	2106268	481185	307306

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 32838.638
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 368.973

AVERAGE CYCLE FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

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MEAN OF MINIMA: 0.652 (SIMULATED),   0.099 (OBSERVED)

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T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.0	18.0	18.0	17.6	17.1
A	0.638	1.721	9.549	98.760	382.589	81.129	6.836	1.693	0.794
D	0.010	0.025	0.124	0.664	0.922	0.674	0.128	0.031	0.014
F	533563.7	569390.4	547383.3	217615.0	39173.2	140051.1	374603.2	431309.2	456720.4
*	5119.5	13821.8	76672.9	792990.8	3071983.6	651422.9	54888.9	13590.0	6374.6
E	5119.5	13821.8	76523.3	430086.6	464482.6	289415.5	54863.4	13590.0	6374.6

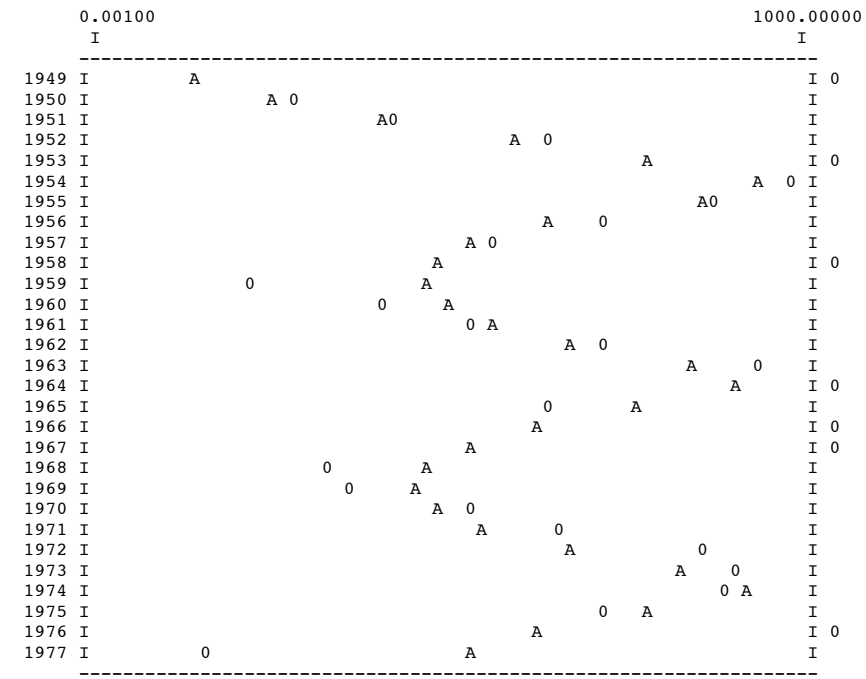
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 32838.638
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 368.973

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

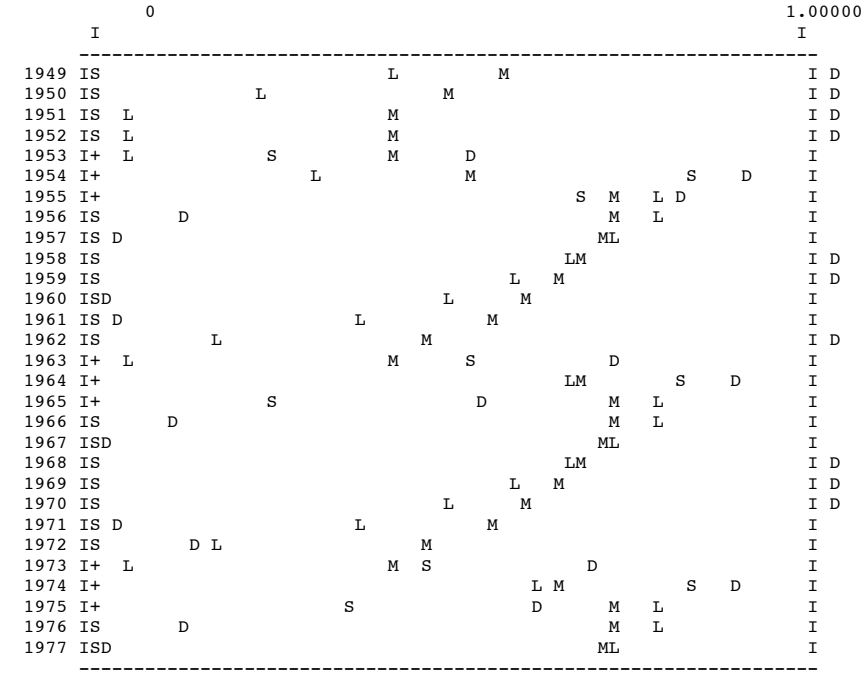


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

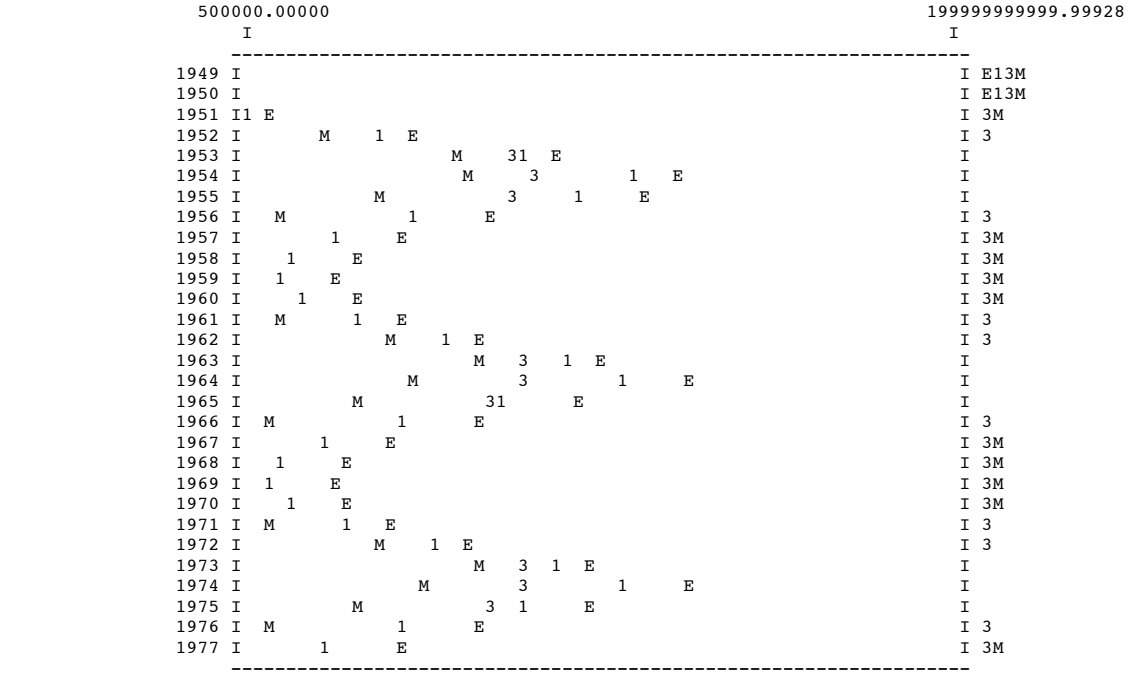


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

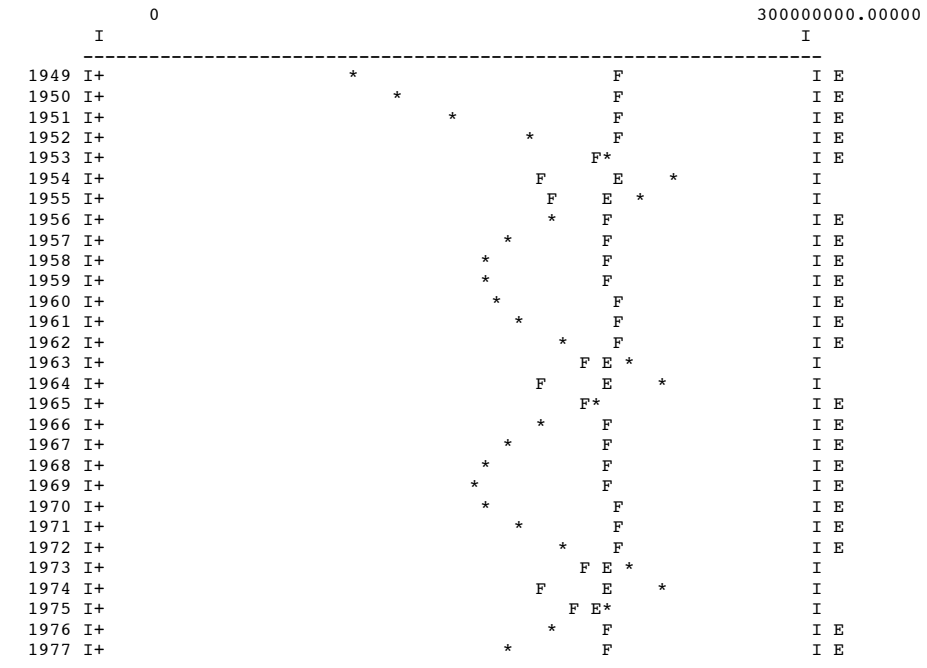


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 64.230336 MAX = 3643513.755264



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 2:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

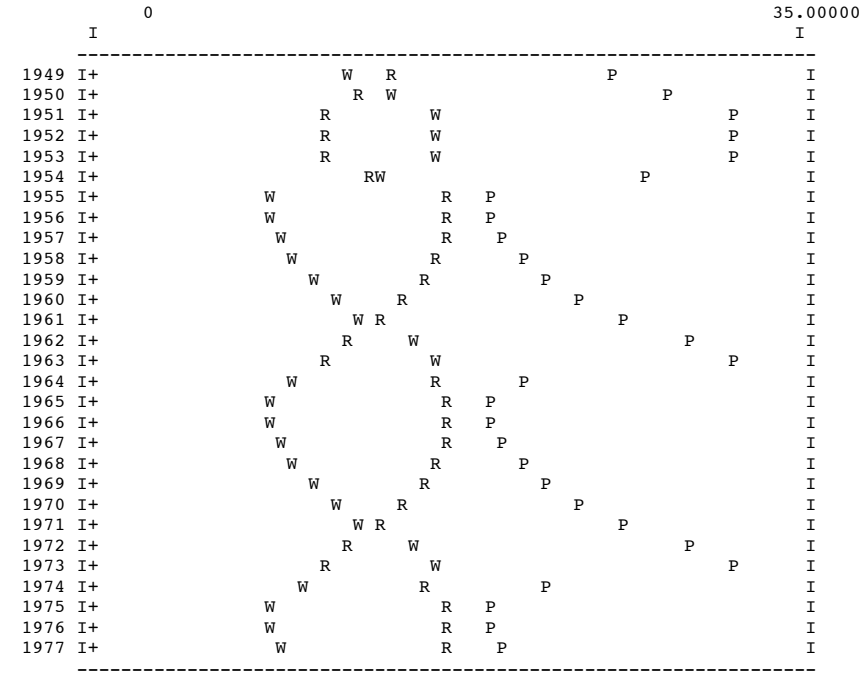


TABLE OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	18097	7466	0.587	0.006	0.006	456556.1	0	7466	0.000	0.425	1888	79.6
1950	13.6	66439	32239	0.515	0.026	0.012	500200.7	0	32239	0.000	0.249	10657	105.9
1951	12.0	499718	283058	0.434	0.227	0.052	547740.1	0.000	283058	0.003	0.052	118109	135.2
1952	12.0	7096769	4019873	0.434	3.230	0.276	527292.3	0.000	4019872	0.040	0.052	1677335	135.2
1953	12.0	104859891	59396538	0.434	47.730	19.267	284241.7	0.185	48437014	0.483	0.052	20210870	135.2
1954	13.2	1391494338	699997006	0.497	562.509	466.096	32632.0	0.875	87440078	0.936	0.205	30568884	112.3
1955	18.0	1022216795	264989259	0.741	212.942	317.868	42140.3	0.778	58858306	0.884	0.797	5256654	24.2
1956	18.0	42453095	11005115	0.741	8.844	31.532	304135.2	0.002	10979115	0.165	0.797	980548	24.2
1957	17.6	9720901	2731128	0.719	2.195	2.836	362355.9	0.000	2731127	0.040	0.744	307255	32.0
1958	17.1	4150879	1272528	0.693	1.023	0.167	385768.5	0.000	1272528	0.018	0.682	177956	41.3
1959	16.5	3111112	1050324	0.662	0.844	0.050	405681.8	0.000	1050324	0.014	0.607	181681	52.5
1960	15.7	4040447	1522583	0.623	1.224	0.167	426732.3	0.000	1522583	0.019	0.512	327137	66.7
1961	14.7	9226239	3969733	0.570	3.190	0.567	445530.5	0.000	3969732	0.046	0.382	1079349	86.0
1962	13.0	38981344	20121903	0.484	16.170	8.400	409900.4	0.009	19941392	0.210	0.174	7251174	117.0
1963	12.0	340409151	192820392	0.434	154.948	180.070	121087.8	0.594	78253150	0.780	0.052	32651977	135.2
1964	17.7	1651005851	453913970	0.725	364.760	429.000	26750.1	0.860	63399549	0.928	0.759	6724937	29.8
1965	18.0	187735518	48666678	0.741	39.108	10.100	165737.2	0.255	36271141	0.545	0.797	3239387	24.2
1966	18.0	32122176	8327031	0.741	6.692	0.100	318662.8	0.000	8324218	0.125	0.797	743438	24.2
1967	17.6	7515920	2111630	0.719	1.697	0.100	365745.8	0.000	2111629	0.031	0.744	237561	32.0
1968	17.1	3227477	989442	0.693	0.795	0.000	387317.5	0.000	989442	0.014	0.682	138368	41.3
1969	16.5	2428644	819920	0.662	0.659	0.192	406942.5	0.000	819920	0.011	0.607	141826	52.5
1970	15.7	3168278	1193919	0.623	0.959	0.384	428530.8	0.000	1193919	0.015	0.512	256521	66.7
1971	14.7	7291317	3137203	0.570	2.521	2.348	450086.1	0.000	3137202	0.037	0.382	852988	86.0
1972	13.0	31727365	16377449	0.484	13.161	69.100	429675.9	0.003	16327442	0.172	0.174	5937054	117.0
1973	12.0	325379431	184307000	0.434	148.107	185.670	125755.7	0.580	77400083	0.771	0.052	32296026	135.2
1974	17.6	1758788401	495026061	0.719	397.797	414.940	25137.5	0.870	64412810	0.933	0.743	7281212	32.2
1975	18.0	171046777	44340456	0.741	35.631	36.950	175660.8	0.223	34457621	0.518	0.797	3077421	24.2
1976	18.0	30949586	8023061	0.741	6.447	0.000	320321.7	0.000	8021059	0.121	0.797	716363	24.2
1977	17.6	7322557	2057303	0.719	1.653	0.000	366043.1	0.000	2057303	0.030	0.744	231449	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.006	0.006	0.000	0.000	0.000	0.000	0
1950	13.6	0.026	0.012	0.000	0.000	0.000	-0.014	0
1951	12.0	0.227	0.052	0.000	0.000	0.031	-0.175	0
1952	12.0	3.230	0.276	0.000	0.000	8.759	-2.954	0
1953	12.0	47.730	19.267	0.000	0.000	818.921	-28.463	0
1954	13.2	562.509	466.096	0.000	0.000	10114.406	-96.413	0
1955	18.0	212.942	317.868	0.000	0.000	21123.839	104.926	0
1956	18.0	8.844	31.532	0.000	0.000	21638.604	22.688	0
1957	17.6	2.195	2.836	0.000	0.000	21639.015	0.641	0
1958	17.1	1.023	0.167	0.000	0.000	21639.747	-0.856	0
1959	16.5	0.844	0.050	0.000	0.000	21640.378	-0.794	0
1960	15.7	1.224	0.167	0.000	0.000	21641.494	-1.057	0
1961	14.7	3.190	0.567	0.000	0.000	21648.374	-2.623	0
1962	13.0	16.170	8.400	0.000	0.000	21708.743	-7.770	0
1963	12.0	154.948	180.070	0.000	0.000	22339.851	25.122	0
1964	17.7	364.760	429.000	0.000	0.000	26466.660	64.240	0
1965	18.0	39.108	10.100	0.000	0.000	27308.121	-29.008	0
1966	18.0	6.692	0.100	0.000	0.000	27351.569	-6.592	0
1967	17.6	1.697	0.100	0.000	0.000	27354.119	-1.597	0
1968	17.1	0.795	0.000	0.000	0.000	27354.751	-0.795	0
1969	16.5	0.659	0.192	0.000	0.000	27354.969	-0.467	0
1970	15.7	0.959	0.384	0.000	0.000	27355.300	-0.575	0
1971	14.7	2.521	2.348	0.000	0.000	27355.330	-0.173	0
1972	13.0	13.161	69.100	0.000	0.000	30484.534	55.939	0
1973	12.0	148.107	185.670	0.000	0.000	31895.522	37.563	0
1974	17.6	397.797	414.940	0.000	0.000	32189.407	17.143	0
1975	18.0	35.631	36.950	0.000	0.000	32191.146	1.319	0
1976	18.0	6.447	0.000	0.000	0.000	32232.711	-6.447	0
1977	17.6	1.653	0.000	0.000	0.000	32235.444	-1.653	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.006	18097	7466	0.587	7466	0.425	25.846	1888	79.6	13.075
1950	13.6	0.026	66439	32239	0.515	32239	0.249	28.732	10657	105.9	15.038
1951	12.0	0.227	499718	283058	0.434	283058	0.052	31.957	118109	135.2	17.231
1952	12.0	3.230	7096769	4019873	0.434	4019872	0.052	31.957	1677335	135.2	17.231
1953	12.0	47.730	104859891	59396538	0.434	48437014	0.052	31.957	20210870	135.2	17.231
1954	13.2	562.509	1391494338	699997006	0.497	87440078	0.205	29.439	30568884	112.3	15.519
1955	18.0	212.942	1022216795	264989259	0.741	58858306	0.797	19.755	5256654	24.2	8.933
1956	18.0	8.844	42453095	11005115	0.741	10979115	0.797	19.755	980548	24.2	8.933
1957	17.6	2.195	9720901	2731128	0.719	2731127	0.744	20.618	307255	32.0	9.520
1958	17.1	1.023	4150879	1272528	0.693	1272528	0.682	21.635	177956	41.3	10.212
1959	16.5	0.844	3111112	1050324	0.662	1050324	0.607	22.868	181681	52.5	11.050
1960	15.7	1.224	4040447	1522583	0.623	1522583	0.512	24.426	327137	66.7	12.110
1961	14.7	3.190	9226239	3969733	0.570	3969732	0.382	26.548	1079349	86.0	13.553
1962	13.0	16.170	38981344	20121903	0.484	19941392	0.174	29.961	7251174	117.0	15.873
1963	12.0	154.948	340409151	192820392	0.434	78253150	0.052	31.957	32651977	135.2	17.231
1964	17.7	364.760	1651005851	453913970	0.725	63399549	0.759	20.378	6724937	29.8	9.357
1965	18.0	39.108	187735518	48666678	0.741	36271141	0.797	19.755	3239387	24.2	8.933
1966	18.0	6.692	32122176	8327031	0.741	8324218	0.797	19.755	743438	24.2	8.933
1967	17.6	1.697	7515920	2111630	0.719	2111629	0.744	20.618	237561	32.0	9.520
1968	17.1	0.795	3227477	989442	0.693	989442	0.682	21.635	138368	41.3	10.212
1969	16.5	0.659	2428644	819920	0.662	819920	0.607	22.868	141826	52.5	11.050
1970	15.7	0.959	3168278	1193919	0.623	1193919	0.512	24.426	256521	66.7	12.110
1971	14.7	2.521	7291317	3137203	0.570	3137202	0.382	26.548	852988	86.0	13.553
1972	13.0	13.161	31727365	16377449	0.484	16327442	0.174	29.961	5937054	117.0	15.873
1973	12.0	148.107	325379431	184307000	0.434	77400083	0.052	31.957	32296026	135.2	17.231
1974	17.6	397.797	1758788401	495026061	0.719	64412810	0.743	20.638	7281212	32.2	9.534
1975	18.0	35.631	171046777	44340456	0.741	34457621	0.797	19.755	3077421	24.2	8.933
1976	18.0	6.447	30949586	8023061	0.741	8021059	0.797	19.755	716363	24.2	8.933
1977	17.6	1.653	7322557	2057303	0.719	2057303	0.744	20.618	231449	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.006	456556.1	40.9	0	40.9	0.000
1950	13.6	0.026	500200.7	176.4	0	176.4	0.000
1951	12.0	0.227	547740.1	1548.9	0.000	1548.9	0.003
1952	12.0	3.230	527292.3	21996.7	0.000	21996.7	0.040
1953	12.0	47.730	284241.7	325017.9	0.185	265047.3	0.483
1954	13.2	562.509	32632.0	3830383.6	0.875	478472.1	0.936
1955	18.0	212.942	42140.3	1450021.2	0.778	322072.7	0.884
1956	18.0	8.844	304135.2	60220.0	0.002	60077.7	0.165
1957	17.6	2.195	362355.9	14944.7	0.000	14944.7	0.040
1958	17.1	1.023	385768.5	6963.3	0.000	6963.3	0.018
1959	16.5	0.844	405681.8	5747.4	0.000	5747.4	0.014
1960	15.7	1.224	426732.3	8331.6	0.000	8331.6	0.019
1961	14.7	3.190	445530.5	21722.4	0.000	21722.4	0.046
1962	13.0	16.170	409900.4	110107.1	0.009	109119.3	0.210
1963	12.0	154.948	121087.8	1055113.2	0.594	428201.2	0.780
1964	17.7	364.760	26750.1	2483817.2	0.860	346922.3	0.928
1965	18.0	39.108	165737.2	266304.1	0.255	198475.7	0.545
1966	18.0	6.692	318662.8	45565.5	0.000	45550.1	0.125
1967	17.6	1.697	365745.8	11554.8	0.000	11554.8	0.031
1968	17.1	0.795	387317.5	5414.2	0.000	5414.2	0.014
1969	16.5	0.659	406942.5	4486.6	0.000	4486.6	0.011
1970	15.7	0.959	428530.8	6533.1	0.000	6533.1	0.015
1971	14.7	2.521	450086.1	17166.8	0.000	17166.8	0.037
1972	13.0	13.161	429675.9	89617.4	0.003	89343.8	0.172
1973	12.0	148.107	125755.7	1008527.9	0.580	423533.3	0.771
1974	17.6	397.797	25137.5	2708782.6	0.870	352466.9	0.933
1975	18.0	35.631	175660.8	242631.0	0.223	188552.1	0.518
1976	18.0	6.447	320321.7	43902.2	0.000	43891.2	0.121
1977	17.6	1.653	366043.1	11257.6	0.000	11257.6	0.030

TABLE OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.006	161	107	54	79	20
1950	13.6	0.026	929	598	331	462	114
1951	12.0	0.227	10882	6766	4116	5363	1338
1952	12.0	3.230	269220	154261	114959	123167	30777
1953	12.0	47.730	11662549	13737461	-2074912	10981893	2744632
1954	13.2	562.509	14043352	41881387	-27838035	33487675	8370017
1955	18.0	212.942	2336842	6773937	-4437095	5412518	1352345
1956	18.0	8.844	123959	190005	-66046	151761	37919
1957	17.6	2.195	20142	25849	-5707	20616	5147
1958	17.1	1.023	9580	11839	-2259	9423	2353
1959	16.5	0.844	9342	11537	-2195	9182	2294
1960	15.7	1.224	17518	22079	-4561	17605	4395
1961	14.7	3.190	71164	96501	-25337	77105	19266
1962	13.0	16.170	991286	1700895	-709609	1360039	339931
1963	12.0	154.948	15200861	35713500	-20512639	28555879	7137233
1964	17.7	364.760	7109907	13196785	-6086878	10544697	2634755
1965	18.0	39.108	1259736	2252515	-992779	1799493	449561
1966	18.0	6.692	87153	117994	-30841	94221	23542
1967	17.6	1.697	15362	18321	-2959	14599	3644
1968	17.1	0.795	7593	8808	-1215	6998	1747
1969	16.5	0.659	7588	8702	-1114	6911	1725
1970	15.7	0.959	14813	16577	-1764	13208	3299
1971	14.7	2.521	71409	70832	577	56532	14118
1972	13.0	13.161	1546204	1302797	243407	1041281	260239
1973	12.0	148.107	17124286	35928584	-18804298	28728256	7180369
1974	17.6	397.797	6111178	13224467	-7113289	10567175	2640359
1975	18.0	35.631	1176511	2037313	-860802	1627511	406592
1976	18.0	6.447	83294	110959	-27665	88603	22134
1977	17.6	1.653	19111	18015	1096	14351	3582

TABLE OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	2546	12811	142712
0	20004	98338	1071415
0	310422	1471287	15141000
0	7164766	36399960	209058588
0	639558485	1576839347	1680403954
0	1556119004	1354497035	1038332543
0	56282182	56475075	42900149
0	1577925	2995789	19759130
0	283690	644934	9071545
0	167000	395428	6887138
0	206923	490387	8967590
0	504457	1168000	20429003
0	2852770	6121059	85127407
0	68587996	116074498	680763403
0	1663463308	2054626244	1810087829
0	195879703	377678910	61776892
0	18705922	30444651	44747709
0	979006	2108955	15484491
0	200567	492582	7062374
0	123698	314079	5370951
0	155686	399955	7016428
0	377867	998474	16069217
0	2095944	6486179	67781998
0	52621049	185688540	575967432
0	1672261997	2301805832	1815208217
0	202741707	329060036	71330361
0	16918213	28433350	44014183
0	928147	2163856	14976963
0	199103	688115	6884821

AVERAGE CYCLE FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 562.509   364.760   397.797
MEAN OF MAXIMA: 441.689 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.844   0.659
MEAN OF MINIMA: 0.751 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.006
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 562.509
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 562.503
DIFFERENCE BETWEEN MEANS OF EXTREMES: 440.937 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.736	1.980	10.854	116.928	441.689	95.894	7.327	1.848	0.909
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	2425054	5672424	25935159	256882824	1600429530	460333030	35174952	8186459	3689178
1	916247	2463331	13506408	145507976	549645679	119332131	9118402	2300020	1130985
3	916247	2463330	13429568	68030082	71750812	43195689	9108130	2300019	1130985
W	198105	683482	4955187	28386291	14858344	3857820	813449	258755	158162

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 59502.334
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 6132.237

AVERAGE CYCLE FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 562.509   364.760   397.797
MEAN OF MAXIMA: 441.689 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.844   0.659
MEAN OF MINIMA: 0.751 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.006
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 562.509
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 562.503
DIFFERENCE BETWEEN MEANS OF EXTREMES: 440.937 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.2	18.0	18.0	17.6	17.1
A	0.736	1.980	10.854	116.928	441.689	95.894	7.327	1.848	0.909
M	0.587	0.524	0.467	0.434	0.647	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.569	0.797	0.797	0.744	0.682
S	0.000	0.000	0.004	0.453	0.868	0.418	0.001	0.000	0.000
P	25.861	28.351	30.626	31.957	23.485	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	11.470	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	58.1	24.2	24.2	32.0	41.3
D	0.012	0.029	0.141	0.678	0.933	0.649	0.137	0.033	0.016

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 59502.334
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 6132.237

AVERAGE CYCLE FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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MEAN OF MAXIMA: 441.689 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
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MEAN OF MINIMA: 0.751 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.006
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DIFFERENCE BETWEEN MEANS OF EXTREMES: 440.937 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.2	18.0	18.0	17.6	17.1
A	0.736	1.980	10.854	116.928	441.689	95.894	7.327	1.848	0.909
I	11086	51151	935570	14662565	9088145	1591029	98135	18205	8586
O	13084	58033	1052651	28459848	22767546	3687921	139652	20728	10323
E	-1998	-6881	-117081	-13797283	-13679400	-2096892	-41517	-2523	-1737
U	300776	1753045	42791270	1325094596	651580138	30635439	1161692	227786	145349
H	12523211	56016801	488596474	1768566666	390479932	43887347	16740194	7672913	6129044
G	754937	4692841	112720999	1977757141	687078660	38451025	2422866	608543	354753

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 59502.334
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 6132.237

AVERAGE CYCLE FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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MEAN OF MAXIMA: 441.689 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.844   0.659
MEAN OF MINIMA: 0.751 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.006
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 562.509
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 562.503
DIFFERENCE BETWEEN MEANS OF EXTREMES: 440.937 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.2	18.0	18.0	17.6	17.1
A	0.736	1.980	10.854	116.928	441.689	95.894	7.327	1.848	0.909
D	0.012	0.029	0.141	0.678	0.933	0.649	0.137	0.033	0.016
F	451821.3	481118.9	455622.8	177028.4	28173.2	127846.1	314373.2	364714.9	386543.0
*	5013.7	13479.3	73907.1	796219.6	3007661.2	652985.4	49895.9	12585.7	6188.7
E	5013.7	13479.3	73486.6	372260.6	392620.4	236366.8	49839.7	12585.7	6188.7

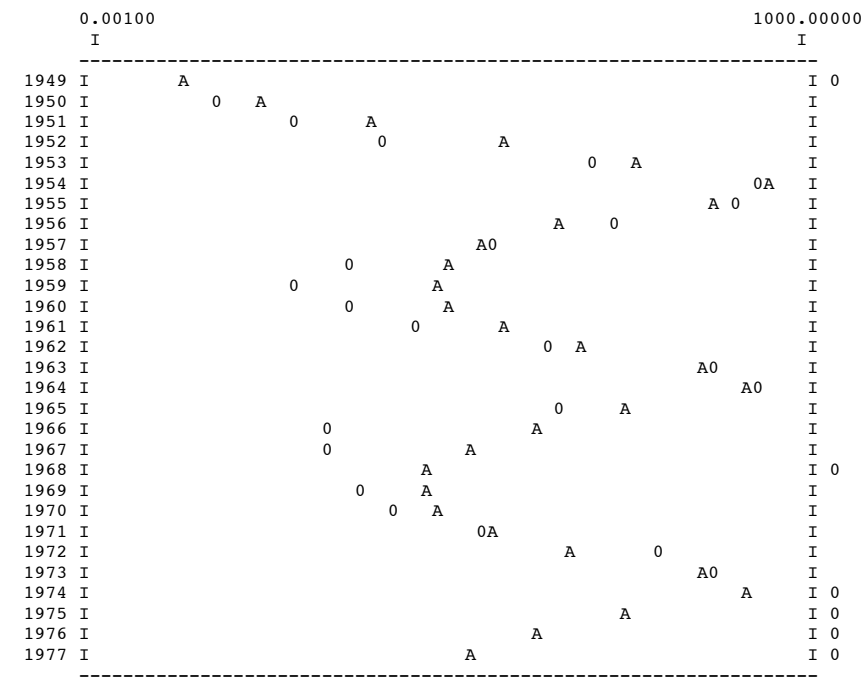
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 59502.334
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 6132.237

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

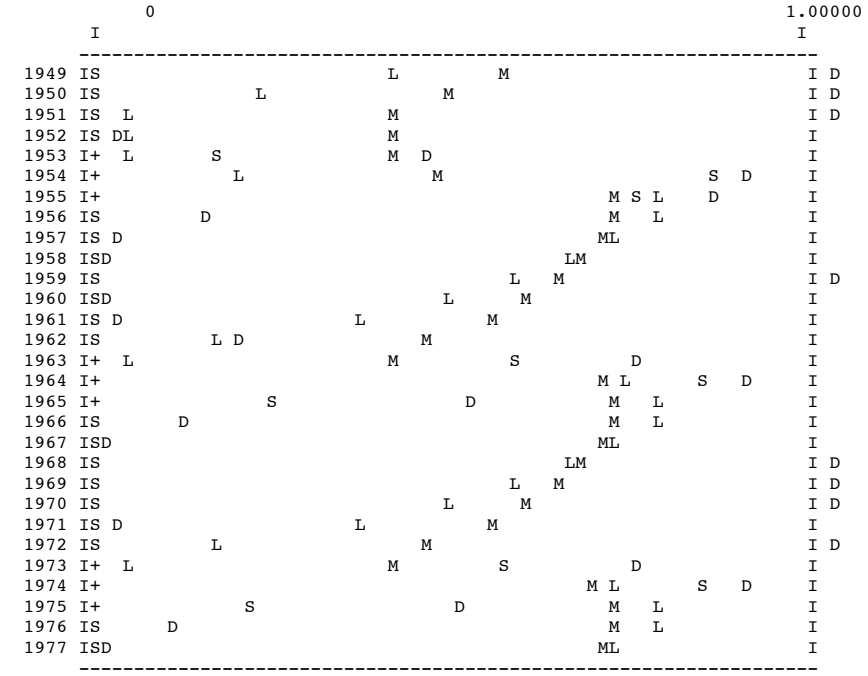


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

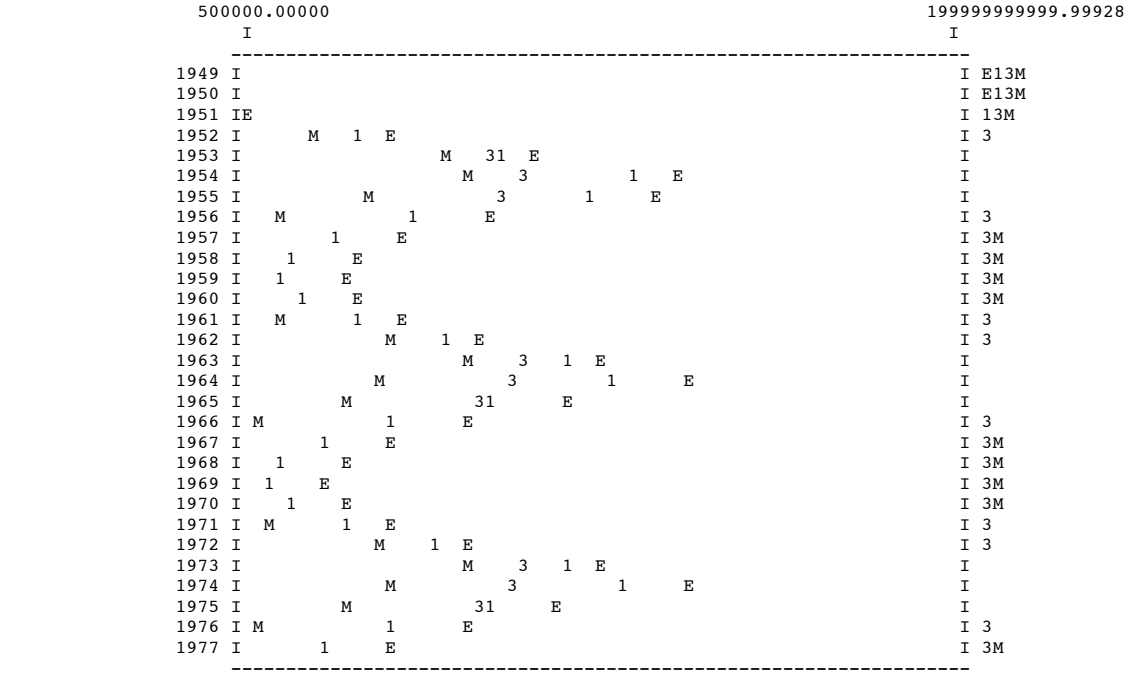


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

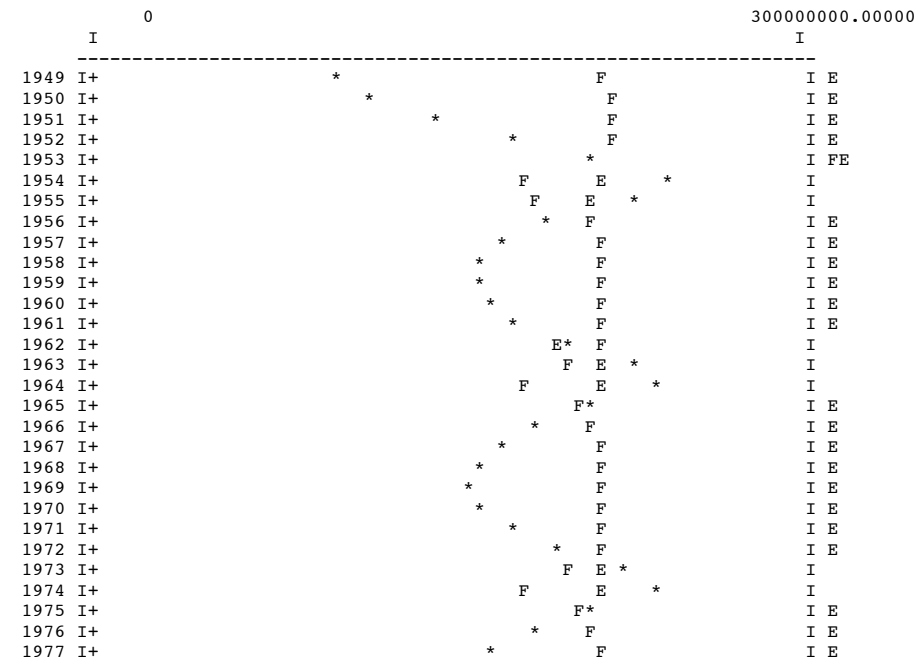


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 40.853952 MAX = 3830383.616832



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 3:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

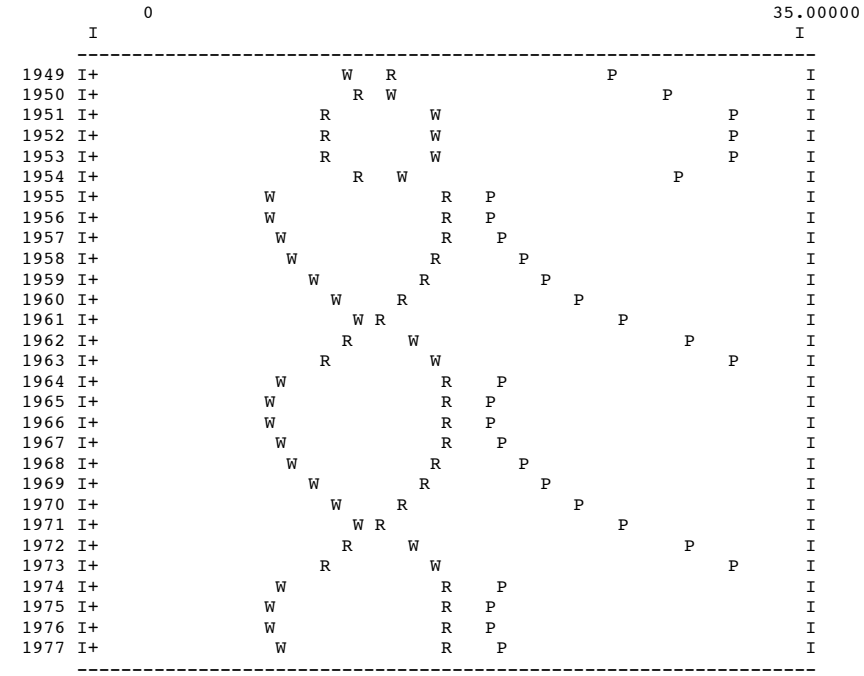


TABLE OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	132860	54815	0.587	0.014	0.014	1436322.3	0	54815	0.000	0.425	13868	79.6
1950	13.6	462876	224609	0.515	0.057	0.060	1573141.6	0	224609	0.001	0.249	74253	105.9
1951	12.0	3298429	1868352	0.434	0.477	1.132	1718041.9	0.000	1868352	0.006	0.052	779590	135.2
1952	12.0	44231721	25054490	0.434	6.399	3.493	1591167.8	0.000	25054406	0.079	0.052	10454223	135.2
1953	12.0	586276722	332088921	0.434	84.816	53.342	613109.3	0.386	203793159	0.645	0.052	85034911	135.2
1954	15.7	3626638112	1371173649	0.622	350.200	235.485	118004.9	0.833	229026530	0.914	0.509	49513149	67.1
1955	18.0	1076219507	278988382	0.741	71.254	139.398	339987.2	0.472	147288138	0.703	0.797	13154350	24.2
1956	18.0	95103371	24653646	0.741	6.297	22.884	1011070.8	0.000	24648602	0.118	0.797	2201374	24.2
1957	17.6	21399484	6012277	0.719	1.536	3.383	1154227.6	0.000	6012277	0.028	0.744	676390	32.0
1958	17.1	8986554	2754993	0.693	0.704	0.171	1220603.5	0.000	2754993	0.012	0.682	385272	41.3
1959	16.5	6632102	2239024	0.662	0.572	0.051	1282255.7	0.000	2239024	0.009	0.607	387298	52.5
1960	15.7	8489485	3199137	0.623	0.817	0.561	1351365.6	0.000	3199137	0.013	0.512	687355	66.7
1961	14.7	19141467	8235915	0.570	2.103	2.491	1425082.6	0.000	8235914	0.031	0.382	2239301	86.0
1962	13.0	80581079	41595403	0.484	10.624	32.322	1405591.2	0.001	41563551	0.139	0.174	15113516	117.0
1963	12.0	752816817	426423419	0.434	108.909	301.097	507425.9	0.477	223106643	0.706	0.052	93093673	135.2
1964	16.6	3986083163	1319870559	0.669	337.097	141.282	107372.1	0.837	214701056	0.916	0.623	35652004	50.2
1965	18.0	471508044	122229030	0.741	31.218	3.084	597676.7	0.180	100195770	0.478	0.797	8948516	24.2
1966	18.0	74817249	19394875	0.741	4.953	0.000	1039821.3	0.000	19394478	0.093	0.797	1732127	24.2
1967	17.6	17134594	4814037	0.719	1.230	0.000	1160784.4	0.000	4814037	0.022	0.744	541586	32.0
1968	17.1	7324787	2245547	0.693	0.574	0.064	1223391.1	0.000	2245547	0.010	0.682	314028	41.3
1969	16.5	5566813	1879378	0.662	0.480	0.210	1284223.7	0.000	1879378	0.008	0.607	325088	52.5
1970	15.7	7540387	2841484	0.623	0.726	1.936	1353322.7	0.000	2841484	0.011	0.512	610511	66.7
1971	14.7	19550499	8411907	0.570	2.148	19.776	1424119.6	0.000	8411906	0.031	0.382	2287152	86.0
1972	13.0	141713970	73151784	0.484	18.683	358.082	1239510.7	0.017	71914533	0.241	0.174	26149871	117.0
1973	12.0	1717749656	972997236	0.434	248.505	275.430	252461.1	0.723	269701088	0.854	0.052	112535711	135.2
1974	18.0	3349501453	868291261	0.741	221.763	93.452	127722.4	0.786	186079229	0.889	0.797	16618795	24.2
1975	18.0	195490509	50677004	0.741	12.943	4.406	873092.3	0.016	49863968	0.238	0.797	4453366	24.2
1976	17.6	49124510	13801742	0.719	3.525	0.000	1111603.7	0.000	13801739	0.064	0.744	1552716	32.0
1977	17.1	20289432	6220097	0.693	1.589	0.010	1201642.4	0.000	6220097	0.028	0.682	869849	41.3

TABLE OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.014	0.014	0.000	0.000	0.000	0.000	0
1950	13.6	0.057	0.060	0.000	0.000	0.000	0.003	0
1951	12.0	0.477	1.132	0.000	0.000	0.429	0.655	0
1952	12.0	6.399	3.493	0.000	0.000	8.873	-2.906	0
1953	12.0	84.816	53.342	0.000	0.000	999.491	-31.474	0
1954	15.7	350.200	235.485	0.000	0.000	14159.045	-114.715	0
1955	18.0	71.254	139.398	0.000	0.000	18802.635	68.144	0
1956	18.0	6.297	22.884	0.000	0.000	19077.777	16.587	0
1957	17.6	1.536	3.383	0.000	0.000	19081.190	1.847	0
1958	17.1	0.704	0.171	0.000	0.000	19081.474	-0.533	0
1959	16.5	0.572	0.051	0.000	0.000	19081.745	-0.521	0
1960	15.7	0.817	0.561	0.000	0.000	19081.811	-0.256	0
1961	14.7	2.103	2.491	0.000	0.000	19081.961	0.388	0
1962	13.0	10.624	32.322	0.000	0.000	19552.784	21.698	0
1963	12.0	108.909	301.097	0.000	0.000	56488.907	192.188	0
1964	16.6	337.097	141.282	0.000	0.000	94832.501	-195.815	0
1965	18.0	31.218	3.084	0.000	0.000	95623.995	-28.134	0
1966	18.0	4.953	0.000	0.000	0.000	95648.531	-4.953	0
1967	17.6	1.230	0.000	0.000	0.000	95650.043	-1.229	0
1968	17.1	0.574	0.064	0.000	0.000	95650.302	-0.510	0
1969	16.5	0.480	0.210	0.000	0.000	95650.375	-0.270	0
1970	15.7	0.726	1.936	0.000	0.000	95651.840	1.210	0
1971	14.7	2.148	19.776	0.000	0.000	95962.572	17.628	0
1972	13.0	18.683	358.082	0.000	0.000	211154.191	339.399	0
1973	12.0	248.505	275.430	0.000	0.000	211879.138	26.925	0
1974	18.0	221.763	93.452	0.000	0.000	228342.870	-128.311	0
1975	18.0	12.943	4.406	0.000	0.000	228415.751	-8.537	0
1976	17.6	3.525	0.000	0.000	0.000	228428.175	-3.525	0
1977	17.1	1.589	0.010	0.000	0.000	228430.667	-1.579	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.014	132860	54815	0.587	54815	0.425	25.846	13868	79.6	13.075
1950	13.6	0.057	462876	224609	0.515	224609	0.249	28.732	74253	105.9	15.038
1951	12.0	0.477	3298429	1868352	0.434	1868352	0.052	31.957	779590	135.2	17.231
1952	12.0	6.399	44231721	25054490	0.434	25054406	0.052	31.957	10454223	135.2	17.231
1953	12.0	84.816	586276722	332088921	0.434	203793159	0.052	31.957	85034911	135.2	17.231
1954	15.7	350.200	3626638112	1371173649	0.622	229026530	0.509	24.475	49513149	67.1	12.143
1955	18.0	71.254	1076219507	278988382	0.741	147288138	0.797	19.755	13154350	24.2	8.933
1956	18.0	6.297	95103371	24653646	0.741	24648602	0.797	19.755	2201374	24.2	8.933
1957	17.6	1.536	21399484	6012277	0.719	6012277	0.744	20.618	676390	32.0	9.520
1958	17.1	0.704	8986554	2754993	0.693	2754993	0.682	21.635	385272	41.3	10.212
1959	16.5	0.572	6632102	2239024	0.662	2239024	0.607	22.868	387298	52.5	11.050
1960	15.7	0.817	8489485	3199137	0.623	3199137	0.512	24.426	687355	66.7	12.110
1961	14.7	2.103	19141467	8235915	0.570	8235914	0.382	26.548	2239301	86.0	13.553
1962	13.0	10.624	80581079	41595403	0.484	41563551	0.174	29.961	15113516	117.0	15.873
1963	12.0	108.909	752816817	426423419	0.434	223106643	0.052	31.957	93093673	135.2	17.231
1964	16.6	337.097	3986083163	1319870559	0.669	214701056	0.623	22.610	35652004	50.2	10.875
1965	18.0	31.218	471508044	122229030	0.741	100195770	0.797	19.755	8948516	24.2	8.933
1966	18.0	4.953	74817249	19394875	0.741	19394478	0.797	19.755	1732127	24.2	8.933
1967	17.6	1.230	17134594	4814037	0.719	4814037	0.744	20.618	541586	32.0	9.520
1968	17.1	0.574	7324787	2245547	0.693	2245547	0.682	21.635	314028	41.3	10.212
1969	16.5	0.480	5566813	1879378	0.662	1879378	0.607	22.868	325088	52.5	11.050
1970	15.7	0.726	7540387	2841484	0.623	2841484	0.512	24.426	610511	66.7	12.110
1971	14.7	2.148	19550499	8411907	0.570	8411906	0.382	26.548	2287152	86.0	13.553
1972	13.0	18.683	141713970	73151784	0.484	71914533	0.174	29.961	26149871	117.0	15.873
1973	12.0	248.505	1717749656	972997236	0.434	269701088	0.052	31.957	112535711	135.2	17.231
1974	18.0	221.763	3349501453	868291261	0.741	186079229	0.797	19.755	16618795	24.2	8.933
1975	18.0	12.943	195490509	50677004	0.741	49863968	0.797	19.755	4453366	24.2	8.933
1976	17.6	3.525	49124510	13801742	0.719	13801739	0.744	20.618	1552716	32.0	9.520
1977	17.1	1.589	20289432	6220097	0.693	6220097	0.682	21.635	869849	41.3	10.212

TABLE OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.014	1436322.3	299.9	0	299.9	0.000
1950	13.6	0.057	1573141.6	1229.1	0	1229.1	0.001
1951	12.0	0.477	1718041.9	10223.6	0.000	10223.6	0.006
1952	12.0	6.399	1591167.8	137098.2	0.000	137097.7	0.079
1953	12.0	84.816	613109.3	1817190.6	0.386	1115156.2	0.645
1954	15.7	350.200	118004.9	7503062.2	0.833	1253233.2	0.914
1955	18.0	71.254	339987.2	1526624.4	0.472	805960.7	0.703
1956	18.0	6.297	1011070.8	134904.8	0.000	134877.2	0.118
1957	17.6	1.536	1154227.6	32899.2	0.000	32899.2	0.028
1958	17.1	0.704	1220603.5	15075.3	0.000	15075.3	0.012
1959	16.5	0.572	1282255.7	12251.9	0.000	12251.9	0.009
1960	15.7	0.817	1351365.6	17505.7	0.000	17505.7	0.013
1961	14.7	2.103	1425082.6	45066.9	0.000	45066.9	0.031
1962	13.0	10.624	1405591.2	227610.0	0.001	227435.8	0.139
1963	12.0	108.909	507425.9	2333388.9	0.477	1220839.6	0.706
1964	16.6	337.097	107372.1	7222331.7	0.837	1174844.2	0.916
1965	18.0	31.218	597676.7	668837.3	0.180	548271.3	0.478
1966	18.0	4.953	1039821.3	106128.8	0.000	106126.6	0.093
1967	17.6	1.230	1160784.4	26342.4	0.000	26342.4	0.022
1968	17.1	0.574	1223391.1	12287.6	0.000	12287.6	0.010
1969	16.5	0.480	1284223.7	10284.0	0.000	10284.0	0.008
1970	15.7	0.726	1353322.7	15548.6	0.000	15548.6	0.011
1971	14.7	2.148	1424119.6	46030.0	0.000	46029.9	0.031
1972	13.0	18.683	1239510.7	400286.6	0.017	393516.3	0.241
1973	12.0	248.505	252461.1	5324240.9	0.723	1475804.4	0.854
1974	18.0	221.763	127722.4	4751289.8	0.786	1018225.5	0.889
1975	18.0	12.943	873092.3	277304.6	0.016	272855.6	0.238
1976	17.6	3.525	1111603.7	75523.1	0.000	75523.1	0.064
1977	17.1	1.589	1201642.4	34036.4	0.000	34036.4	0.028

TABLE OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.014	441	724	-283	672	34
1950	13.6	0.057	2435	3909	-1474	3677	189
1951	12.0	0.477	28305	43953	-15648	41648	2187
1952	12.0	6.399	805114	1211618	-406504	1150460	60501
1953	12.0	84.816	20168653	59103856	-38935203	56131942	2952282
1954	15.7	350.200	16955796	57003119	-40047323	54122931	2845194
1955	18.0	71.254	3149046	10172594	-7023548	9654282	507008
1956	18.0	6.297	164464	321576	-157112	305125	16019
1957	17.6	1.536	27585	49408	-21823	46824	2454
1958	17.1	0.704	13364	23529	-10165	22259	1167
1959	16.5	0.572	13142	22852	-9710	21617	1130
1960	15.7	0.817	24996	42303	-17307	40075	2100
1961	14.7	2.103	110895	169719	-58824	161019	8451
1962	13.0	10.624	2130914	2587996	-457082	2457023	129169
1963	12.0	108.909	26293720	74105418	-47811698	70374215	3700960
1964	16.6	337.097	9853125	38897691	-29044566	36930849	1941175
1965	18.0	31.218	1735238	4517715	-2782477	4288020	225255
1966	18.0	4.953	120095	217630	-97535	206486	10832
1967	17.6	1.230	26703	37623	-10920	35632	1868
1968	17.1	0.574	17191	19028	-1837	17981	941
1969	16.5	0.480	24782	19587	5195	18508	967
1970	15.7	0.726	89799	40799	49000	38618	2022
1971	14.7	2.148	1292001	252343	1039658	239240	12544
1972	13.0	18.683	12230805	8153451	4077354	7742152	407086
1973	12.0	248.505	18882352	100027798	-81145446	95000068	4996867
1974	18.0	221.763	6969656	20202960	-13233304	19173520	1006949
1975	18.0	12.943	1270015	1301071	-31056	1233185	64665
1976	17.6	3.525	90993	158290	-67297	150150	7877
1977	17.1	1.589	25665	62705	-37040	59456	3122

TABLE OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	22126	35095	1048418
0	163335	257762	7463281
0	2382039	3826964	99711709
0	65873725	108855757	1263514849
0	3214273693	2726910693	5762410731
0	1703973884	1460261800	1058978620
0	98735305	76104185	146516066
0	3120508	3977225	46115202
0	634119	883937	20152006
0	388660	552250	14972334
0	479794	691436	19180956
0	1130166	1676897	43129910
0	5862059	9861457	178764665
0	121910759	255326914	1506884737
0	4027762690	3531839412	5798879603
0	817137641	537385949	566331384
0	43860654	41936515	133197495
0	2119397	3082628	37026442
0	484664	942026	16204011
0	315696	806319	12224612
0	415065	1532054	16118666
0	1119380	7413277	38351002
0	9703224	149188890	182538569
0	397777106	1629097114	2391852457
0	5393733411	2393296606	5447296683
0	264475197	323393894	134214976
0	12601234	30697131	84294701
0	2016861	2498761	44995230
0	1036403	979233	33412543

AVERAGE CYCLE FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 350.200   337.097   248.505
MEAN OF MAXIMA: 311.934 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.572   0.480
MEAN OF MINIMA: 0.526 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.014
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 350.200
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 350.186
DIFFERENCE BETWEEN MEANS OF EXTREMES: 311.408 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
A	0.451	1.102	6.390	70.803	311.934	108.078	8.064	2.097	0.955
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	4839724	9993427	48121099	493602503	3110156977	1632409668	121803709	29219529	12200257
1	1767708	4315250	25020600	277221374	1221347148	423169557	31575175	8209352	3740212
3	1767708	4315250	25009954	166271445	237809558	144521045	31302349	8209351	3740212
W	362232	1209800	9284963	68092818	65900288	12907220	2795622	923564	523049

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 13487.041
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 350.200   337.097   248.505
MEAN OF MAXIMA: 311.934 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.572   0.480
MEAN OF MINIMA: 0.526 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.014
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 350.200
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 350.186
DIFFERENCE BETWEEN MEANS OF EXTREMES: 311.408 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	14.8	18.0	18.0	17.6	17.1
A	0.451	1.102	6.390	70.803	311.934	108.078	8.064	2.097	0.955
M	0.600	0.542	0.496	0.450	0.575	0.741	0.741	0.719	0.693
L	0.456	0.315	0.202	0.092	0.394	0.797	0.797	0.744	0.682
S	0.000	0.000	0.000	0.293	0.798	0.479	0.005	0.000	0.000
P	25.342	27.644	29.489	31.291	26.347	19.755	19.755	20.618	21.635
W	12.732	14.298	15.552	16.778	13.416	8.933	8.933	9.520	10.212
4	75.0	96.0	112.7	129.2	84.2	24.2	24.2	32.0	41.3
D	0.007	0.016	0.083	0.531	0.895	0.690	0.149	0.038	0.017

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 13487.041
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 350.200   337.097   248.505
MEAN OF MAXIMA: 311.934 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.572   0.480
MEAN OF MINIMA: 0.526 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.014
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 350.200
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 350.186
DIFFERENCE BETWEEN MEANS OF EXTREMES: 311.408 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	14.8	18.0	18.0	17.6	17.1
A	0.451	1.102	6.390	70.803	311.934	108.078	8.064	2.097	0.955
I	17404	76333	1409343	19564392	15230424	3951313	518191	48427	18740
O	21933	84823	1350652	47120908	65309536	11631089	613425	81773	35087
E	-4528	-8490	58690	-27556515	-50079111	-7679776	-95234	-33346	-16347
U	569522	3121159	65829236	2546604496	2638281645	135690385	5947046	1045214	580253
H	22237285	105609125	984312718	4651047597	2357535562	137976179	55812115	27117082	20203163
G	1155571	7033899	171123853	2629282406	1463648118	147144864	12585661	1441574	779267

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 13487.041
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 350.200   337.097   248.505
MEAN OF MAXIMA: 311.934 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.572   0.480
MEAN OF MINIMA: 0.526 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.014
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 350.200
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 350.186
DIFFERENCE BETWEEN MEANS OF EXTREMES: 311.408 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	14.8	18.0	18.0	17.6	17.1
A	0.451	1.102	6.390	70.803	311.934	108.078	8.064	2.097	0.955
D	0.007	0.016	0.083	0.531	0.895	0.690	0.149	0.038	0.017
F	1402910.3	1498815.7	1473626.2	786682.0	159279.4	355128.8	974661.5	1142205.2	1215212.3
*	9672.9	23613.0	136912.7	1516955.4	6683211.6	2315583.8	172779.4	44921.6	20466.4
E	9672.9	23613.0	136854.5	909837.3	1301293.9	790819.2	171286.5	44921.6	20466.4

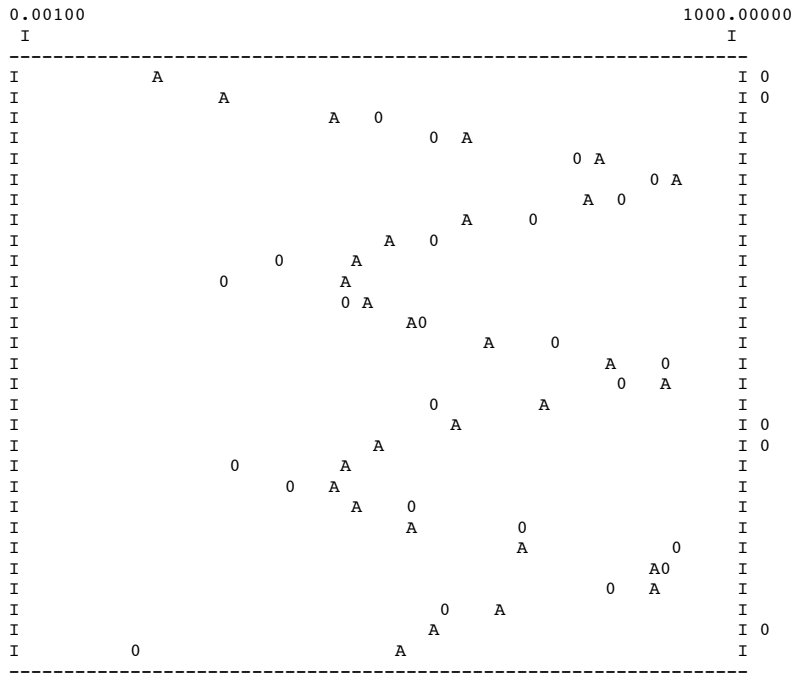
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 13487.041
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

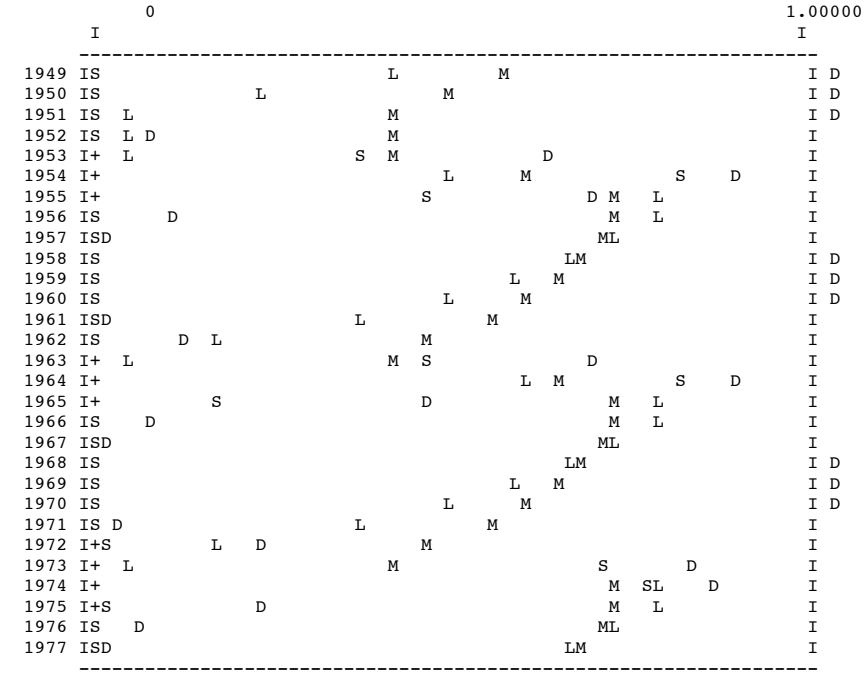


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

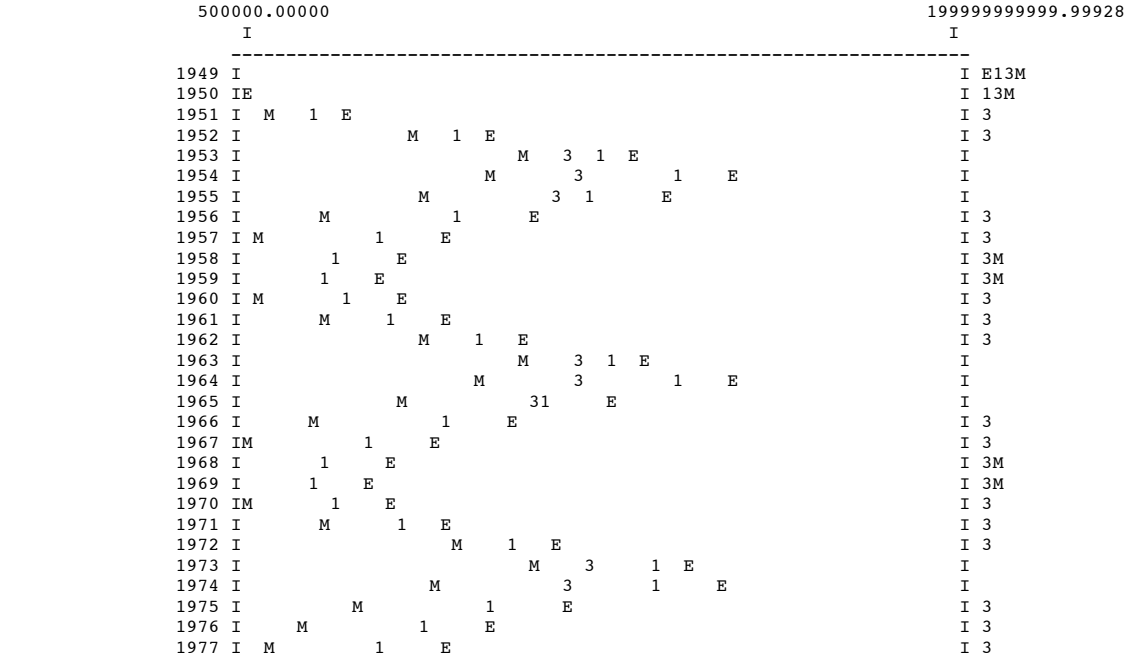


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

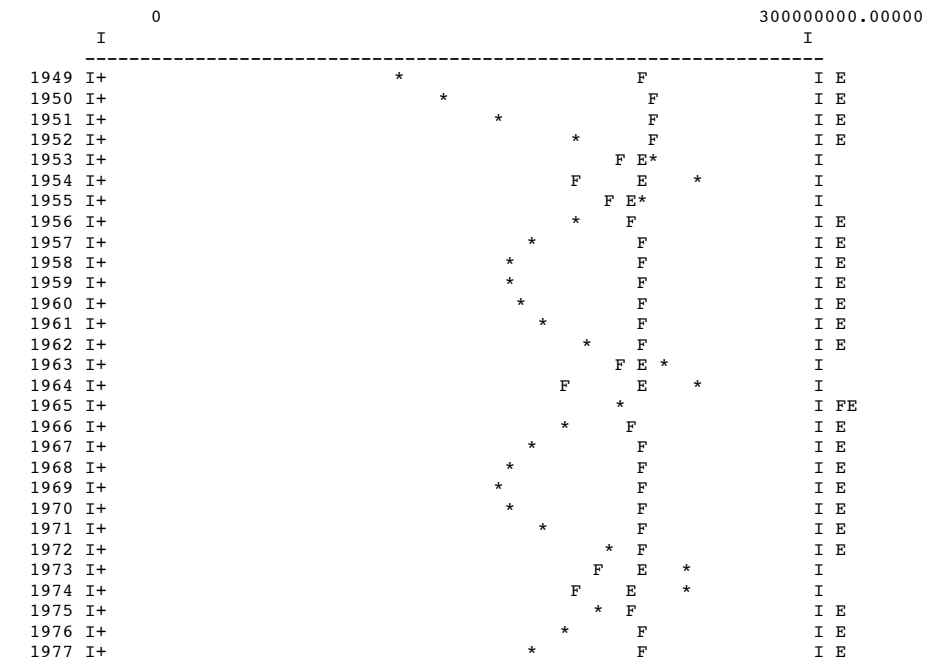


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 299.947680 MAX = 7503062.207328



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 4:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

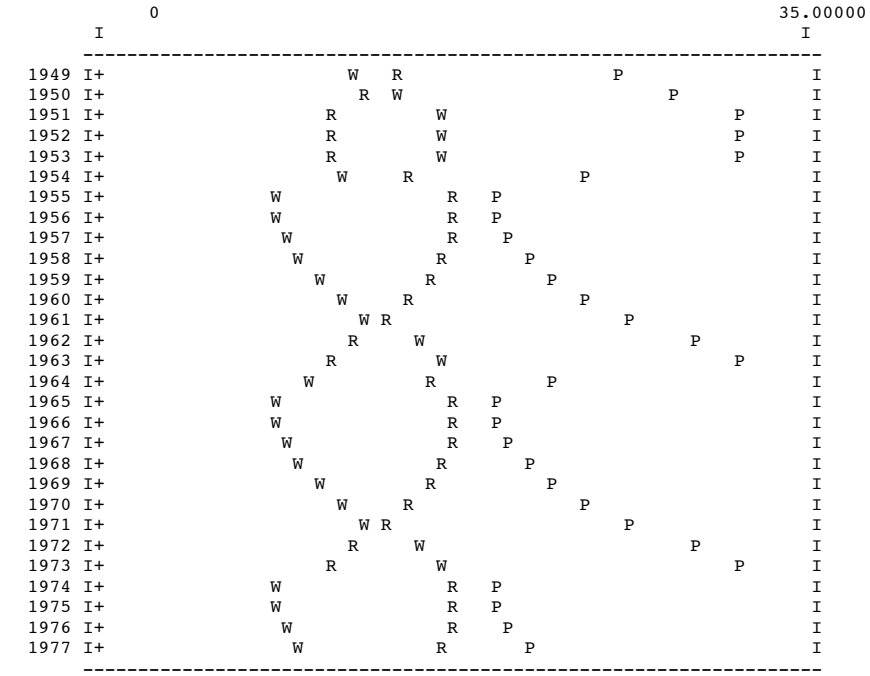


TABLE OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	39139	16147	0.587	0.012	0.012	493659.5	0	16147	0.000	0.425	4085	79.6
1950	13.6	136485	66229	0.515	0.049	0.068	540727.7	0	66229	0.001	0.249	21894	105.9
1951	12.0	973753	551569	0.434	0.410	0.127	590963.5	0.000	551569	0.005	0.052	230148	135.2
1952	12.0	13080575	7409323	0.434	5.506	2.963	553437.9	0.000	7409319	0.068	0.052	3091618	135.2
1953	12.0	175328240	99312430	0.434	73.801	74.334	232708.0	0.335	66022242	0.608	0.052	27548498	135.2
1954	15.1	1192915691	484941321	0.593	360.371	270.630	42546.0	0.831	81734965	0.913	0.440	20151202	77.4
1955	18.0	309168616	80145780	0.741	59.558	76.046	133941.5	0.407	47497350	0.660	0.797	4242003	24.2
1956	18.0	28821582	7471418	0.741	5.552	20.432	352966.0	0.000	7470928	0.104	0.797	667230	24.2
1957	17.6	6477320	1819830	0.719	1.352	3.818	398041.5	0.000	1819830	0.024	0.744	204733	32.0
1958	17.1	2711677	831314	0.693	0.618	0.154	420137.3	0.000	831314	0.011	0.682	116255	41.3
1959	16.5	1994731	673429	0.662	0.500	0.098	441219.9	0.000	673429	0.008	0.607	116487	52.5
1960	15.7	2544962	959031	0.623	0.713	0.615	465214.9	0.000	959031	0.011	0.512	206054	66.7
1961	14.7	5719480	2460895	0.570	1.829	2.739	491804.7	0.000	2460895	0.027	0.382	669104	86.0
1962	13.0	24006543	12392013	0.484	9.209	54.436	493457.7	0.000	12388861	0.121	0.174	4504890	117.0
1963	12.0	224365805	127089129	0.434	94.443	252.645	194566.0	0.426	72992640	0.672	0.052	30456972	135.2
1964	16.1	1246993579	445426207	0.643	331.007	39.680	40401.2	0.829	76255458	0.912	0.559	14785596	59.6
1965	18.0	177056489	45898353	0.741	34.108	0.705	195040.3	0.208	36331625	0.505	0.797	3244789	24.2
1966	18.0	24662145	6393167	0.741	4.751	0.000	358864.0	0.000	6393084	0.089	0.797	570968	24.2
1967	17.6	5585954	1569397	0.719	1.166	0.000	399411.8	0.000	1569397	0.021	0.744	176559	32.0
1968	17.1	2373195	727546	0.693	0.541	0.039	420705.1	0.000	727546	0.009	0.682	101743	41.3
1969	16.5	1794212	605733	0.662	0.450	0.216	441590.4	0.000	605733	0.007	0.607	104777	52.5
1970	15.7	2419639	911805	0.623	0.678	1.419	465473.3	0.000	911805	0.011	0.512	195907	66.7
1971	14.7	6266064	2696071	0.570	2.004	15.182	490517.8	0.000	2696071	0.029	0.382	733047	86.0
1972	13.0	45735850	23608533	0.484	17.544	125.520	433740.2	0.013	23302144	0.227	0.174	8473225	117.0
1973	12.0	556445025	315191139	0.434	234.226	325.500	91484.7	0.709	91830583	0.846	0.052	38317309	135.2
1974	18.0	1083058033	280761133	0.741	208.640	182.050	46431.7	0.774	63489638	0.882	0.797	5670279	24.2
1975	18.0	37497756	9720543	0.741	7.224	2.974	340688.5	0.001	9714627	0.135	0.797	867616	24.2
1976	17.6	9093583	2554881	0.719	1.899	0.088	394019.3	0.000	2554880	0.034	0.744	287427	32.0
1977	17.1	3895202	1194145	0.693	0.887	0.000	418151.9	0.000	1194145	0.015	0.682	166995	41.3

TABLE OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.012	0.012	0.000	0.000	0.000	0.000	0
1950	13.6	0.049	0.068	0.000	0.000	0.000	0.019	0
1951	12.0	0.410	0.127	0.000	0.000	0.080	-0.283	0
1952	12.0	5.506	2.963	0.000	0.000	6.547	-2.543	0
1953	12.0	73.801	74.334	0.000	0.000	6.831	0.533	0
1954	15.1	360.371	270.630	0.000	0.000	8060.362	-89.741	0
1955	18.0	59.558	76.046	0.000	0.000	8332.208	16.488	0
1956	18.0	5.552	20.432	0.000	0.000	8553.617	14.880	0
1957	17.6	1.352	3.818	0.000	0.000	8559.696	2.466	0
1958	17.1	0.618	0.154	0.000	0.000	8559.911	-0.464	0
1959	16.5	0.500	0.098	0.000	0.000	8560.073	-0.402	0
1960	15.7	0.713	0.615	0.000	0.000	8560.082	-0.098	0
1961	14.7	1.829	2.739	0.000	0.000	8560.911	0.910	0
1962	13.0	9.209	54.436	0.000	0.000	10606.411	45.227	0
1963	12.0	94.443	252.645	0.000	0.000	35634.295	158.202	0
1964	16.1	331.007	39.680	0.000	0.000	120505.623	-291.327	0
1965	18.0	34.108	0.705	0.000	0.000	121621.394	-33.403	0
1966	18.0	4.751	0.000	0.000	0.000	121643.964	-4.751	0
1967	17.6	1.166	0.000	0.000	0.000	121645.324	-1.166	0
1968	17.1	0.541	0.039	0.000	0.000	121645.576	-0.502	0
1969	16.5	0.450	0.216	0.000	0.000	121645.631	-0.234	0
1970	15.7	0.678	1.419	0.000	0.000	121646.181	0.741	0
1971	14.7	2.004	15.182	0.000	0.000	121819.853	13.178	0
1972	13.0	17.544	125.520	0.000	0.000	133478.656	107.976	0
1973	12.0	234.226	325.500	0.000	0.000	141809.589	91.274	0
1974	18.0	208.640	182.050	0.000	0.000	142516.633	-26.590	0
1975	18.0	7.224	2.974	0.000	0.000	142534.691	-4.250	0
1976	17.6	1.899	0.088	0.000	0.000	142537.970	-1.811	0
1977	17.1	0.887	0.000	0.000	0.000	142538.757	-0.887	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.012	39139	16147	0.587	16147	0.425	25.846	4085	79.6	13.075
1950	13.6	0.049	136485	66229	0.515	66229	0.249	28.732	21894	105.9	15.038
1951	12.0	0.410	973753	551569	0.434	551569	0.052	31.957	230148	135.2	17.231
1952	12.0	5.506	13080575	7409323	0.434	7409319	0.052	31.957	3091618	135.2	17.231
1953	12.0	73.801	175328240	99312430	0.434	66022242	0.052	31.957	27548498	135.2	17.231
1954	15.1	360.371	1192915691	484941321	0.593	81734965	0.440	25.605	20151202	77.4	12.911
1955	18.0	59.558	309168616	80145780	0.741	47497350	0.797	19.755	4242003	24.2	8.933
1956	18.0	5.552	28821582	7471418	0.741	7470928	0.797	19.755	667230	24.2	8.933
1957	17.6	1.352	6477320	1819830	0.719	1819830	0.744	20.618	204733	32.0	9.520
1958	17.1	0.618	2711677	831314	0.693	831314	0.682	21.635	116255	41.3	10.212
1959	16.5	0.500	1994731	673429	0.662	673429	0.607	22.868	116487	52.5	11.050
1960	15.7	0.713	2544962	959031	0.623	959031	0.512	24.426	206054	66.7	12.110
1961	14.7	1.829	5719480	2460895	0.570	2460895	0.382	26.548	669104	86.0	13.553
1962	13.0	9.209	24006543	12392013	0.484	12388861	0.174	29.961	4504890	117.0	15.873
1963	12.0	94.443	224365805	127089129	0.434	72992640	0.052	31.957	30456972	135.2	17.231
1964	16.1	331.007	1246993579	445426207	0.643	76255458	0.559	23.646	14785596	59.6	11.579
1965	18.0	34.108	177056489	45898353	0.741	36331625	0.797	19.755	3244789	24.2	8.933
1966	18.0	4.751	24662145	6393167	0.741	6393084	0.797	19.755	570968	24.2	8.933
1967	17.6	1.166	5585954	1569397	0.719	1569397	0.744	20.618	176559	32.0	9.520
1968	17.1	0.541	2373195	727546	0.693	727546	0.682	21.635	101743	41.3	10.212
1969	16.5	0.450	1794212	605733	0.662	605733	0.607	22.868	104777	52.5	11.050
1970	15.7	0.678	2419639	911805	0.623	911805	0.512	24.426	195907	66.7	12.110
1971	14.7	2.004	6266064	2696071	0.570	2696071	0.382	26.548	733047	86.0	13.553
1972	13.0	17.544	45735850	23608533	0.484	23302144	0.174	29.961	8473225	117.0	15.873
1973	12.0	234.226	556445025	315191139	0.434	91830583	0.052	31.957	38317309	135.2	17.231
1974	18.0	208.640	1083058033	280761133	0.741	63489638	0.797	19.755	5670279	24.2	8.933
1975	18.0	7.224	37497756	9720543	0.741	9714627	0.797	19.755	867616	24.2	8.933
1976	17.6	1.899	9093583	2554881	0.719	2554880	0.744	20.618	287427	32.0	9.520
1977	17.1	0.887	3895202	1194145	0.693	1194145	0.682	21.635	166995	41.3	10.212

TABLE OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.012	493659.5	88.4	0	88.4	0.000
1950	13.6	0.049	540727.7	362.4	0	362.4	0.001
1951	12.0	0.410	590963.5	3018.2	0.000	3018.2	0.005
1952	12.0	5.506	553437.9	40543.8	0.000	40543.8	0.068
1953	12.0	73.801	232708.0	543437.6	0.335	361273.7	0.608
1954	15.1	360.371	42546.0	2653598.9	0.831	447253.7	0.913
1955	18.0	59.558	133941.5	438557.7	0.407	259905.5	0.660
1956	18.0	5.552	352966.0	40883.6	0.000	40880.9	0.104
1957	17.6	1.352	398041.5	9958.1	0.000	9958.1	0.024
1958	17.1	0.618	420137.3	4549.0	0.000	4549.0	0.011
1959	16.5	0.500	441219.9	3685.0	0.000	3685.0	0.008
1960	15.7	0.713	465214.9	5247.8	0.000	5247.8	0.011
1961	14.7	1.829	491804.7	13466.0	0.000	13466.0	0.027
1962	13.0	9.209	493457.7	67809.1	0.000	67791.8	0.121
1963	12.0	94.443	194566.0	695431.7	0.426	399415.7	0.672
1964	16.1	331.007	40401.2	2437372.2	0.829	417269.9	0.912
1965	18.0	34.108	195040.3	251155.8	0.208	198806.7	0.505
1966	18.0	4.751	358864.0	34983.4	0.000	34983.0	0.089
1967	17.6	1.166	399411.8	8587.7	0.000	8587.7	0.021
1968	17.1	0.541	420705.1	3981.1	0.000	3981.1	0.009
1969	16.5	0.450	441590.4	3314.6	0.000	3314.6	0.007
1970	15.7	0.678	465473.3	4989.4	0.000	4989.4	0.011
1971	14.7	2.004	490517.8	14752.9	0.000	14752.9	0.029
1972	13.0	17.544	433740.2	129185.9	0.013	127509.3	0.227
1973	12.0	234.226	91484.7	1724725.9	0.709	502497.0	0.846
1974	18.0	208.640	46431.7	1536324.9	0.774	347415.3	0.882
1975	18.0	7.224	340688.5	53190.8	0.001	53158.4	0.135
1976	17.6	1.899	394019.3	13980.3	0.000	13980.3	0.034
1977	17.1	0.887	418151.9	6534.4	0.000	6534.4	0.015

TABLE OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.012	134	214	-80	176	30
1950	13.6	0.049	744	1155	-411	970	169
1951	12.0	0.410	8624	12866	-4242	10897	1920
1952	12.0	5.506	248048	333103	-85055	282903	49902
1953	12.0	73.801	6233193	18219683	-11986490	15480464	2730969
1954	15.1	360.371	3416517	19764515	-16347998	16791250	2961958
1955	18.0	59.558	727451	2908205	-2180754	2469719	435499
1956	18.0	5.552	42616	89280	-46664	75775	13357
1957	17.6	1.352	7271	14385	-7114	12186	2148
1958	17.1	0.618	3546	6956	-3410	5876	1035
1959	16.5	0.500	3485	6757	-3272	5706	1005
1960	15.7	0.713	6612	12395	-5783	10492	1848
1961	14.7	1.829	29370	48463	-19093	41108	7243
1962	13.0	9.209	578801	697889	-119088	592545	104491
1963	12.0	94.443	7072183	22461774	-15389591	19084421	3366710
1964	16.1	331.007	2495472	14722457	-12226985	12507757	2206304
1965	18.0	34.108	456395	1647870	-1191475	1399699	246858
1966	18.0	4.751	32177	69199	-37022	58746	10353
1967	17.6	1.166	7515	12049	-4534	10203	1797
1968	17.1	0.541	5012	6102	-1090	5152	907
1969	16.5	0.450	7487	6260	1227	5282	929
1970	15.7	0.678	28366	13007	15359	10997	1935
1971	14.7	2.004	419211	81378	337833	68894	12128
1972	13.0	17.544	3916656	2634315	1282341	2237039	394536
1973	12.0	234.226	5455646	33303444	-27847798	28299341	4992713
1974	18.0	208.640	1256651	5795758	-4539107	4921708	867827
1975	18.0	7.224	139138	150592	-11454	127578	22474
1976	17.6	1.899	18747	22987	-4240	19482	3431
1977	17.1	0.887	7929	10740	-2811	9087	1601

TABLE OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	4535	10662	308826
0	33765	78754	2200631
0	496601	1165998	29453327
0	12924939	33537406	376875143
0	707499552	842760904	1949644742
0	430151464	241798220	481911089
0	20159820	17580503	49885748
0	617840	1030679	14131587
0	131662	233015	6114544
0	81599	146548	4522767
0	100783	183353	5773957
0	235888	443831	12944467
0	1193167	2621416	53573677
0	23461224	69440287	455760569
0	871687579	949878690	1969113771
0	252479904	141407612	273050463
0	11428882	11029956	46699786
0	480916	836491	12239246
0	110477	268506	5286726
0	71907	237810	3962126
0	94317	467237	5196714
0	253606	2355573	12312182
0	2238631	48475661	58583914
0	91989214	519586147	782953706
0	1281028387	692116007	1843132198
0	44283556	42484497	45291151
0	1039178	3363903	17922576
0	210047	597633	8520350
0	126553	327144	6473945

AVERAGE CYCLE FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 360.371   331.007   234.226
MEAN OF MAXIMA: 308.535 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.500   0.450
MEAN OF MINIMA: 0.475 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.012
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 360.371
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 360.359
DIFFERENCE BETWEEN MEANS OF EXTREMES: 308.059 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
A	0.404	0.972	5.573	61.929	308.535	100.769	5.842	1.472	0.682
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	1491886	3037624	14451060	148476631	998784765	523094379	30327161	7052285	2993358
1	543664	1308089	7499135	83336697	415186222	135601755	7861709	1981369	917668
3	543664	1308089	7498083	54105675	83273668	49106204	7859546	1981369	917668
W	110908	365053	2776518	22159565	24418035	4385690	701938	222906	128331

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 12235.297
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 360.371   331.007   234.226
MEAN OF MAXIMA: 308.535 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.500   0.450
MEAN OF MINIMA: 0.475 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.012
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 360.371
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 360.359
DIFFERENCE BETWEEN MEANS OF EXTREMES: 308.059 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	14.4	18.0	18.0	17.6	17.1
A	0.404	0.972	5.573	61.929	308.535	100.769	5.842	1.472	0.682
M	0.600	0.542	0.496	0.450	0.557	0.741	0.741	0.719	0.693
L	0.456	0.315	0.202	0.092	0.350	0.797	0.797	0.744	0.682
S	0.000	0.000	0.000	0.258	0.790	0.463	0.000	0.000	0.000
P	25.342	27.644	29.489	31.291	27.069	19.755	19.755	20.618	21.635
W	12.732	14.298	15.552	16.778	13.907	8.933	8.933	9.520	10.212
4	75.0	96.0	112.7	129.2	90.7	24.2	24.2	32.0	41.3
D	0.006	0.014	0.073	0.503	0.890	0.682	0.109	0.027	0.012

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 12235.297
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 360.371   331.007   234.226
MEAN OF MAXIMA: 308.535 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.500   0.450
MEAN OF MINIMA: 0.475 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.012
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 360.371
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 360.359
DIFFERENCE BETWEEN MEANS OF EXTREMES: 308.059 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	14.4	18.0	18.0	17.6	17.1
A	0.404	0.972	5.573	61.929	308.535	100.769	5.842	1.472	0.682
I	4947	22120	415353	5740677	3789211	813499	71310	11177	5495
O	6603	24778	370790	14438590	22596805	3450611	103023	16473	7932
E	-1655	-2658	44563	-8697913	-18807593	-2637112	-31713	-5296	-2437
U	121323	647791	12874931	557058781	654553251	25290752	712644	150728	93353
H	6780604	31779728	297073208	1567237406	866031250	47292228	14764469	6640540	4986279
G	329940	2047662	50484451	770741913	358440613	23698318	1743691	366384	237167

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 12235.297
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 360.371   331.007   234.226
MEAN OF MAXIMA: 308.535 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.500   0.450
MEAN OF MINIMA: 0.475 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.012
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 360.371
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 360.359
DIFFERENCE BETWEEN MEANS OF EXTREMES: 308.059 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	14.4	18.0	18.0	17.6	17.1
A	0.404	0.972	5.573	61.929	308.535	100.769	5.842	1.472	0.682
D	0.006	0.014	0.073	0.503	0.890	0.682	0.109	0.027	0.012
F	482511.0	516080.5	512471.1	287004.7	58144.0	125137.8	350839.5	397157.5	419664.8
*	2974.9	7157.9	41035.3	456018.4	2271899.0	742012.8	43019.3	10842.1	5021.5
E	2974.9	7157.9	41029.5	296066.3	455673.5	268709.2	43007.4	10842.1	5021.5

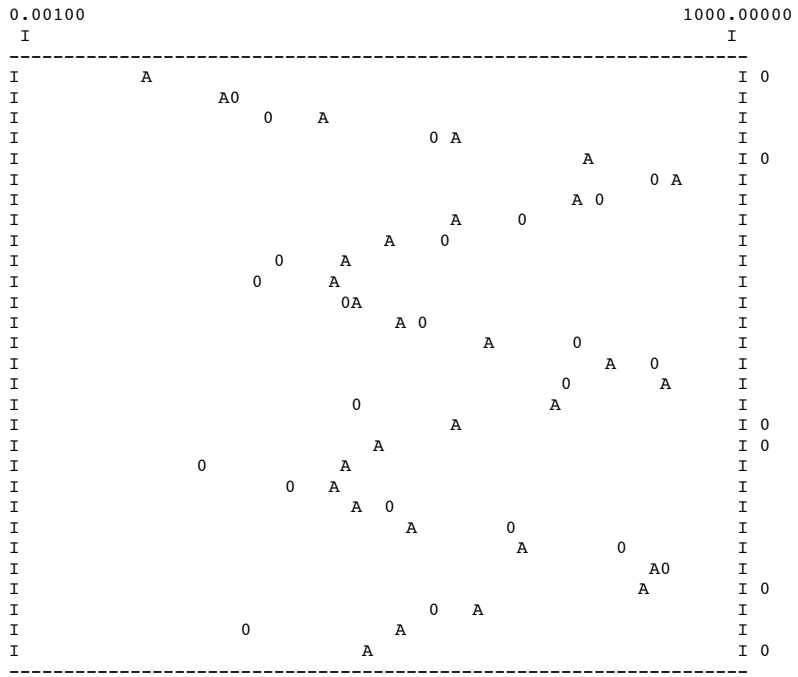
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 12235.297
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

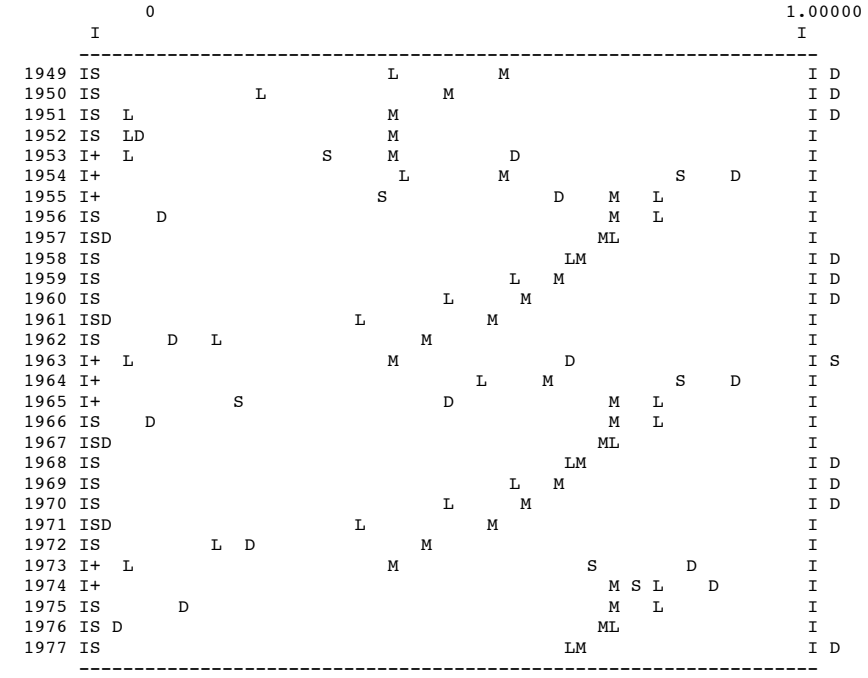


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

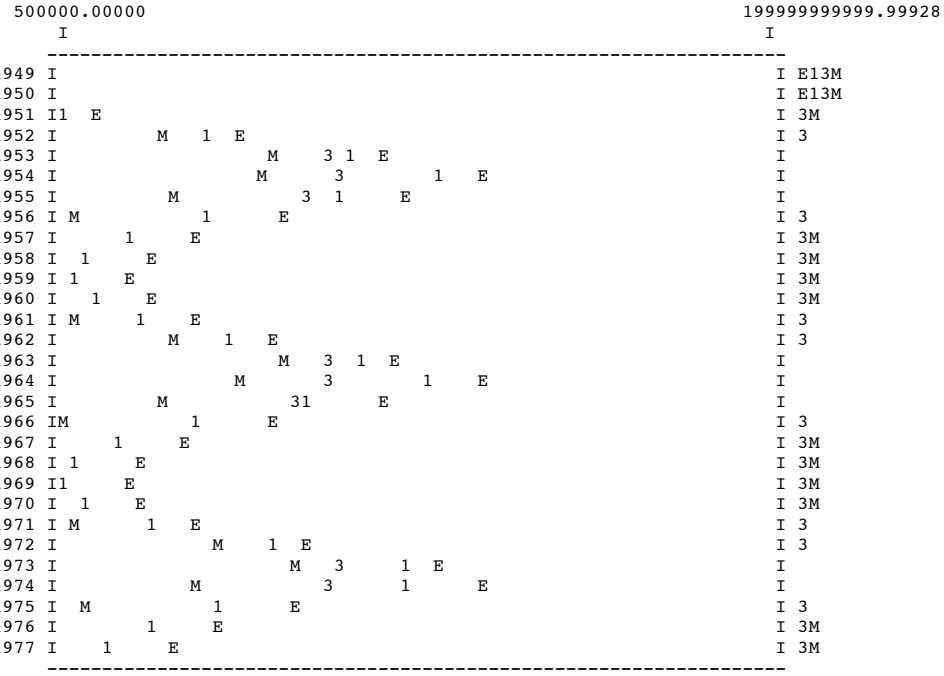


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

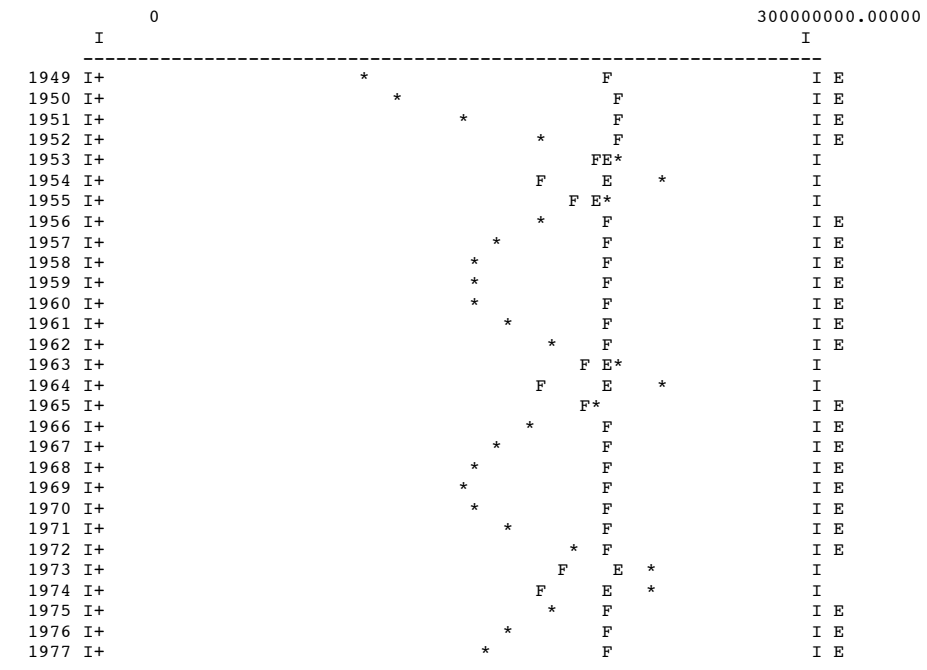


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 88.356384 MAX = 2653598.908512



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 5:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

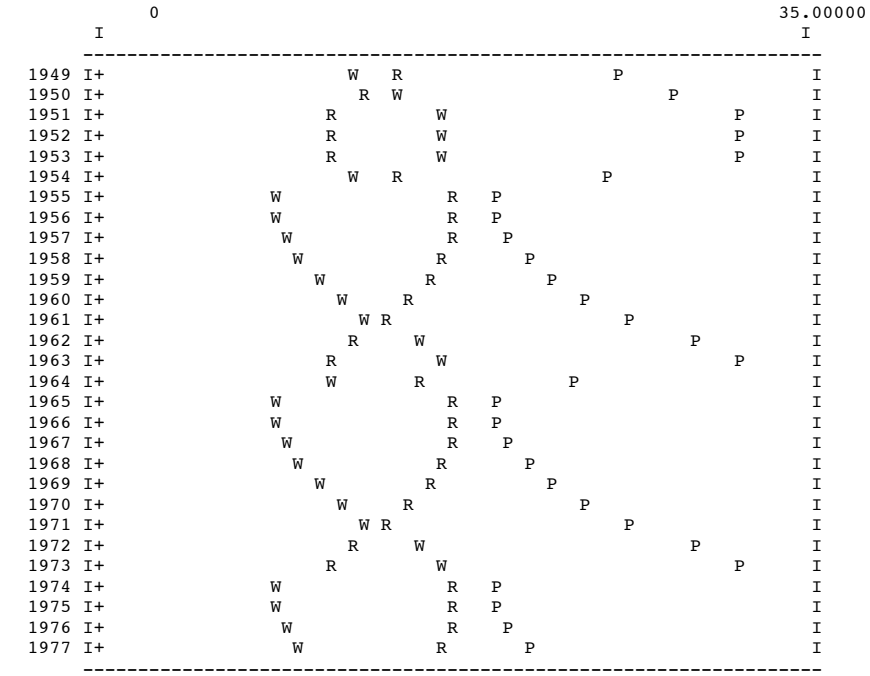


TABLE OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	39334	16228	0.587	0.013	0.013	457948.7	0	16228	0.000	0.425	4105	79.6
1950	13.6	134479	65255	0.515	0.052	0.132	501598.6	0	65255	0.001	0.249	21572	105.9
1951	12.0	940695	532844	0.434	0.427	0.339	548106.2	0.000	532844	0.005	0.052	222334	135.2
1952	12.0	12368112	7005758	0.434	5.612	3.176	512686.4	0.000	7005753	0.070	0.052	2923226	135.2
1953	12.0	157683780	89317952	0.434	71.549	122.211	220564.4	0.324	60390617	0.600	0.052	25198641	135.2
1954	15.0	941347771	388824236	0.587	311.472	163.340	46002.8	0.806	75350926	0.900	0.424	19102758	79.8
1955	18.0	259679120	67316618	0.741	53.925	99.106	133622.3	0.371	42350071	0.634	0.797	3782298	24.2
1956	18.0	23764542	6160482	0.741	4.935	19.446	331652.4	0.000	6160361	0.092	0.797	550183	24.2
1957	17.6	5266337	1479600	0.719	1.185	4.538	370394.6	0.000	1479600	0.021	0.744	166457	32.0
1958	17.1	2183474	669384	0.693	0.536	0.359	390307.9	0.000	669384	0.009	0.682	93610	41.3
1959	16.5	1591801	537398	0.662	0.430	0.029	409786.5	0.000	537398	0.007	0.607	92957	52.5
1960	15.7	2012896	758530	0.623	0.608	0.827	432285.8	0.000	758530	0.010	0.512	162975	66.7
1961	14.7	4480757	1927915	0.570	1.544	1.199	458177.4	0.000	1927915	0.023	0.382	524189	86.0
1962	13.0	18536139	9568228	0.484	7.665	51.019	468302.2	0.000	9567768	0.101	0.174	3479072	117.0
1963	12.0	165127873	93534563	0.434	74.927	217.460	213606.5	0.341	61662168	0.612	0.052	25729210	135.2
1964	15.2	986952227	398089716	0.597	318.894	88.365	43898.9	0.812	74664317	0.903	0.447	18155704	76.3
1965	18.0	213427835	55326897	0.741	44.320	2.075	153180.0	0.299	38775944	0.581	0.797	3463091	24.2
1966	18.0	21658852	5614624	0.741	4.498	0.000	334638.9	0.000	5614585	0.084	0.797	501440	24.2
1967	17.6	4810477	1351524	0.719	1.083	0.000	371095.4	0.000	1351524	0.020	0.744	152048	32.0
1968	17.1	2005844	614928	0.693	0.493	0.298	390605.9	0.000	614928	0.009	0.682	85994	41.3
1969	16.5	1479479	499478	0.662	0.400	0.253	409994.0	0.000	499478	0.007	0.607	86397	52.5
1970	15.7	1919879	723478	0.623	0.580	1.550	432477.6	0.000	723478	0.009	0.512	155444	66.7
1971	14.7	4607980	1982655	0.570	1.588	16.642	457877.8	0.000	1982655	0.023	0.382	539073	86.0
1972	13.0	27014512	13944706	0.484	11.171	396.150	444434.7	0.001	13929532	0.146	0.174	5065116	117.0
1973	12.0	305732670	173178345	0.434	138.726	214.400	133186.8	0.559	76358745	0.758	0.052	31861516	135.2
1974	17.4	971216575	282879562	0.709	226.604	82.420	44083.0	0.780	62251108	0.885	0.719	7688409	35.7
1975	18.0	43790466	11351802	0.741	9.093	0.309	303418.1	0.003	11320134	0.170	0.797	1011004	24.2
1976	17.6	9053104	2543508	0.719	2.038	0.000	364572.9	0.000	2543507	0.037	0.744	286148	32.0
1977	17.1	3704752	1135759	0.693	0.910	0.000	387755.9	0.000	1135759	0.016	0.682	158830	41.3

TABLE OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.013	0.013	0.000	0.000	0.000	0.000	0
1950	13.6	0.052	0.132	0.000	0.000	0.006	0.080	0
1951	12.0	0.427	0.339	0.000	0.000	0.014	-0.088	0
1952	12.0	5.612	3.176	0.000	0.000	5.948	-2.436	0
1953	12.0	71.549	122.211	0.000	0.000	2572.577	50.662	0
1954	15.0	311.472	163.340	0.000	0.000	24515.608	-148.132	0
1955	18.0	53.925	99.106	0.000	0.000	26556.958	45.181	0
1956	18.0	4.935	19.446	0.000	0.000	26767.529	14.511	0
1957	17.6	1.185	4.538	0.000	0.000	26778.770	3.353	0
1958	17.1	0.536	0.359	0.000	0.000	26778.802	-0.177	0
1959	16.5	0.430	0.029	0.000	0.000	26778.963	-0.401	0
1960	15.7	0.608	0.827	0.000	0.000	26779.011	0.219	0
1961	14.7	1.544	1.199	0.000	0.000	26779.130	-0.345	0
1962	13.0	7.665	51.019	0.000	0.000	28658.723	43.354	0
1963	12.0	74.927	217.460	0.000	0.000	48974.419	142.533	0
1964	15.2	318.894	88.365	0.000	0.000	102118.045	-230.529	0
1965	18.0	44.320	2.075	0.000	0.000	103902.702	-42.245	0
1966	18.0	4.498	0.000	0.000	0.000	103922.930	-4.498	0
1967	17.6	1.083	0.000	0.000	0.000	103924.102	-1.083	0
1968	17.1	0.493	0.298	0.000	0.000	103924.140	-0.195	0
1969	16.5	0.400	0.253	0.000	0.000	103924.162	-0.147	0
1970	15.7	0.580	1.550	0.000	0.000	103925.103	0.970	0
1971	14.7	1.588	16.642	0.000	0.000	104151.720	15.054	0
1972	13.0	11.171	396.150	0.000	0.000	252360.892	384.979	0
1973	12.0	138.726	214.400	0.000	0.000	258087.392	75.674	0
1974	17.4	226.604	82.420	0.000	0.000	278876.329	-144.184	0
1975	18.0	9.093	0.309	0.000	0.000	278953.496	-8.784	0
1976	17.6	2.038	0.000	0.000	0.000	278957.647	-2.037	0
1977	17.1	0.910	0.000	0.000	0.000	278958.474	-0.910	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.013	39334	16228	0.587	16228	0.425	25.846	4105	79.6	13.075
1950	13.6	0.052	134479	65255	0.515	65255	0.249	28.732	21572	105.9	15.038
1951	12.0	0.427	940695	532844	0.434	532844	0.052	31.957	222334	135.2	17.231
1952	12.0	5.612	12368112	7005758	0.434	7005753	0.052	31.957	2923226	135.2	17.231
1953	12.0	71.549	157683780	89317952	0.434	60390617	0.052	31.957	25198641	135.2	17.231
1954	15.0	311.472	941347771	388824236	0.587	75350926	0.424	25.864	19102758	79.8	13.088
1955	18.0	53.925	259679120	67316618	0.741	42350071	0.797	19.755	3782298	24.2	8.933
1956	18.0	4.935	23764542	6160482	0.741	6160361	0.797	19.755	550183	24.2	8.933
1957	17.6	1.185	5266337	1479600	0.719	1479600	0.744	20.618	166457	32.0	9.520
1958	17.1	0.536	2183474	669384	0.693	669384	0.682	21.635	93610	41.3	10.212
1959	16.5	0.430	1591801	537398	0.662	537398	0.607	22.868	92957	52.5	11.050
1960	15.7	0.608	2012896	758530	0.623	758530	0.512	24.426	162975	66.7	12.110
1961	14.7	1.544	4480757	1927915	0.570	1927915	0.382	26.548	524189	86.0	13.553
1962	13.0	7.665	18536139	9568228	0.484	9567768	0.174	29.961	3479072	117.0	15.873
1963	12.0	74.927	165127873	93534563	0.434	61662168	0.052	31.957	25729210	135.2	17.231
1964	15.2	318.894	986952227	398089716	0.597	74664317	0.447	25.479	18155704	76.3	12.826
1965	18.0	44.320	213427835	55326897	0.741	38775944	0.797	19.755	3463091	24.2	8.933
1966	18.0	4.498	21658852	5614624	0.741	5614585	0.797	19.755	501440	24.2	8.933
1967	17.6	1.083	4810477	1351524	0.719	1351524	0.744	20.618	152048	32.0	9.520
1968	17.1	0.493	2005844	614928	0.693	614928	0.682	21.635	85994	41.3	10.212
1969	16.5	0.400	1479479	499478	0.662	499478	0.607	22.868	86397	52.5	11.050
1970	15.7	0.580	1919879	723478	0.623	723478	0.512	24.426	155444	66.7	12.110
1971	14.7	1.588	4607980	1982655	0.570	1982655	0.382	26.548	539073	86.0	13.553
1972	13.0	11.171	27014512	13944706	0.484	13929532	0.174	29.961	5065116	117.0	15.873
1973	12.0	138.726	305732670	173178345	0.434	76358745	0.052	31.957	31861516	135.2	17.231
1974	17.4	226.604	971216575	282879562	0.709	62251108	0.719	21.027	7688409	35.7	9.798
1975	18.0	9.093	43790466	11351802	0.741	11320134	0.797	19.755	1011004	24.2	8.933
1976	17.6	2.038	9053104	2543508	0.719	2543507	0.744	20.618	286148	32.0	9.520
1977	17.1	0.910	3704752	1135759	0.693	1135759	0.682	21.635	158830	41.3	10.212

TABLE OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.013	457948.7	88.8	0	88.8	0.000
1950	13.6	0.052	501598.6	357.1	0	357.1	0.001
1951	12.0	0.427	548106.2	2915.7	0.000	2915.7	0.005
1952	12.0	5.612	512686.4	38335.5	0.000	38335.5	0.070
1953	12.0	71.549	220564.4	488747.8	0.324	330457.5	0.600
1954	15.0	311.472	46002.8	2127646.2	0.806	412320.3	0.900
1955	18.0	53.925	133622.3	368356.5	0.371	231739.6	0.634
1956	18.0	4.935	331652.4	33710.2	0.000	33709.5	0.092
1957	17.6	1.185	370394.6	8096.4	0.000	8096.4	0.021
1958	17.1	0.536	390307.9	3662.9	0.000	3662.9	0.009
1959	16.5	0.430	409786.5	2940.6	0.000	2940.6	0.007
1960	15.7	0.608	432285.8	4150.7	0.000	4150.7	0.010
1961	14.7	1.544	458177.4	10549.6	0.000	10549.6	0.023
1962	13.0	7.665	468302.2	52357.3	0.000	52354.8	0.101
1963	12.0	74.927	213606.5	511821.1	0.341	337415.4	0.612
1964	15.2	318.894	43898.9	2178346.9	0.812	408563.1	0.903
1965	18.0	44.320	153180.0	302748.8	0.299	212182.0	0.581
1966	18.0	4.498	334638.9	30723.2	0.000	30723.0	0.084
1967	17.6	1.083	371095.4	7395.5	0.000	7395.5	0.020
1968	17.1	0.493	390605.9	3364.9	0.000	3364.9	0.009
1969	16.5	0.400	409994.0	2733.1	0.000	2733.1	0.007
1970	15.7	0.580	432477.6	3958.9	0.000	3958.9	0.009
1971	14.7	1.588	457877.8	10849.1	0.000	10849.1	0.023
1972	13.0	11.171	444434.7	76305.4	0.001	76222.4	0.146
1973	12.0	138.726	133186.8	947631.9	0.559	417835.1	0.758
1974	17.4	226.604	44083.0	1547917.0	0.780	340638.1	0.885
1975	18.0	9.093	303418.1	62117.1	0.003	61943.8	0.170
1976	17.6	2.038	364572.9	13918.1	0.000	13918.1	0.037
1977	17.1	0.910	387755.9	6214.9	0.000	6214.9	0.016

TABLE OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.013	56	210	-154	175	30
1950	13.6	0.052	319	1112	-793	937	164
1951	12.0	0.427	3733	12190	-8457	10344	1823
1952	12.0	5.612	97919	303550	-205631	257922	45507
1953	12.0	71.549	3057526	14786904	-11729378	12566246	2217111
1954	15.0	311.472	1834027	17004835	-15170808	14450629	2549470
1955	18.0	53.925	407508	2321919	-1914411	1972793	347985
1956	18.0	4.935	23565	67208	-43643	57080	10065
1957	17.6	1.185	4016	11181	-7165	9487	1673
1958	17.1	0.536	1953	5435	-3482	4607	812
1959	16.5	0.430	1910	5246	-3336	4445	784
1960	15.7	0.608	3567	9494	-5927	8050	1419
1961	14.7	1.544	14758	35767	-21009	30371	5354
1962	13.0	7.665	243470	458718	-215248	389665	68733
1963	12.0	74.927	3791133	15958509	-12167376	13561462	2392645
1964	15.2	318.894	1292885	15446571	-14153686	13126999	2316022
1965	18.0	44.320	236126	1833714	-1597588	1558243	274913
1966	18.0	4.498	18655	57784	-39129	49086	8656
1967	17.6	1.083	3982	10027	-6045	8503	1499
1968	17.1	0.493	2452	4986	-2534	4221	744
1969	16.5	0.400	3407	4940	-1533	4184	735
1970	15.7	0.580	12342	9529	2813	8075	1422
1971	14.7	1.588	174005	47708	126297	40446	7125
1972	13.0	11.171	1640660	1052926	587734	894079	157676
1973	12.0	138.726	3760100	24158517	-20398417	20531130	3622486
1974	17.4	226.604	540013	6356830	-5816817	5401478	952854
1975	18.0	9.093	38623	182122	-143499	154683	27282
1976	17.6	2.038	6491	22434	-15943	19051	3358
1977	17.1	0.910	3068	9960	-6892	8450	1489

TABLE OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	9946	4456	310338
0	71770	33766	2168237
0	1026606	504717	28446857
0	25631840	13239158	355870816
0	1248843721	413393826	1790135602
0	833865757	132339936	475523174
0	35031270	9848431	45780179
0	1013081	569677	11757893
0	222855	128626	4982503
0	139551	80644	3645482
0	171283	100346	4611491
0	393646	238424	10250240
0	1917294	1290080	42099760
0	33527816	28825011	357710273
0	1347399297	511231194	1799050237
0	705663669	70944457	428652536
0	27677605	5706605	44992955
0	872701	474075	10786406
0	200178	137765	4557563
0	127981	112445	3350755
0	161265	206509	4287592
0	400537	1006361	9780110
0	2755385	19958688	43277530
0	78939710	213843180	501823183
0	2030117604	490633957	1782813084
0	135567967	14074507	88431267
0	2746316	933802	20257921
0	447796	207923	8464251
0	255710	126692	6155031

AVERAGE CYCLE FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1974
SIMULATED MAXIMAL LARVAL DENSITIES: 311.472   318.894   226.604
MEAN OF MAXIMA: 285.657 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.430   0.400
MEAN OF MINIMA: 0.415 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.013
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 318.894
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 318.881
DIFFERENCE BETWEEN MEANS OF EXTREMES: 285.241 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.413	1.186	8.149	95.067	285.657	35.779	3.823	1.059	0.514
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	1355751	3343144	19306254	209514774	966505524	172299140	18158832	4593855	2094659
1	515754	1481138	10172897	118676953	356597838	44665105	4772871	1322294	642156
3	515754	1481138	10167684	66137176	70755450	30815383	4772817	1322294	642156
W	113330	428532	3822471	27596455	14982290	2752131	445923	159111	89802

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8034.614
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 311.472 318.894 226.604
MEAN OF MAXIMA: 285.657 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.430 0.400
MEAN OF MINIMA: 0.415 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.013
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 318.894
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 318.881
DIFFERENCE BETWEEN MEANS OF EXTREMES: 285.241 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.8	18.0	17.9	17.4	17.1
A	0.413	1.186	8.149	95.067	285.657	35.779	3.823	1.059	0.514
M	0.587	0.524	0.467	0.434	0.631	0.741	0.734	0.711	0.693
L	0.424	0.272	0.133	0.052	0.530	0.797	0.779	0.724	0.682
S	0.000	0.000	0.000	0.408	0.800	0.224	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	24.124	19.755	20.042	20.957	21.635
W	13.086	14.779	16.326	17.231	11.904	8.933	9.129	9.751	10.212
4	79.7	102.4	123.1	135.2	63.9	24.2	26.8	35.1	41.3
D	0.006	0.017	0.106	0.657	0.896	0.462	0.071	0.019	0.009

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8034.614
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
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PERIODICITY FALSE

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DIFFERENCE BETWEEN MEANS OF EXTREMES: 285.241 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.8	18.0	17.9	17.4	17.1
A	0.413	1.186	8.149	95.067	285.657	35.779	3.823	1.059	0.514
I	5409	64165	660683	3536253	1222308	227419	16237	3688	2202
O	6711	31888	605064	18301310	12936078	1445918	49142	10389	5210
E	-1302	32277	55618	-14765057	-11713770	-1218499	-32905	-6700	-3008
U	288651	1899761	46033122	1542120207	558365797	21818397	777859	226247	133766
H	7399529	37941382	405134757	1790666307	330868992	37010351	10336183	5231699	3498118
G	426183	7251161	85302449	471752992	72452966	5496279	417225	131027	96544

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8034.614
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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MEAN OF MAXIMA: 285.657 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.430   0.400
MEAN OF MINIMA: 0.415 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.013
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 318.894
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 318.881
DIFFERENCE BETWEEN MEANS OF EXTREMES: 285.241 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.8	18.0	17.9	17.4	17.1
A	0.413	1.186	8.149	95.067	285.657	35.779	3.823	1.059	0.514
D	0.006	0.017	0.106	0.657	0.896	0.462	0.071	0.019	0.009
F	455454.0	488053.8	475141.1	189119.3	44661.6	196740.1	343621.4	376415.3	390456.9
*	2822.2	8104.8	55666.1	649400.3	1951303.4	244407.5	26117.2	7235.6	3513.9
E	2822.2	8104.8	55637.6	361902.6	387173.8	168621.8	26116.9	7235.6	3513.9

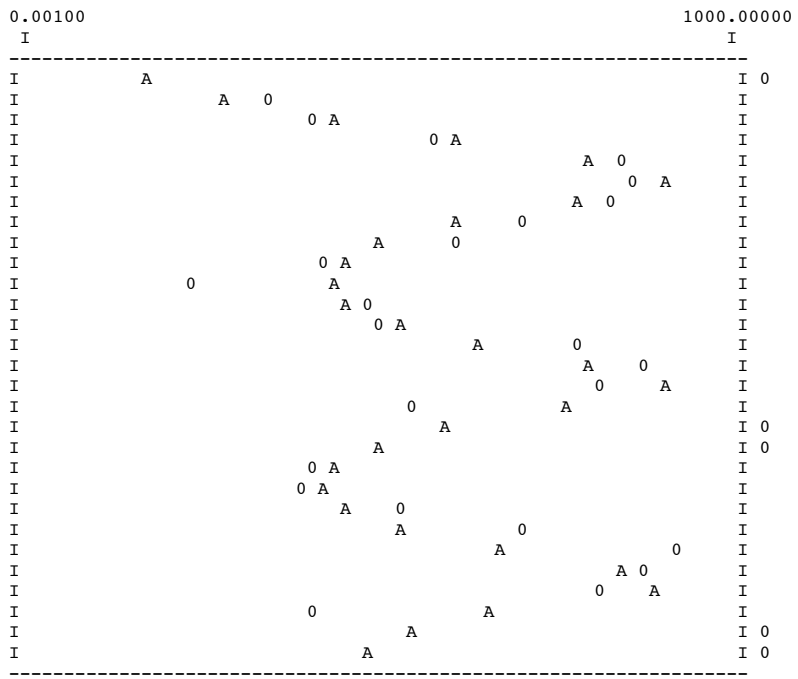
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8034.614
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

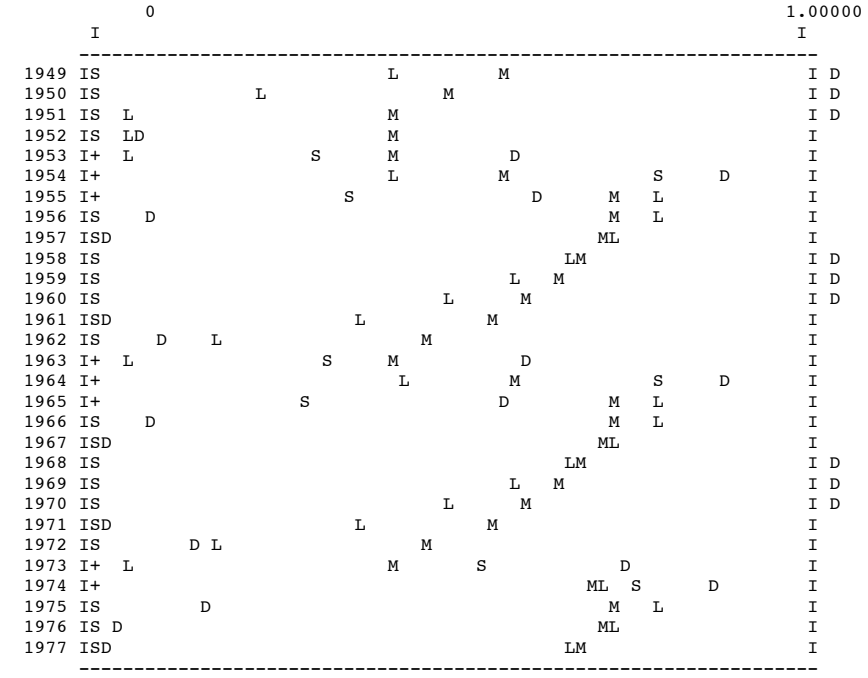


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

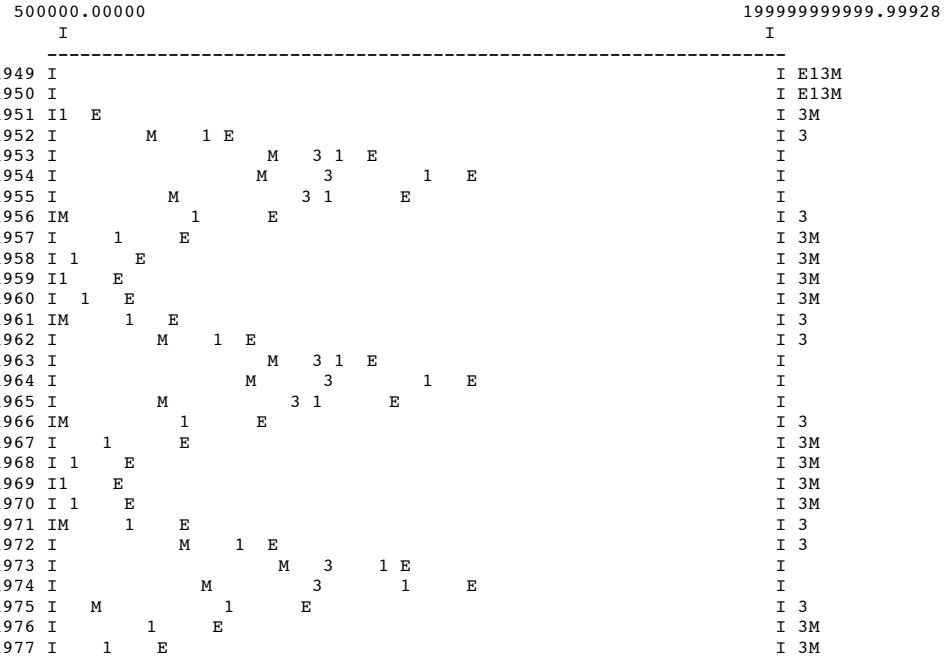


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

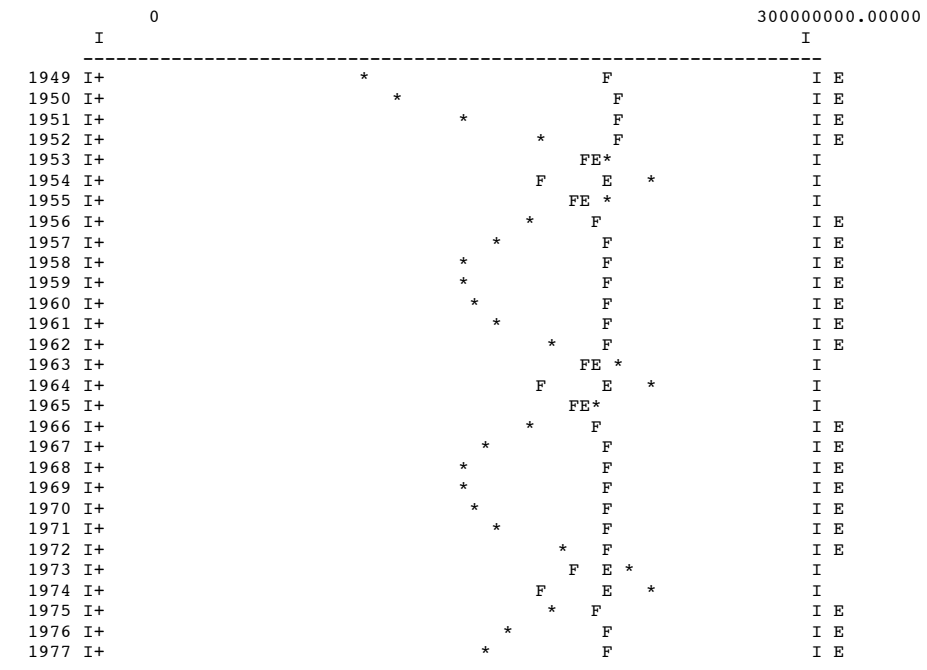


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 88.799616 MAX = 2178346.925952



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 6:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

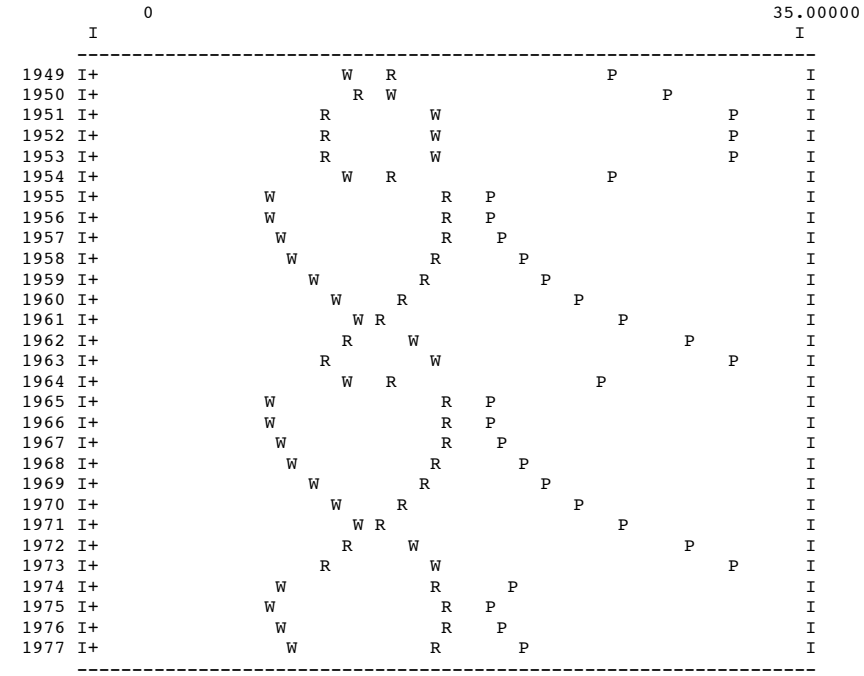


TABLE OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	38670	15954	0.587	0.016	0.016	365793.3	0	15954	0.000	0.425	4036	79.6
1950	13.6	142095	68951	0.515	0.069	0.139	400585.2	0	68951	0.001	0.249	22794	105.9
1951	12.0	1065015	603264	0.434	0.605	0.341	436855.5	0.000	603264	0.007	0.052	251718	135.2
1952	12.0	15051340	8525638	0.434	8.550	3.579	393508.0	0.000	8524956	0.106	0.052	3557130	135.2
1953	12.0	223455414	126573450	0.434	126.932	118.153	114400.2	0.530	59531506	0.740	0.052	24840168	135.2
1954	17.1	1261428451	385038896	0.695	386.128	184.172	22286.4	0.862	53321739	0.929	0.685	7381191	40.8
1955	18.0	163938719	42497834	0.741	42.618	92.076	125596.1	0.285	30382904	0.570	0.797	2713506	24.2
1956	18.0	25229145	6540151	0.741	6.559	19.898	256073.9	0.000	6538272	0.123	0.797	583935	24.2
1957	17.6	5868134	1648677	0.719	1.653	4.308	293317.2	0.000	1648677	0.030	0.744	185478	32.0
1958	17.1	2531506	776079	0.693	0.778	0.318	310457.4	0.000	776079	0.013	0.682	108530	41.3
1959	16.5	1927318	650670	0.662	0.653	0.027	326126.2	0.000	650670	0.011	0.607	112550	52.5
1960	15.7	2578838	971797	0.623	0.975	0.780	343308.0	0.000	971797	0.015	0.512	208797	66.7
1961	14.7	6351493	2732829	0.570	2.741	1.155	359465.3	0.000	2732828	0.040	0.382	743041	86.0
1962	13.0	37532225	19373878	0.484	19.429	46.457	311984.2	0.020	18990662	0.250	0.174	6905466	117.0
1963	12.0	434255613	245978516	0.434	246.674	216.673	64725.0	0.721	68609570	0.853	0.052	28628089	135.2
1964	18.0	1149871062	298081075	0.741	298.924	91.181	24620.3	0.836	48836076	0.916	0.797	4361565	24.2
1965	18.0	90588217	23483183	0.741	23.550	2.102	176610.8	0.103	21060034	0.395	0.797	1880878	24.2
1966	17.6	18913102	5313717	0.719	5.329	0.000	273263.0	0.000	5313554	0.096	0.744	597782	32.0
1967	17.1	7781270	2385491	0.693	2.392	0.000	301650.7	0.000	2385490	0.041	0.682	333599	41.3
1968	16.5	5662914	1911822	0.662	1.917	0.256	319225.2	0.000	1911821	0.032	0.607	330699	52.5
1969	15.7	7143875	2692064	0.623	2.700	0.391	333894.7	0.000	2692063	0.042	0.512	578407	66.7
1970	14.7	15745577	6774780	0.570	6.794	1.272	337349.3	0.000	6774501	0.099	0.382	1841950	86.0
1971	13.0	62558719	32292384	0.484	32.384	26.821	255987.7	0.095	29223940	0.384	0.174	10626534	117.0
1972	12.0	411529285	233105479	0.434	233.765	171.161	67911.9	0.708	68027179	0.846	0.052	28385080	135.2
1973	18.0	982668444	254737140	0.741	255.458	108.081	28527.8	0.811	48121980	0.902	0.797	4297789	24.2
1974	18.0	334940224	86826554	0.741	87.072	105.371	73789.2	0.541	39850532	0.747	0.797	3559063	24.2
1975	18.0	40157737	10410090	0.741	10.440	0.850	235226.5	0.006	10348092	0.194	0.797	924191	24.2
1976	17.6	9389402	2637992	0.719	2.645	0.097	287903.7	0.000	2637991	0.048	0.744	296777	32.0
1977	17.1	4073040	1248665	0.693	1.252	0.000	307871.4	0.000	1248665	0.022	0.682	174619	41.3

TABLE OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.016	0.016	0.000	0.000	0.000	0.000	0
1950	13.6	0.069	0.139	0.000	0.000	0.005	0.070	0
1951	12.0	0.605	0.341	0.000	0.000	0.075	-0.264	0
1952	12.0	8.550	3.579	0.000	0.000	24.783	-4.971	0
1953	12.0	126.932	118.153	0.000	0.000	101.846	-8.779	0
1954	17.1	386.128	184.172	0.000	0.000	40888.201	-201.956	0
1955	18.0	42.618	92.076	0.000	0.000	43334.287	49.458	0
1956	18.0	6.559	19.898	0.000	0.000	43512.225	13.339	0
1957	17.6	1.653	4.308	0.000	0.000	43519.272	2.655	0
1958	17.1	0.778	0.318	0.000	0.000	43519.484	-0.460	0
1959	16.5	0.653	0.027	0.000	0.000	43519.876	-0.626	0
1960	15.7	0.975	0.780	0.000	0.000	43519.913	-0.195	0
1961	14.7	2.741	1.155	0.000	0.000	43522.427	-1.586	0
1962	13.0	19.429	46.457	0.000	0.000	44252.957	27.028	0
1963	12.0	246.674	216.673	0.000	0.000	45153.046	-30.001	0
1964	18.0	298.924	91.181	0.000	0.000	88310.391	-207.743	0
1965	18.0	23.550	2.102	0.000	0.000	88770.392	-21.448	0
1966	17.6	5.329	0.000	0.000	0.000	88798.786	-5.329	0
1967	17.1	2.392	0.000	0.000	0.000	88804.509	-2.392	0
1968	16.5	1.917	0.256	0.000	0.000	88807.268	-1.661	0
1969	15.7	2.700	0.391	0.000	0.000	88812.598	-2.309	0
1970	14.7	6.794	1.272	0.000	0.000	88843.090	-5.522	0
1971	13.0	32.384	26.821	0.000	0.000	88874.034	-5.563	0
1972	12.0	233.765	171.161	0.000	0.000	92793.298	-62.604	0
1973	18.0	255.458	108.081	0.000	0.000	114513.246	-147.377	0
1974	18.0	87.072	105.371	0.000	0.000	114848.091	18.299	0
1975	18.0	10.440	0.850	0.000	0.000	114940.050	-9.590	0
1976	17.6	2.645	0.097	0.000	0.000	114946.545	-2.548	0
1977	17.1	1.252	0.000	0.000	0.000	114948.113	-1.252	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.016	38670	15954	0.587	15954	0.425	25.846	4036	79.6	13.075
1950	13.6	0.069	142095	68951	0.515	68951	0.249	28.732	22794	105.9	15.038
1951	12.0	0.605	1065015	603264	0.434	603264	0.052	31.957	251718	135.2	17.231
1952	12.0	8.550	15051340	8525638	0.434	8524956	0.052	31.957	3557130	135.2	17.231
1953	12.0	126.932	223455414	126573450	0.434	59531506	0.052	31.957	24840168	135.2	17.231
1954	17.1	386.128	1261428451	385038896	0.695	53321739	0.685	21.582	7381191	40.8	10.176
1955	18.0	42.618	163938719	42497834	0.741	30382904	0.797	19.755	2713506	24.2	8.933
1956	18.0	6.559	25229145	6540151	0.741	6538272	0.797	19.755	583935	24.2	8.933
1957	17.6	1.653	5868134	1648677	0.719	1648677	0.744	20.618	185478	32.0	9.520
1958	17.1	0.778	2531506	776079	0.693	776079	0.682	21.635	108530	41.3	10.212
1959	16.5	0.653	1927318	650670	0.662	650670	0.607	22.868	112550	52.5	11.050
1960	15.7	0.975	2578838	971797	0.623	971797	0.512	24.426	208797	66.7	12.110
1961	14.7	2.741	6351493	2732829	0.570	2732828	0.382	26.548	743041	86.0	13.553
1962	13.0	19.429	37532225	19373878	0.484	18990662	0.174	29.961	6905466	117.0	15.873
1963	12.0	246.674	434255613	245978516	0.434	68609570	0.052	31.957	28628089	135.2	17.231
1964	18.0	298.924	1149871062	298081075	0.741	48836076	0.797	19.755	4361565	24.2	8.933
1965	18.0	23.550	90588217	23483183	0.741	21060034	0.797	19.755	1880878	24.2	8.933
1966	17.6	5.329	18913102	5313717	0.719	5313554	0.744	20.618	597782	32.0	9.520
1967	17.1	2.392	7781270	2385491	0.693	2385490	0.682	21.635	333599	41.3	10.212
1968	16.5	1.917	5662914	1911822	0.662	1911821	0.607	22.868	330699	52.5	11.050
1969	15.7	2.700	7143875	2692064	0.623	2692063	0.512	24.426	578407	66.7	12.110
1970	14.7	6.794	15745577	6774780	0.570	6774501	0.382	26.548	1841950	86.0	13.553
1971	13.0	32.384	62558719	32292384	0.484	29223940	0.174	29.961	10626534	117.0	15.873
1972	12.0	233.765	411529285	233105479	0.434	68027179	0.052	31.957	28385080	135.2	17.231
1973	18.0	255.458	982668444	254737140	0.741	48121980	0.797	19.755	4297789	24.2	8.933
1974	18.0	87.072	334940224	86826554	0.741	39850532	0.797	19.755	3559063	24.2	8.933
1975	18.0	10.440	40157737	10410090	0.741	10348092	0.797	19.755	924191	24.2	8.933
1976	17.6	2.645	9389402	2637992	0.719	2637991	0.744	20.618	296777	32.0	9.520
1977	17.1	1.252	4073040	1248665	0.693	1248665	0.682	21.635	174619	41.3	10.212

TABLE OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.016	365793.3	87.3	0	87.3	0.000
1950	13.6	0.069	400585.2	377.3	0	377.3	0.001
1951	12.0	0.605	436855.5	3301.1	0.000	3301.1	0.007
1952	12.0	8.550	393508.0	46652.3	0.000	46648.6	0.106
1953	12.0	126.932	114400.2	692609.9	0.530	325756.4	0.740
1954	17.1	386.128	22286.4	2106932.8	0.862	291776.6	0.929
1955	18.0	42.618	125596.1	232548.1	0.285	166255.3	0.570
1956	18.0	6.559	256073.9	35787.7	0.000	35777.4	0.123
1957	17.6	1.653	293317.2	9021.6	0.000	9021.6	0.030
1958	17.1	0.778	310457.4	4246.7	0.000	4246.7	0.013
1959	16.5	0.653	326126.2	3560.5	0.000	3560.5	0.011
1960	15.7	0.975	343308.0	5317.7	0.000	5317.7	0.015
1961	14.7	2.741	359465.3	14954.0	0.000	14954.0	0.040
1962	13.0	19.429	311984.2	106013.9	0.020	103916.9	0.250
1963	12.0	246.674	64725.0	1345994.4	0.721	375431.6	0.853
1964	18.0	298.924	24620.3	1631099.6	0.836	267231.0	0.916
1965	18.0	23.550	176610.8	128500.0	0.103	115240.5	0.395
1966	17.6	5.329	273263.0	29076.7	0.000	29075.8	0.096
1967	17.1	2.392	301650.7	13053.4	0.000	13053.4	0.041
1968	16.5	1.917	319225.2	10461.5	0.000	10461.5	0.032
1969	15.7	2.700	333894.7	14731.0	0.000	14731.0	0.042
1970	14.7	6.794	337349.3	37071.6	0.000	37070.1	0.099
1971	13.0	32.384	255987.7	176703.9	0.095	159913.4	0.384
1972	12.0	233.765	67911.9	1275553.2	0.708	372244.7	0.846
1973	18.0	255.458	28527.8	1393921.6	0.811	263323.5	0.902
1974	18.0	87.072	73789.2	475114.9	0.541	218062.1	0.747
1975	18.0	10.440	235226.5	56964.0	0.006	56624.8	0.194
1976	17.6	2.645	287903.7	14435.1	0.000	14435.1	0.048
1977	17.1	1.252	307871.4	6832.7	0.000	6832.7	0.022

TABLE OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.016	346	226	120	173	42
1950	13.6	0.069	1912	1265	647	1003	249
1951	12.0	0.605	22753	15294	7459	12202	3047
1952	12.0	8.550	755188	556026	199162	444623	111125
1953	12.0	126.932	11071400	26751242	-15679842	21396045	5348054
1954	17.1	386.128	4686905	12471174	-7784269	9970232	2491405
1955	18.0	42.618	954500	1928096	-973596	1540853	384941
1956	18.0	6.559	63111	90747	-27636	72515	18118
1957	17.6	1.653	12300	14226	-1926	11342	2832
1958	17.1	0.778	6810	6937	-127	5518	1379
1959	16.5	0.653	8144	7020	1124	5583	1393
1960	15.7	0.975	23087	14235	8852	11345	2832
1961	14.7	2.741	258872	79324	179548	63359	15833
1962	13.0	19.429	3024110	2330810	693300	1863982	465899
1963	12.0	246.674	10092704	34678960	-24586256	27736790	6933051
1964	18.0	298.924	3411907	8340121	-4928214	6667256	1665955
1965	18.0	23.550	569880	885646	-315766	707777	176830
1966	17.6	5.329	46859	77577	-30718	62008	15488
1967	17.1	2.392	14859	27960	-13101	22328	5577
1968	16.5	1.917	12212	25076	-12864	20026	5006
1969	15.7	2.700	21032	48389	-27357	38678	9665
1970	14.7	6.794	83605	235036	-151431	187977	46983
1971	13.0	32.384	1032280	3975793	-2943513	3180400	795053
1972	12.0	233.765	6950612	29583486	-22632874	23665002	5915880
1973	18.0	255.458	6527565	12269981	-5742416	9809237	2451081
1974	18.0	87.072	1845523	3982774	-2137251	3182703	795088
1975	18.0	10.440	156312	210237	-53925	167868	41929
1976	17.6	2.645	25143	27345	-2202	21835	5450
1977	17.1	1.252	12521	12356	165	9844	2458

TABLE OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	5650	27536	305085
0	45515	202402	2290612
0	719830	3076317	32156222
0	26282986	102105583	420964208
0	1265054691	1496913614	1455868342
0	222875309	293279805	90471880
0	16263580	23067856	35989133
0	766851	1557589	12178681
0	158863	409307	5516503
0	99510	298209	4213304
0	128350	468434	5568174
0	334985	1790978	13076751
0	2562327	28951686	58904647
0	98166204	390253199	626262750
0	1627992368	1321439139	1370206607
0	118256366	179507030	32544041
0	7471141	13772685	30499558
0	859822	1338628	16875956
0	401738	579522	12676364
0	458778	620682	16101874
0	1126594	1376870	35480755
0	7065201	7127260	139311691
0	162780227	120523878	842793738
0	1396912694	934155769	1366098081
0	383770294	750883078	33153028
0	37004595	57431704	36570491
0	1774761	3831940	18146999
0	305588	828333	8705938
0	177691	543326	6737010

AVERAGE CYCLE FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 386.128   298.924   255.458
MEAN OF MAXIMA: 313.504 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.653   1.917
MEAN OF MINIMA: 1.285 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.333 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.016
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 386.128
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 386.112
DIFFERENCE BETWEEN MEANS OF EXTREMES: 312.219 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
A	1.248	3.380	20.121	202.457	313.504	51.080	7.442	2.230	1.316
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	3288269	7720695	38380761	356413437	1131322652	196489053	28099994	7679602	4089153
1	1244270	3370291	20063966	201885815	312619037	50935857	7421319	2224053	1312188
3	1244270	3370197	18913186	65389418	50093265	30431156	7399972	2224052	1312188
W	269999	945569	7029710	27284445	5346848	2717815	701969	271951	204616

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 29916.172
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 814.132

AVERAGE CYCLE FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 386.128   298.924   255.458
MEAN OF MAXIMA: 313.504 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.653   1.917
MEAN OF MINIMA: 1.285 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.333 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.016
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 386.128
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 386.112
DIFFERENCE BETWEEN MEANS OF EXTREMES: 312.219 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.7	18.0	17.9	17.4	16.9
A	1.248	3.380	20.121	202.457	313.504	51.080	7.442	2.230	1.316
M	0.587	0.524	0.467	0.434	0.725	0.741	0.734	0.711	0.683
L	0.424	0.272	0.133	0.052	0.760	0.797	0.779	0.724	0.657
S	0.000	0.000	0.038	0.653	0.836	0.310	0.002	0.000	0.000
P	25.861	28.351	30.626	31.957	20.364	19.755	20.042	20.957	22.046
W	13.086	14.779	16.326	17.231	9.347	8.933	9.129	9.751	10.491
4	79.7	102.4	123.1	135.2	29.7	24.2	26.8	35.1	45.0
D	0.019	0.049	0.247	0.813	0.916	0.571	0.138	0.040	0.022

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 29916.172
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 814.132

AVERAGE CYCLE FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 386.128   298.924   255.458
MEAN OF MAXIMA: 313.504 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.653   1.917
MEAN OF MINIMA: 1.285 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.333 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.016
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 386.128
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 386.112
DIFFERENCE BETWEEN MEANS OF EXTREMES: 312.219 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.7	18.0	17.9	17.4	16.9
A	1.248	3.380	20.121	202.457	313.504	51.080	7.442	2.230	1.316
I	15343	121743	1603859	9371572	4875459	1123301	88760	17434	10514
O	21296	109884	2287543	30337896	11027092	2265505	126187	23177	14789
E	-5952	11858	-683683	-20966324	-6151633	-1142204	-37426	-5743	-4275
U	502364	3449119	95743139	1429986584	241633989	20246438	1133811	288729	245326
H	16949372	76790853	630006898	1397391010	52056316	34353060	15733878	8966268	9017396
G	1123416	13051754	204294220	1250836174	407889971	31424081	2242719	605720	487405

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 29916.172
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 814.132

AVERAGE CYCLE FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1964   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 386.128   298.924   255.458
MEAN OF MAXIMA: 313.504 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959   1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.653   1.917
MEAN OF MINIMA: 1.285 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.333 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.016
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 386.128
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 386.112
DIFFERENCE BETWEEN MEANS OF EXTREMES: 312.219 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.7	18.0	17.9	17.4	16.9
A	1.248	3.380	20.121	202.457	313.504	51.080	7.442	2.230	1.316
D	0.019	0.049	0.247	0.813	0.916	0.571	0.138	0.040	0.022
F	359262.6	377890.0	320493.3	82345.7	25144.8	125332.0	254854.5	294290.5	312518.0
*	6808.6	18442.2	109790.0	1104719.2	1710651.4	278721.0	40609.5	12170.0	7180.3
E	6808.6	18441.7	103493.0	357810.9	274110.3	166519.3	40492.7	12170.0	7180.3

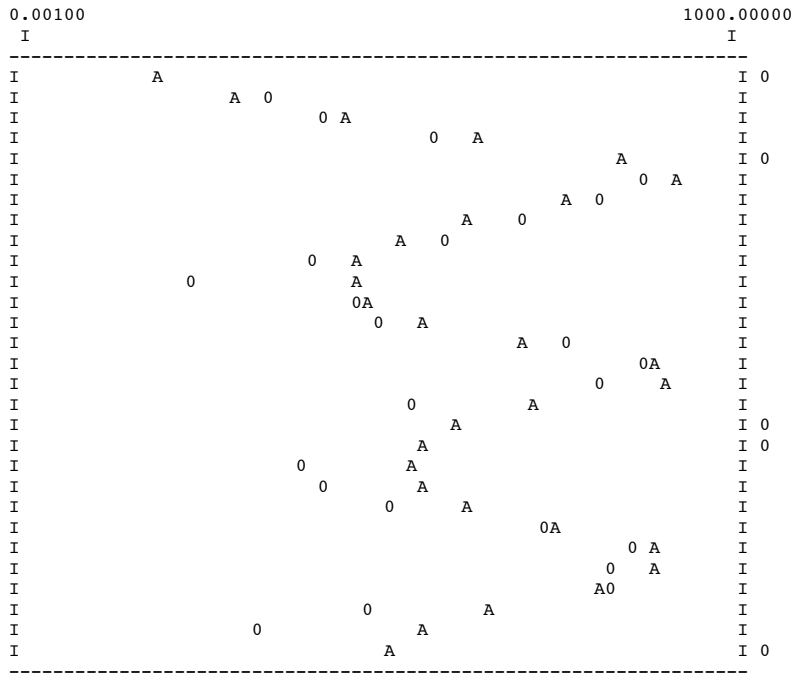
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 29916.172
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 814.132

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

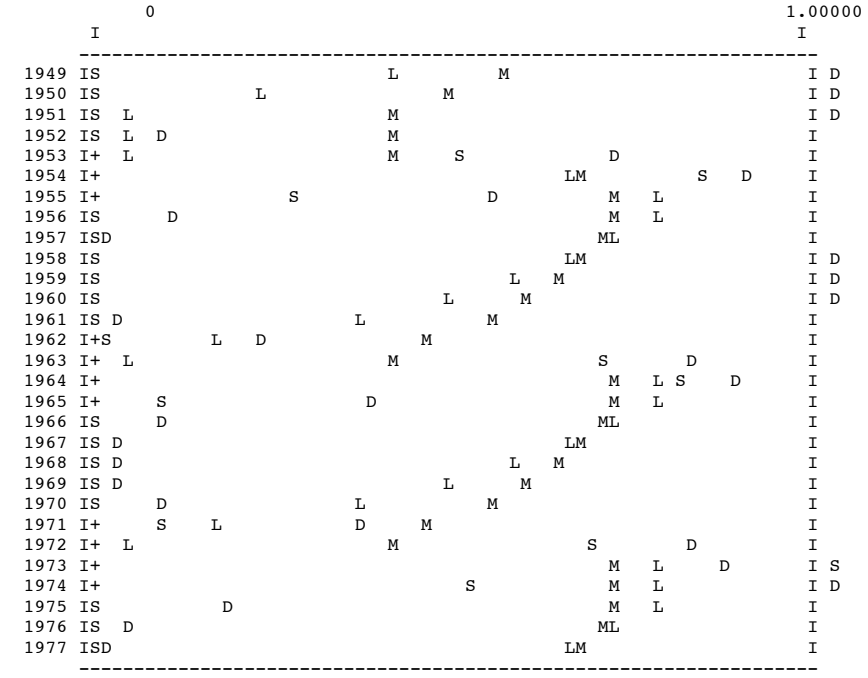


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

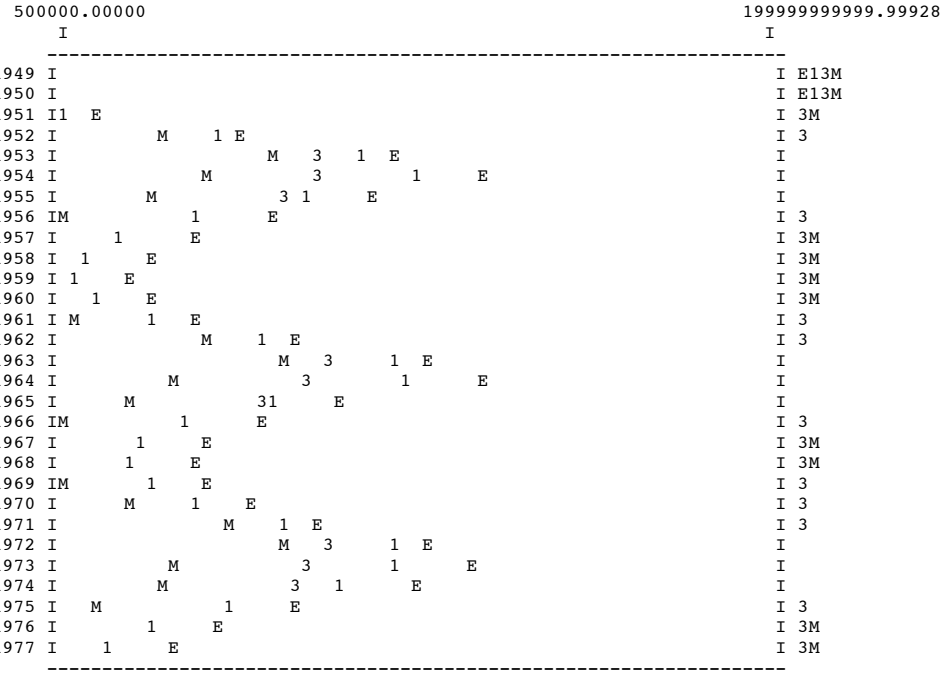


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

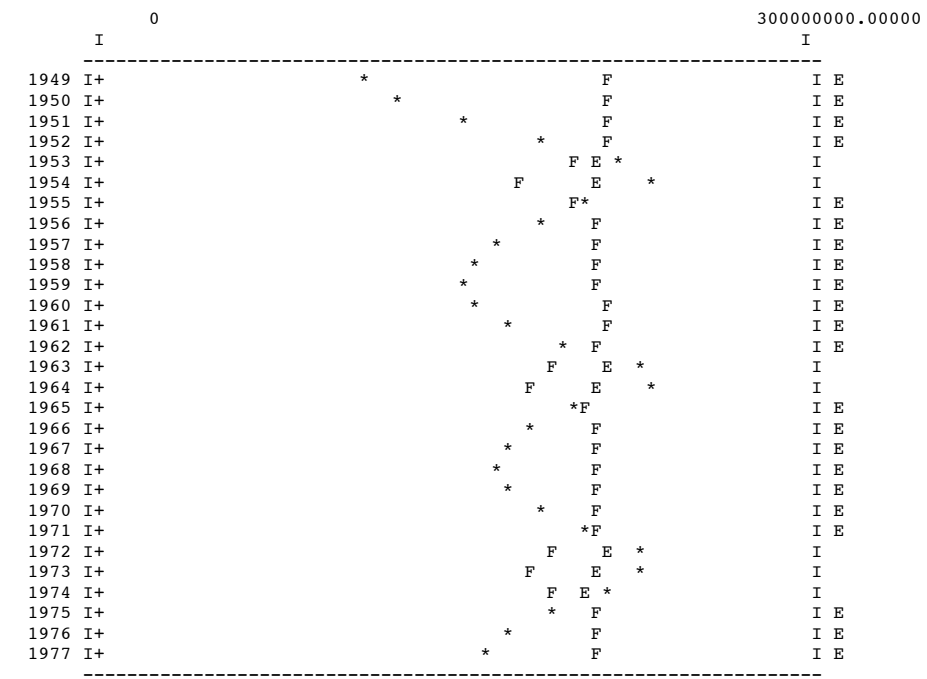


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 87.300288 MAX = 2106932.838912



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 7:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

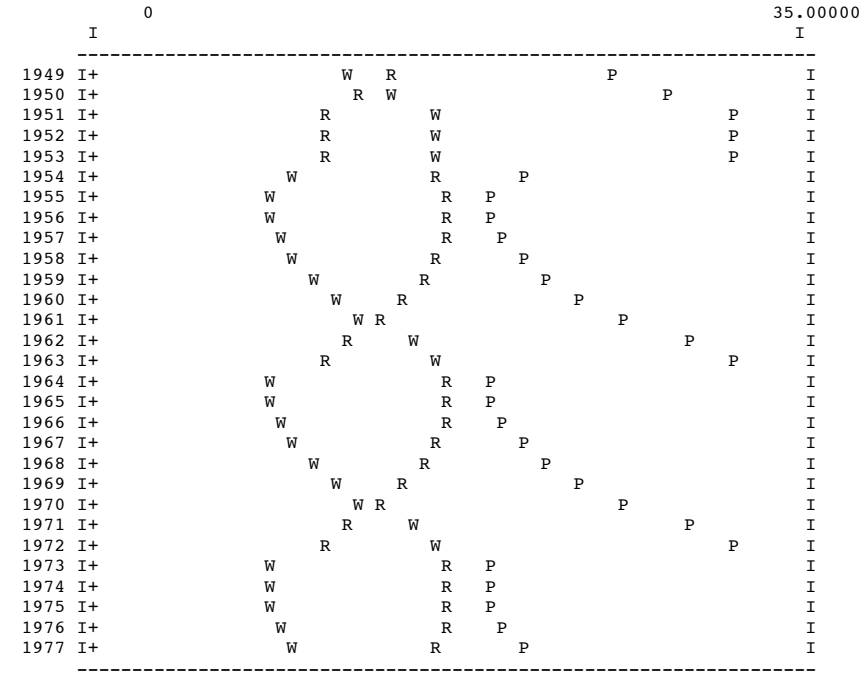


TABLE OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	61006	25169	0.587	0.041	0.041	225112.3	0	25169	0.001	0.425	6368	79.6
1950	13.6	211088	102430	0.515	0.167	0.195	246287.3	0.000	102430	0.002	0.249	33862	105.9
1951	12.0	1493962	846235	0.434	1.378	0.358	266346.6	0.000	846235	0.017	0.052	353100	135.2
1952	12.0	19783205	11205942	0.434	18.254	6.711	210396.8	0.012	11070971	0.224	0.052	4619483	135.2
1953	12.0	234566229	132867028	0.434	216.431	86.614	44767.7	0.689	41339460	0.835	0.052	17249339	135.2
1954	18.0	677546473	175640372	0.741	286.105	346.082	15795.3	0.829	29948733	0.912	0.797	2674730	24.2
1955	18.0	35057363	9087920	0.741	14.804	37.442	131286.8	0.027	8842829	0.269	0.797	789755	24.2
1956	17.6	8891292	2498046	0.719	4.069	23.412	172462.0	0.000	2498042	0.073	0.744	281033	32.0
1957	17.1	3672937	1126006	0.693	1.834	2.516	187582.3	0.000	1126005	0.032	0.682	157466	41.3
1958	16.5	2656406	896813	0.662	1.461	0.000	198060.3	0.000	896813	0.024	0.607	155127	52.5
1959	15.7	3327180	1253798	0.623	2.042	0.015	207766.5	0.000	1253797	0.032	0.512	269386	66.7
1960	14.7	7291094	3137107	0.570	5.110	0.417	213340.6	0.000	3137102	0.074	0.382	852961	86.0
1961	13.0	28997822	14968477	0.484	24.383	0.813	177732.2	0.044	14311479	0.306	0.174	5204001	117.0
1962	12.0	207119613	117320245	0.434	191.106	11.000	49925.2	0.656	40396936	0.816	0.052	16856060	135.2
1963	18.0	558597414	144805207	0.741	235.877	210.560	18914.8	0.797	29378654	0.895	0.797	2623816	24.2
1964	18.0	158684640	41135819	0.741	67.007	113.070	55901.9	0.450	22619317	0.689	0.797	2020138	24.2
1965	18.0	23467680	6083526	0.741	9.910	2.310	146536.5	0.005	6055978	0.184	0.797	540861	24.2
1966	17.6	5796248	1628480	0.719	2.653	0.000	177220.3	0.000	1628479	0.048	0.744	183206	32.0
1967	17.1	2480949	760580	0.693	1.239	0.000	189581.9	0.000	760580	0.021	0.682	106363	41.3
1968	16.5	1850137	624613	0.662	1.017	0.000	199549.8	0.000	624613	0.017	0.607	108043	52.5
1969	15.7	2387698	899768	0.623	1.466	0.000	209703.7	0.000	899768	0.023	0.512	193321	66.7
1970	14.7	5420199	2332125	0.570	3.799	0.580	217745.4	0.000	2332124	0.055	0.382	634092	86.0
1971	13.0	22868444	11804534	0.484	19.229	10.084	192676.8	0.019	11580374	0.247	0.174	4210905	117.0
1972	12.0	197726026	111999368	0.434	182.439	121.740	51972.9	0.643	40022719	0.808	0.052	16699914	135.2
1973	18.0	679198165	176068540	0.741	286.803	186.040	15759.2	0.830	29955330	0.912	0.797	2675320	24.2
1974	18.0	50011805	12964560	0.741	21.118	103.980	114368.7	0.079	11934597	0.363	0.797	1065882	24.2
1975	17.6	13005990	3654088	0.719	5.952	1.391	166137.9	0.000	3653756	0.107	0.744	411053	32.0
1976	17.1	5309011	1627574	0.693	2.651	0.000	184837.7	0.000	1627573	0.046	0.682	227608	41.3
1977	16.5	3796466	1281702	0.662	2.088	0.000	195954.2	0.000	1281701	0.035	0.607	221704	52.5

TABLE OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.041	0.041	0.000	0.000	0.000	0.000	0
1950	13.6	0.167	0.195	0.000	0.000	0.001	0.028	0
1951	12.0	1.378	0.358	0.000	0.000	1.042	-1.020	0
1952	12.0	18.254	6.711	0.000	0.000	134.275	-11.543	0
1953	12.0	216.431	86.614	0.000	0.000	16986.634	-129.817	0
1954	18.0	286.105	346.082	0.000	0.000	20583.842	59.977	0
1955	18.0	14.804	37.442	0.000	0.000	21096.341	22.638	0
1956	17.6	4.069	23.412	0.000	0.000	21470.488	19.343	0
1957	17.1	1.834	2.516	0.000	0.000	21470.952	0.682	0
1958	16.5	1.461	0.000	0.000	0.000	21473.086	-1.461	0
1959	15.7	2.042	0.015	0.000	0.000	21477.196	-2.027	0
1960	14.7	5.110	0.417	0.000	0.000	21499.222	-4.693	0
1961	13.0	24.383	0.813	0.000	0.000	22054.745	-23.570	0
1962	12.0	191.106	11.000	0.000	0.000	54492.941	-180.106	0
1963	18.0	235.877	210.560	0.000	0.000	55133.895	-25.317	0
1964	18.0	67.007	113.070	0.000	0.000	57255.673	46.063	0
1965	18.0	9.910	2.310	0.000	0.000	57313.428	-7.600	0
1966	17.6	2.653	0.000	0.000	0.000	57320.464	-2.653	0
1967	17.1	1.239	0.000	0.000	0.000	57321.998	-1.239	0
1968	16.5	1.017	0.000	0.000	0.000	57323.033	-1.017	0
1969	15.7	1.466	0.000	0.000	0.000	57325.181	-1.466	0
1970	14.7	3.799	0.580	0.000	0.000	57335.542	-3.219	0
1971	13.0	19.229	10.084	0.000	0.000	57419.168	-9.145	0
1972	12.0	182.439	121.740	0.000	0.000	61103.507	-60.699	0
1973	18.0	286.803	186.040	0.000	0.000	71256.634	-100.763	0
1974	18.0	21.118	103.980	0.000	0.000	78122.693	82.862	0
1975	17.6	5.952	1.391	0.000	0.000	78143.498	-4.561	0
1976	17.1	2.651	0.000	0.000	0.000	78150.526	-2.651	0
1977	16.5	2.088	0.000	0.000	0.000	78154.885	-2.088	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.041	61006	25169	0.587	25169	0.425	25.846	6368	79.6	13.075
1950	13.6	0.167	211088	102430	0.515	102430	0.249	28.732	33862	105.9	15.038
1951	12.0	1.378	1493962	846235	0.434	846235	0.052	31.957	353100	135.2	17.231
1952	12.0	18.254	19783205	11205942	0.434	11070971	0.052	31.957	4619483	135.2	17.231
1953	12.0	216.431	234566229	132867028	0.434	41339460	0.052	31.957	17249339	135.2	17.231
1954	18.0	286.105	677546473	175640372	0.741	29948733	0.797	19.755	2674730	24.2	8.933
1955	18.0	14.804	35057363	9087920	0.741	8842829	0.797	19.755	789755	24.2	8.933
1956	17.6	4.069	8891292	2498046	0.719	2498042	0.744	20.618	281033	32.0	9.520
1957	17.1	1.834	3672937	1126006	0.693	1126005	0.682	21.635	157466	41.3	10.212
1958	16.5	1.461	2656406	896813	0.662	896813	0.607	22.868	155127	52.5	11.050
1959	15.7	2.042	3327180	1253798	0.623	1253797	0.512	24.426	269386	66.7	12.110
1960	14.7	5.110	7291094	3137107	0.570	3137102	0.382	26.548	852961	86.0	13.553
1961	13.0	24.383	28997822	14968477	0.484	14311479	0.174	29.961	5204001	117.0	15.873
1962	12.0	191.106	207119613	117320245	0.434	40396936	0.052	31.957	16856060	135.2	17.231
1963	18.0	235.877	558597414	144805207	0.741	29378654	0.797	19.755	2623816	24.2	8.933
1964	18.0	67.007	158684640	41135819	0.741	22619317	0.797	19.755	2020138	24.2	8.933
1965	18.0	9.910	23467680	6083526	0.741	6055978	0.797	19.755	540861	24.2	8.933
1966	17.6	2.653	5796248	1628480	0.719	1628479	0.744	20.618	183206	32.0	9.520
1967	17.1	1.239	2480949	760580	0.693	760580	0.682	21.635	106363	41.3	10.212
1968	16.5	1.017	1850137	624613	0.662	624613	0.607	22.868	108043	52.5	11.050
1969	15.7	1.466	2387698	899768	0.623	899768	0.512	24.426	193321	66.7	12.110
1970	14.7	3.799	5420199	2332125	0.570	2332124	0.382	26.548	634092	86.0	13.553
1971	13.0	19.229	22868444	11804534	0.484	11580374	0.174	29.961	4210905	117.0	15.873
1972	12.0	182.439	197726026	111999368	0.434	40022719	0.052	31.957	16699914	135.2	17.231
1973	18.0	286.803	679198165	176068540	0.741	29955330	0.797	19.755	2675320	24.2	8.933
1974	18.0	21.118	50011805	12964560	0.741	11934597	0.797	19.755	1065882	24.2	8.933
1975	17.6	5.952	13005990	3654088	0.719	3653756	0.744	20.618	411053	32.0	9.520
1976	17.1	2.651	5309011	1627574	0.693	1627573	0.682	21.635	227608	41.3	10.212
1977	16.5	2.088	3796466	1281702	0.662	1281701	0.607	22.868	221704	52.5	11.050

TABLE OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.041	225112.3	137.7	0	137.7	0.001
1950	13.6	0.167	246287.3	560.5	0.000	560.5	0.002
1951	12.0	1.378	266346.6	4630.6	0.000	4630.6	0.017
1952	12.0	18.254	210396.8	61318.9	0.012	60580.4	0.224
1953	12.0	216.431	44767.7	727048.4	0.689	226209.5	0.835
1954	18.0	286.105	15795.3	961104.1	0.829	163879.5	0.912
1955	18.0	14.804	131286.8	49729.1	0.027	48388.0	0.269
1956	17.6	4.069	172462.0	13669.3	0.000	13669.3	0.073
1957	17.1	1.834	187582.3	6161.5	0.000	6161.5	0.032
1958	16.5	1.461	198060.3	4907.4	0.000	4907.4	0.024
1959	15.7	2.042	207766.5	6860.8	0.000	6860.8	0.032
1960	14.7	5.110	213340.6	17166.2	0.000	17166.2	0.074
1961	13.0	24.383	177732.2	81907.5	0.044	78312.4	0.306
1962	12.0	191.106	49925.2	641976.4	0.656	221052.0	0.816
1963	18.0	235.877	18914.8	792374.1	0.797	160760.0	0.895
1964	18.0	67.007	55901.9	225095.2	0.450	123772.9	0.689
1965	18.0	9.910	146536.5	33289.1	0.005	33138.3	0.184
1966	17.6	2.653	177220.3	8911.0	0.000	8911.0	0.048
1967	17.1	1.239	189581.9	4161.9	0.000	4161.9	0.021
1968	16.5	1.017	199549.8	3417.9	0.000	3417.9	0.017
1969	15.7	1.466	209703.7	4923.5	0.000	4923.5	0.023
1970	14.7	3.799	217745.4	12761.4	0.000	12761.4	0.055
1971	13.0	19.229	192676.8	64594.4	0.019	63367.8	0.247
1972	12.0	182.439	51972.9	612860.5	0.643	219004.3	0.808
1973	18.0	286.803	15759.2	963447.1	0.830	163915.6	0.912
1974	18.0	21.118	114368.7	70942.1	0.079	65306.1	0.363
1975	17.6	5.952	166137.9	19995.2	0.000	19993.4	0.107
1976	17.1	2.651	184837.7	8906.1	0.000	8906.1	0.046
1977	16.5	2.088	195954.2	7013.5	0.000	7013.5	0.035

TABLE OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.041	162	334	-172	261	65
1950	13.6	0.167	922	1803	-881	1435	357
1951	12.0	1.378	11373	22745	-11372	18169	4542
1952	12.0	18.254	411702	1074279	-662577	859262	214805
1953	12.0	216.431	5574496	16979851	-11405355	13580692	3394856
1954	18.0	286.105	1530400	3671635	-2141235	2934081	733235
1955	18.0	14.804	262304	268738	-6434	214395	53553
1956	17.6	4.069	19395	31088	-11693	24829	6204
1957	17.1	1.834	5102	11880	-6778	9483	2369
1958	16.5	1.461	3893	10739	-6846	8574	2142
1959	15.7	2.042	6441	20170	-13729	16113	4028
1960	14.7	5.110	25072	91147	-66075	72888	18220
1961	13.0	24.383	341038	1515988	-1174950	1212682	303158
1962	12.0	191.106	3485857	13810942	-10325085	11047944	2761905
1963	18.0	235.877	3211147	6123347	-2912200	4895098	1223433
1964	18.0	67.007	871051	1833635	-962584	1464757	365996
1965	18.0	9.910	118742	123813	-5071	98788	24677
1966	17.6	2.653	13674	16726	-3052	13351	3334
1967	17.1	1.239	5513	7357	-1844	5865	1465
1968	16.5	1.017	5126	7056	-1930	5628	1406
1969	15.7	1.466	9787	13557	-3770	10823	2705
1970	14.7	3.799	44811	61304	-16493	48999	12246
1971	13.0	19.229	692347	1148861	-456514	918861	229693
1972	12.0	182.439	5505808	16116392	-10610584	12891398	3222674
1973	18.0	286.803	1553379	3656867	-2103488	2921954	730164
1974	18.0	21.118	476990	513749	-36759	409777	102351
1975	17.6	5.952	36113	57495	-21382	45895	11465
1976	17.1	2.651	7447	19584	-12137	15640	3908
1977	16.5	2.088	5104	17017	-11913	13592	3396

TABLE OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	11061	12892	481228
0	81084	97600	3399503
0	1322710	1537686	44771315
0	62611785	55664377	493413876
0	989513415	753702185	832314840
0	50695804	62486195	19576922
0	2785546	6339194	14473756
0	422890	521822	8075878
0	210014	191275	6026904
0	241865	192939	7595405
0	578008	415003	16652165
0	3375449	2118188	65760609
0	76468267	39681553	445149004
0	803479165	468811199	838767018
0	237871868	351481849	19970960
0	22436061	32453744	22479964
0	1283582	2870051	10697946
0	229683	435471	5371996
0	130103	227382	4103464
0	158846	269208	5319975
0	388179	653719	12034013
0	2270610	3892372	49638631
0	57999502	81655766	381186056
0	938413838	740432689	849450657
0	66215490	97505090	19563744
0	5445479	12629013	17815722
0	777731	934643	11492818
0	346128	270740	8616120
0	383373	247681	10768461

AVERAGE CYCLE FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1963   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 286.105   235.877   286.803
MEAN OF MAXIMA: 269.595 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958   1968
SIMULATED MINIMAL LARVAL DENSITIES: 1.461   1.017
MEAN OF MINIMA: 1.239 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.041
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 286.803
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 286.762
DIFFERENCE BETWEEN MEANS OF EXTREMES: 268.356 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
A	1.225	3.429	20.622	196.658	269.595	34.310	6.644	2.379	1.596
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	1975322	4735085	23883157	213137289	638447350	81251269	15121654	4926065	2977940
1	751998	2105155	12659651	120728880	165504706	21062766	4078553	1460686	979698
3	751998	2105153	12320941	40586371	29760905	14465581	4069258	1460685	979698
W	165523	613384	4678129	16935104	2657955	1291925	410982	189426	161064

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21495.174
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 517.105

AVERAGE CYCLE FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1963   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 286.105   235.877   286.803
MEAN OF MAXIMA: 269.595 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958   1968
SIMULATED MINIMAL LARVAL DENSITIES: 1.461   1.017
MEAN OF MINIMA: 1.239 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.041
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 286.803
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 286.762
DIFFERENCE BETWEEN MEANS OF EXTREMES: 268.356 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	18.0	18.0	17.7	17.2	16.7
A	1.225	3.429	20.622	196.658	269.595	34.310	6.644	2.379	1.596
M	0.587	0.524	0.467	0.434	0.741	0.741	0.726	0.702	0.673
L	0.424	0.272	0.133	0.052	0.797	0.797	0.762	0.703	0.632
S	0.000	0.000	0.025	0.662	0.819	0.186	0.002	0.000	0.000
P	25.861	28.351	30.626	31.957	19.755	19.755	20.330	21.296	22.457
W	13.086	14.779	16.326	17.231	8.933	8.933	9.324	9.981	10.771
4	79.7	102.4	123.1	135.2	24.2	24.2	29.4	38.2	48.8
D	0.019	0.049	0.259	0.820	0.906	0.441	0.122	0.042	0.027

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21495.174
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 517.105

AVERAGE CYCLE FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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SIMULATED MAXIMAL LARVAL DENSITIES: 286.105   235.877   286.803
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NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
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MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 286.762
DIFFERENCE BETWEEN MEANS OF EXTREMES: 268.356 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	18.0	18.0	17.7	17.2	16.7
A	1.225	3.429	20.622	196.658	269.595	34.310	6.644	2.379	1.596
I	5716	27085	481695	4855387	2098308	536781	58083	8741	4836
O	11843	58398	1246376	15635728	4483949	872040	70798	16063	11704
E	-6126	-31313	-764680	-10780341	-2385641	-335259	-12715	-7322	-6867
U	349090	2322923	65693184	910468806	118261054	10222362	828067	261941	251780
H	10695227	53390185	439916312	840177505	19703875	18256480	10088880	6671673	7489110
G	388774	2516082	59000565	654315357	170491044	17140650	1442172	299162	222667

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21495.174
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 517.105

AVERAGE CYCLE FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

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SIMULATED MAXIMAL LARVAL DENSITIES: 286.105   235.877   286.803
MEAN OF MAXIMA: 269.595 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958   1968
SIMULATED MINIMAL LARVAL DENSITIES: 1.461   1.017
MEAN OF MINIMA: 1.239 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
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DIFFERENCE BETWEEN MEANS OF EXTREMES: 268.356 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	18.0	18.0	17.7	17.2	16.7
A	1.225	3.429	20.622	196.658	269.595	34.310	6.644	2.379	1.596
D	0.019	0.049	0.259	0.820	0.906	0.441	0.122	0.042	0.027
F	221252.5	232477.6	193602.0	48888.6	16823.1	100519.1	161712.1	183213.4	194532.2
*	4114.9	11519.4	69273.6	660628.4	905641.8	115255.5	22317.8	7992.9	5360.9
E	4114.9	11519.4	67420.2	222088.6	162851.7	79155.7	22267.0	7992.9	5360.9

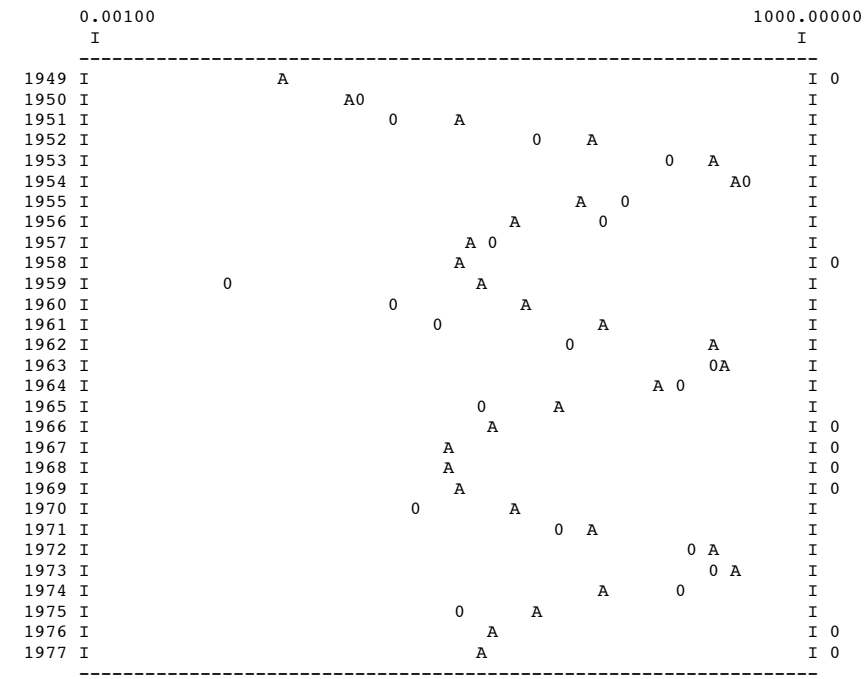
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21495.174
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 517.105

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

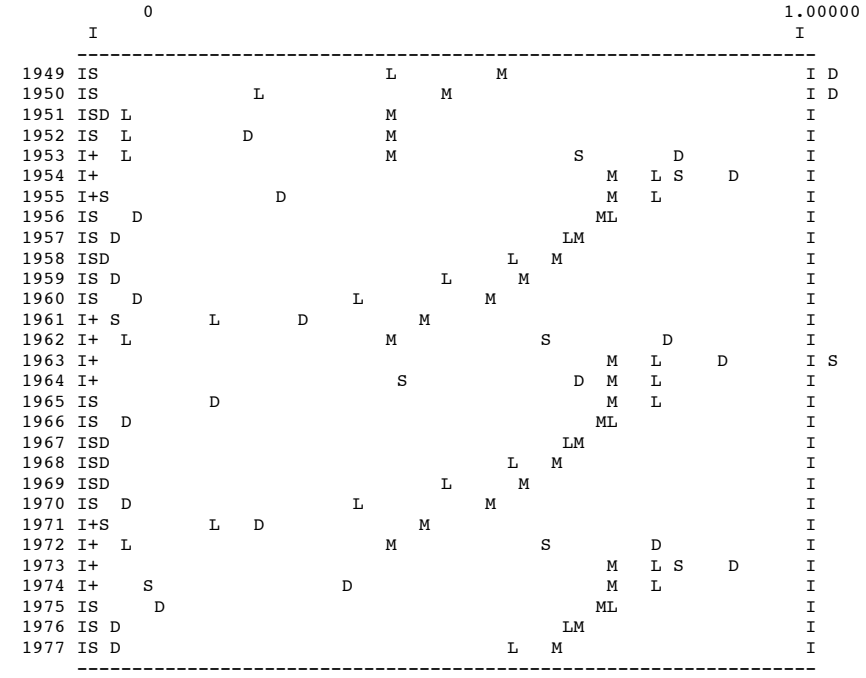


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

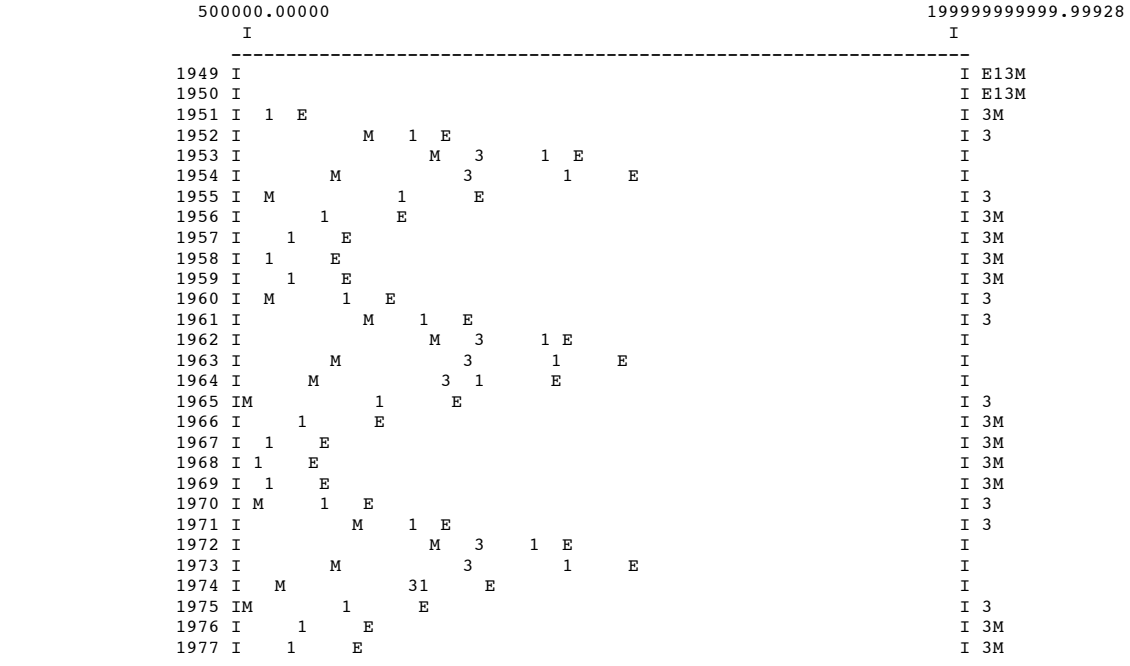


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

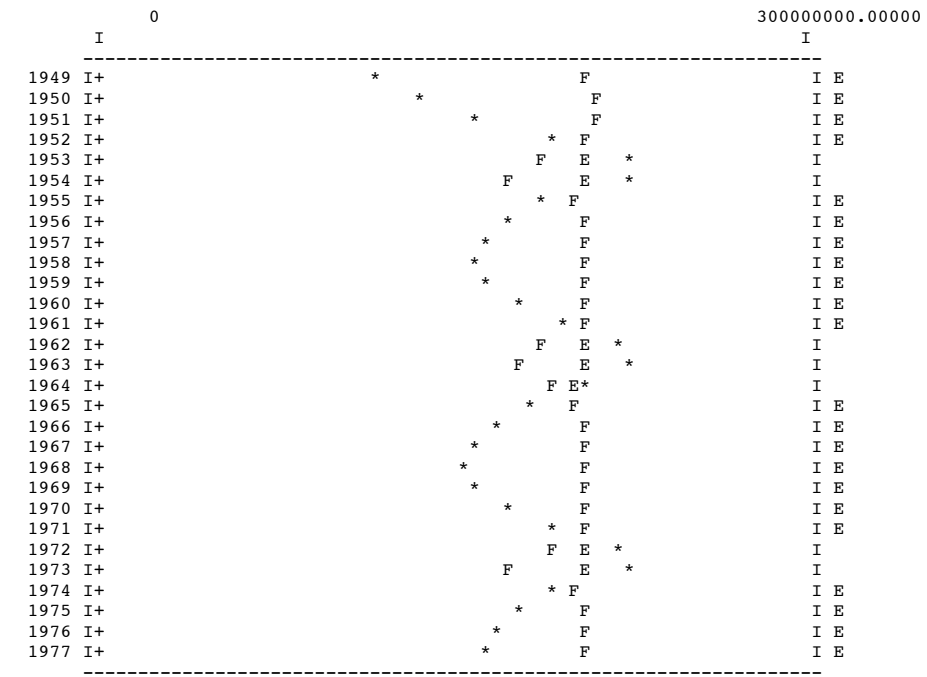


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 137.724768 MAX = 963447.050880



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 8:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

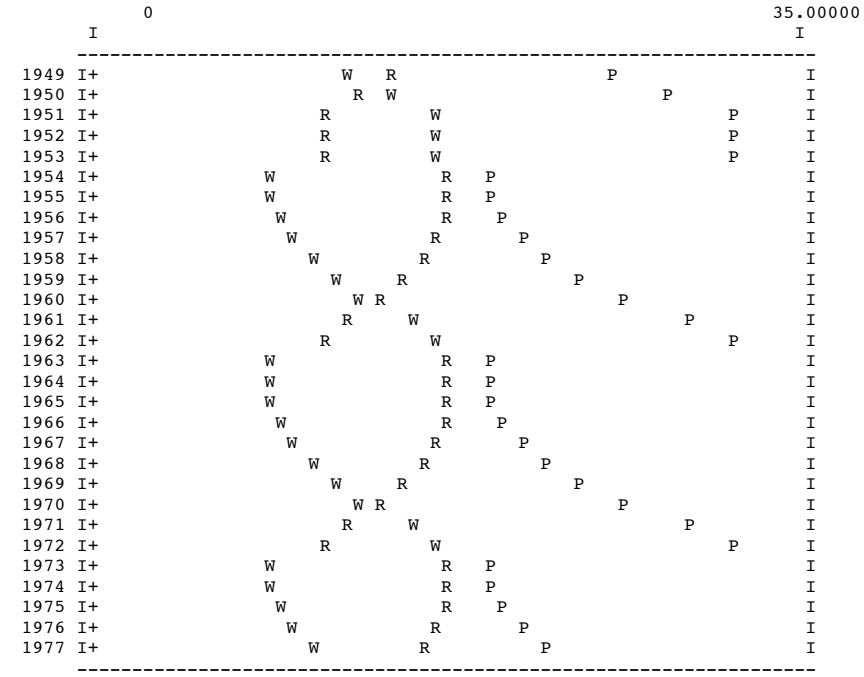


TABLE OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	160578	66250	0.587	0.037	0.037	656627.9	0	66250	0.001	0.425	16762	79.6
1950	13.6	556896	270232	0.515	0.151	0.232	718506.3	0.000	270232	0.002	0.249	89336	105.9
1951	12.0	3945037	2234615	0.434	1.248	1.211	778135.8	0.000	2234615	0.015	0.052	932417	135.2
1952	12.0	52270804	29608125	0.434	16.536	8.753	629580.9	0.008	29382812	0.203	0.052	12260297	135.2
1953	12.0	623973904	353442006	0.434	197.390	94.148	141571.9	0.665	118565727	0.821	0.052	49472838	135.2
1954	18.0	1719293729	445692513	0.741	248.910	302.896	52480.2	0.807	86180592	0.900	0.797	7696816	24.2
1955	18.0	73857635	19146114	0.741	10.693	135.284	419997.3	0.007	19017382	0.199	0.797	1698448	24.2
1956	17.6	17494183	4915065	0.719	2.745	25.489	515996.9	0.000	4915064	0.050	0.744	552952	32.0
1957	17.1	7381485	2262929	0.693	1.264	1.789	552713.0	0.000	2262929	0.022	0.682	316459	41.3
1958	16.5	5448591	1839466	0.662	1.027	0.103	581933.6	0.000	1839466	0.017	0.607	318184	52.5
1959	15.7	6961018	2623157	0.623	1.465	0.076	611652.9	0.000	2623157	0.023	0.512	563602	66.7
1960	14.7	15602534	6713233	0.570	3.749	0.678	635588.2	0.000	6713232	0.055	0.382	1825292	86.0
1961	13.0	64269525	33175490	0.484	18.528	1.936	568240.4	0.016	32633235	0.239	0.174	11866237	117.0
1962	12.0	520039665	294569790	0.434	164.511	12.120	165631.1	0.612	114168953	0.790	0.052	47638237	135.2
1963	17.9	1627848167	433943094	0.733	242.348	128.226	55068.2	0.800	86871156	0.896	0.779	8439613	26.8
1964	18.0	218473066	56634772	0.741	31.629	160.365	271279.5	0.184	46195341	0.482	0.797	4125720	24.2
1965	18.0	41546287	10770043	0.741	6.015	6.519	465134.8	0.000	10768562	0.112	0.797	961743	24.2
1966	17.6	9749689	2739217	0.719	1.530	0.038	527903.2	0.000	2739217	0.028	0.744	308166	32.0
1967	17.1	4165387	1276975	0.693	0.713	0.000	558108.2	0.000	1276975	0.012	0.682	178578	41.3
1968	16.5	3121434	1053808	0.662	0.589	0.067	586232.7	0.000	1053808	0.010	0.607	182283	52.5
1969	15.7	4076285	1536088	0.623	0.858	0.274	617601.4	0.000	1536088	0.013	0.512	330038	66.7
1970	14.7	9540628	4105004	0.570	2.293	2.665	649860.4	0.000	4105003	0.033	0.382	1116128	86.0
1971	13.0	46334446	23917524	0.484	13.357	15.044	616368.0	0.003	23837991	0.175	0.174	8668072	117.0
1972	12.0	498925533	282609961	0.434	157.832	239.429	171546.0	0.600	113088008	0.783	0.052	47187201	135.2
1973	17.7	1735728259	472677639	0.728	263.981	369.994	51781.7	0.813	88382279	0.903	0.765	9128716	28.9
1974	18.0	81305398	21076798	0.741	11.771	74.896	409954.4	0.011	20852716	0.218	0.797	1862362	24.2
1975	17.6	19921943	5597155	0.719	3.126	1.882	512264.5	0.000	5597154	0.056	0.744	629688	32.0
1976	17.1	8396928	2574232	0.693	1.438	0.000	551009.6	0.000	2574232	0.025	0.682	359993	41.3
1977	16.5	6170435	2083164	0.662	1.163	0.000	580600.1	0.000	2083164	0.019	0.607	360338	52.5

TABLE OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.037	0.037	0.000	0.000	0.000	0.000	0
1950	13.6	0.151	0.232	0.000	0.000	0.007	0.081	0
1951	12.0	1.248	1.211	0.000	0.000	0.008	-0.037	0
1952	12.0	16.536	8.753	0.000	0.000	60.576	-7.783	0
1953	12.0	197.390	94.148	0.000	0.000	10719.520	-103.242	0
1954	18.0	248.910	302.896	0.000	0.000	13633.987	53.986	0
1955	18.0	10.693	135.284	0.000	0.000	29156.976	124.591	0
1956	17.6	2.745	25.489	0.000	0.000	29674.267	22.744	0
1957	17.1	1.264	1.789	0.000	0.000	29674.543	0.525	0
1958	16.5	1.027	0.103	0.000	0.000	29675.397	-0.924	0
1959	15.7	1.465	0.076	0.000	0.000	29677.326	-1.389	0
1960	14.7	3.749	0.678	0.000	0.000	29686.759	-3.071	0
1961	13.0	18.528	1.936	0.000	0.000	29962.048	-16.592	0
1962	12.0	164.511	12.120	0.000	0.000	53185.134	-152.391	0
1963	17.9	242.348	128.226	0.000	0.000	66209.051	-114.122	0
1964	18.0	31.629	160.365	0.000	0.000	82781.914	128.736	0
1965	18.0	6.015	6.519	0.000	0.000	82782.169	0.504	0
1966	17.6	1.530	0.038	0.000	0.000	82784.394	-1.492	0
1967	17.1	0.713	0.000	0.000	0.000	82784.903	-0.713	0
1968	16.5	0.589	0.067	0.000	0.000	82785.175	-0.522	0
1969	15.7	0.858	0.274	0.000	0.000	82785.515	-0.584	0
1970	14.7	2.293	2.665	0.000	0.000	82785.654	0.372	0
1971	13.0	13.357	15.044	0.000	0.000	82788.499	1.687	0
1972	12.0	157.832	239.429	0.000	0.000	89446.584	81.597	0
1973	17.7	263.981	369.994	0.000	0.000	100685.376	106.013	0
1974	18.0	11.771	74.896	0.000	0.000	104670.146	63.125	0
1975	17.6	3.126	1.882	0.000	0.000	104671.693	-1.244	0
1976	17.1	1.438	0.000	0.000	0.000	104673.760	-1.438	0
1977	16.5	1.163	0.000	0.000	0.000	104675.113	-1.163	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.037	160578	66250	0.587	66250	0.425	25.846	16762	79.6	13.075
1950	13.6	0.151	556896	270232	0.515	270232	0.249	28.732	89336	105.9	15.038
1951	12.0	1.248	3945037	2234615	0.434	2234615	0.052	31.957	932417	135.2	17.231
1952	12.0	16.536	52270804	29608125	0.434	29382812	0.052	31.957	12260297	135.2	17.231
1953	12.0	197.390	623973904	353442006	0.434	118565727	0.052	31.957	49472838	135.2	17.231
1954	18.0	248.910	1719293729	445692513	0.741	86180592	0.797	19.755	7696816	24.2	8.933
1955	18.0	10.693	73857635	19146114	0.741	19017382	0.797	19.755	1698448	24.2	8.933
1956	17.6	2.745	17494183	4915065	0.719	4915064	0.744	20.618	552952	32.0	9.520
1957	17.1	1.264	7381485	2262929	0.693	2262929	0.682	21.635	316459	41.3	10.212
1958	16.5	1.027	5448591	1839466	0.662	1839466	0.607	22.868	318184	52.5	11.050
1959	15.7	1.465	6961018	2623157	0.623	2623157	0.512	24.426	563602	66.7	12.110
1960	14.7	3.749	15602534	6713233	0.570	6713232	0.382	26.548	1825292	86.0	13.553
1961	13.0	18.528	64269525	33175490	0.484	32633235	0.174	29.961	11866237	117.0	15.873
1962	12.0	164.511	520039665	294569790	0.434	114168953	0.052	31.957	47638237	135.2	17.231
1963	17.9	242.348	1627848167	433943094	0.733	86871156	0.779	20.046	8439613	26.8	9.132
1964	18.0	31.629	218473066	56634772	0.741	46195341	0.797	19.755	4125720	24.2	8.933
1965	18.0	6.015	41546287	10770043	0.741	10768562	0.797	19.755	961743	24.2	8.933
1966	17.6	1.530	9749689	2739217	0.719	2739217	0.744	20.618	308166	32.0	9.520
1967	17.1	0.713	4165387	1276975	0.693	1276975	0.682	21.635	178578	41.3	10.212
1968	16.5	0.589	3121434	1053808	0.662	1053808	0.607	22.868	182283	52.5	11.050
1969	15.7	0.858	4076285	1536088	0.623	1536088	0.512	24.426	330038	66.7	12.110
1970	14.7	2.293	9540628	4105004	0.570	4105003	0.382	26.548	1116128	86.0	13.553
1971	13.0	13.357	46334446	23917524	0.484	23837991	0.174	29.961	8668072	117.0	15.873
1972	12.0	157.832	498925533	282609961	0.434	113088008	0.052	31.957	47187201	135.2	17.231
1973	17.7	263.981	1735728259	472677639	0.728	88382279	0.765	20.275	9128716	28.9	9.287
1974	18.0	11.771	81305398	21076798	0.741	20852716	0.797	19.755	1862362	24.2	8.933
1975	17.6	3.126	19921943	5597155	0.719	5597154	0.744	20.618	629688	32.0	9.520
1976	17.1	1.438	8396928	2574232	0.693	2574232	0.682	21.635	359993	41.3	10.212
1977	16.5	1.163	6170435	2083164	0.662	2083164	0.607	22.868	360338	52.5	11.050

TABLE OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.037	656627.9	362.5	0	362.5	0.001
1950	13.6	0.151	718506.3	1478.7	0.000	1478.7	0.002
1951	12.0	1.248	778135.8	12227.8	0.000	12227.8	0.015
1952	12.0	16.536	629580.9	162015.7	0.008	160782.7	0.203
1953	12.0	197.390	141571.9	1934034.7	0.665	648791.7	0.821
1954	18.0	248.910	52480.2	2438829.4	0.807	471580.2	0.900
1955	18.0	10.693	419997.3	104767.5	0.007	104063.1	0.199
1956	17.6	2.745	515996.9	26895.2	0.000	26895.2	0.050
1957	17.1	1.264	552713.0	12382.7	0.000	12382.7	0.022
1958	16.5	1.027	581933.6	10065.6	0.000	10065.6	0.017
1959	15.7	1.465	611652.9	14353.9	0.000	14353.9	0.023
1960	14.7	3.749	635588.2	36734.8	0.000	36734.8	0.055
1961	13.0	18.528	568240.4	181536.3	0.016	178569.1	0.239
1962	12.0	164.511	165631.1	1611885.9	0.612	624732.5	0.790
1963	17.9	242.348	55068.2	2374536.6	0.800	475359.0	0.896
1964	18.0	31.629	271279.5	309905.5	0.184	252780.9	0.482
1965	18.0	6.015	465134.8	58933.7	0.000	58925.6	0.112
1966	17.6	1.530	527903.2	14989.0	0.000	14989.0	0.028
1967	17.1	0.713	558108.2	6987.6	0.000	6987.6	0.012
1968	16.5	0.589	586232.7	5766.4	0.000	5766.4	0.010
1969	15.7	0.858	617601.4	8405.5	0.000	8405.5	0.013
1970	14.7	2.293	649860.4	22462.6	0.000	22462.6	0.033
1971	13.0	13.357	616368.0	130876.7	0.003	130441.5	0.175
1972	12.0	157.832	171546.0	1546441.7	0.600	618817.6	0.783
1973	17.7	263.981	51781.7	2586492.0	0.813	483627.8	0.903
1974	18.0	11.771	409954.4	115332.2	0.011	114106.1	0.218
1975	17.6	3.126	512264.5	30627.6	0.000	30627.6	0.056
1976	17.1	1.438	551009.6	14086.2	0.000	14086.2	0.025
1977	16.5	1.163	580600.1	11399.1	0.000	11399.1	0.019

TABLE OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.037	461	871	-410	692	172
1950	13.6	0.151	2489	4750	-2261	3784	944
1951	12.0	1.248	29332	58913	-29581	47092	11770
1952	12.0	16.536	926503	2629697	-1703194	2103516	525853
1953	12.0	197.390	11272316	46193564	-34921248	36950098	9237016
1954	18.0	248.910	2985089	9464769	-6479680	7567474	1891477
1955	18.0	10.693	319523	396187	-76664	316336	79036
1956	17.6	2.745	35554	50651	-15097	40462	10110
1957	17.1	1.264	13537	21778	-8241	17386	4345
1958	16.5	1.027	12077	20617	-8540	16462	4114
1959	15.7	1.465	21623	39028	-17405	31186	7793
1960	14.7	3.749	86693	171489	-84796	137140	34281
1961	13.0	18.528	1139135	2952178	-1813043	2361538	590360
1962	12.0	164.511	9386179	41491280	-32105101	33191336	8297615
1963	17.9	242.348	4970334	12045739	-7075405	9631480	2407360
1964	18.0	31.629	1208549	2218533	-1009984	1772344	442915
1965	18.0	6.015	106478	140993	-34515	112500	28106
1966	17.6	1.530	17453	22832	-5379	18226	4553
1967	17.1	0.713	8612	11068	-2456	8822	2204
1968	16.5	0.589	9281	10965	-1684	8738	2184
1969	15.7	0.858	22060	21075	985	16824	4202
1970	14.7	2.293	182196	96469	85727	77106	19270
1971	13.0	13.357	2572781	1997884	574897	1597902	399443
1972	12.0	157.832	11378575	42283974	-30905399	33824218	8455718
1973	17.7	263.981	2364862	9705737	-7340875	7759978	1939532
1974	18.0	11.771	421810	472324	-50514	376614	94090
1975	17.6	3.126	44897	61452	-16555	49030	12250
1976	17.1	1.438	14812	25546	-10734	20396	5097
1977	16.5	1.163	12685	23891	-11206	19078	4768

TABLE OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	30561	36691	1266905
0	224313	263481	8971158
0	3579966	3965841	118390912
0	159956565	125268337	1335344735
0	2809768318	1524079060	2500484913
0	123265245	113498198	59389525
0	4294491	7722069	33228734
0	725398	1081149	16197609
0	402946	547079	12207114
0	485367	626945	15667575
0	1168294	1432750	35090036
0	6629562	7430450	143013196
0	155442418	133159676	1084161638
0	2522726184	1266497693	2544008317
0	280426987	438571648	72835342
0	24863532	36372742	60879803
0	1528335	2596558	20225750
0	327998	569384	9181054
0	204714	368157	6938572
0	258280	516637	9025230
0	633841	1635627	20697306
0	3855196	19555684	88905100
0	107358818	329305502	838591345
0	2556783243	1502338008	2560696307
0	135741028	106933280	83388346
0	5135747	10814476	35819288
0	876770	1308958	18346773
0	472470	589337	13854566
0	562313	653453	17712970

AVERAGE CYCLE FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1963   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 248.910   242.348   263.981
MEAN OF MAXIMA: 251.746 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958   1968
SIMULATED MINIMAL LARVAL DENSITIES: 1.027   0.589
MEAN OF MINIMA: 0.808 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.037
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 263.981
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 263.944
DIFFERENCE BETWEEN MEANS OF EXTREMES: 250.939 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
A	0.825	2.430	16.140	173.244	251.746	18.031	3.962	1.410	0.968
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	3864733	9696066	54291591	547646367	1694290051	124545366	26320804	8509367	5261471
1	1476492	4350950	28900379	310207252	450771082	32285894	7094087	2525459	1733201
3	1476492	4350950	28618012	115274229	87144675	28688479	7093593	2525459	1733201
W	327658	1291279	10931535	48099425	8421715	2562176	714794	328206	285700

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 15220.616
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.013

AVERAGE CYCLE FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954   1963   1973
SIMULATED MAXIMAL LARVAL DENSITIES: 248.910   242.348   263.981
MEAN OF MAXIMA: 251.746 (SIMULATED),   204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958   1968
SIMULATED MINIMAL LARVAL DENSITIES: 1.027   0.589
MEAN OF MINIMA: 0.808 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.037
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 263.981
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 263.944
DIFFERENCE BETWEEN MEANS OF EXTREMES: 250.939 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.9	18.0	17.7	17.2	16.7
A	0.825	2.430	16.140	173.244	251.746	18.031	3.962	1.410	0.968
M	0.587	0.524	0.467	0.434	0.734	0.741	0.726	0.702	0.673
L	0.424	0.272	0.133	0.052	0.780	0.797	0.762	0.703	0.632
S	0.000	0.000	0.009	0.626	0.806	0.067	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	20.025	19.755	20.330	21.296	22.457
W	13.086	14.779	16.326	17.231	9.117	8.933	9.324	9.981	10.771
4	79.7	102.4	123.1	135.2	26.6	24.2	29.4	38.2	48.8
D	0.013	0.035	0.206	0.798	0.900	0.300	0.073	0.025	0.016

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 15220.616
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.013

AVERAGE CYCLE FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY   FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958   1968
SIMULATED MINIMAL LARVAL DENSITIES: 1.027   0.589
MEAN OF MINIMA: 0.808 (SIMULATED),   0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.037
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 263.981
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 263.944
DIFFERENCE BETWEEN MEANS OF EXTREMES: 250.939 (SIMULATED),   204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.9	18.0	17.7	17.2	16.7
A	0.825	2.430	16.140	173.244	251.746	18.031	3.962	1.410	0.968
I	15390	99407	1546139	10679023	3440095	649960	62309	15267	11124
O	21617	108957	2526586	43322939	10405415	1029014	84365	23385	18525
E	-6227	-9550	-980446	-32643916	-6965320	-379054	-22055	-8118	-7400
U	675482	4688241	140919267	2629759248	179811086	11431256	1043501	401138	417464
H	21586166	116769736	1086032572	2535063179	71871071	43309275	18256710	11747578	13439705
G	1110619	10317325	195911171	1430971587	219667708	18303095	1662221	568600	549518

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 15220.616
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.013

AVERAGE CYCLE FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1963 1973
SIMULATED MAXIMAL LARVAL DENSITIES: 248.910 242.348 263.981
MEAN OF MAXIMA: 251.746 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958 1968
SIMULATED MINIMAL LARVAL DENSITIES: 1.027 0.589
MEAN OF MINIMA: 0.808 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.037
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 263.981
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 263.944
DIFFERENCE BETWEEN MEANS OF EXTREMES: 250.939 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.9	18.0	17.7	17.2	16.7
A	0.825	2.430	16.140	173.244	251.746	18.031	3.962	1.410	0.968
D	0.013	0.035	0.206	0.798	0.900	0.300	0.073	0.025	0.016
F	649253.5	687861.5	604729.8	159583.0	53110.0	367077.1	497798.8	543875.3	573547.3
*	8079.4	23808.4	158142.9	1697454.1	2466619.4	176668.4	38818.8	13819.3	9484.1
E	8079.4	23808.4	156597.8	630780.6	476855.7	156983.4	38816.1	13819.3	9484.1

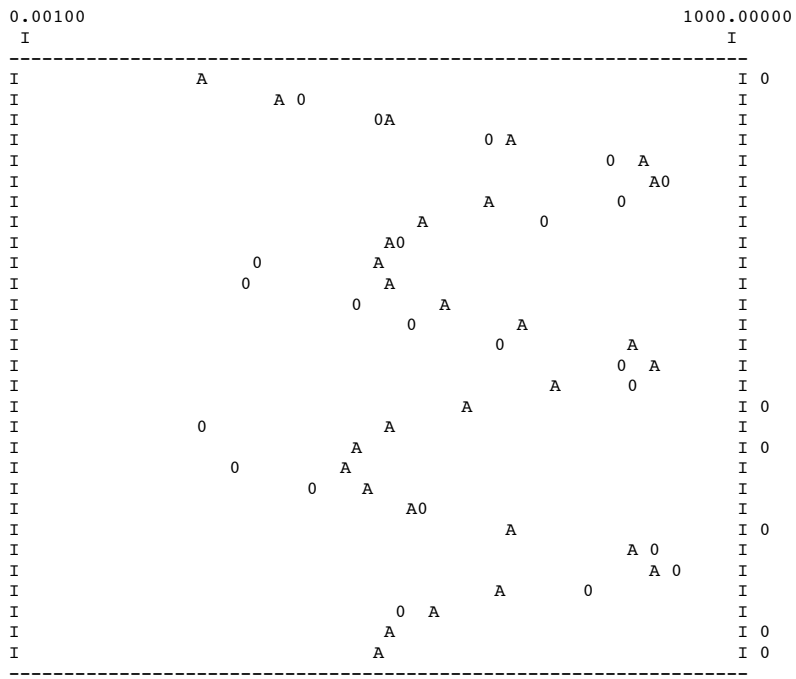
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 15220.616
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.013

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

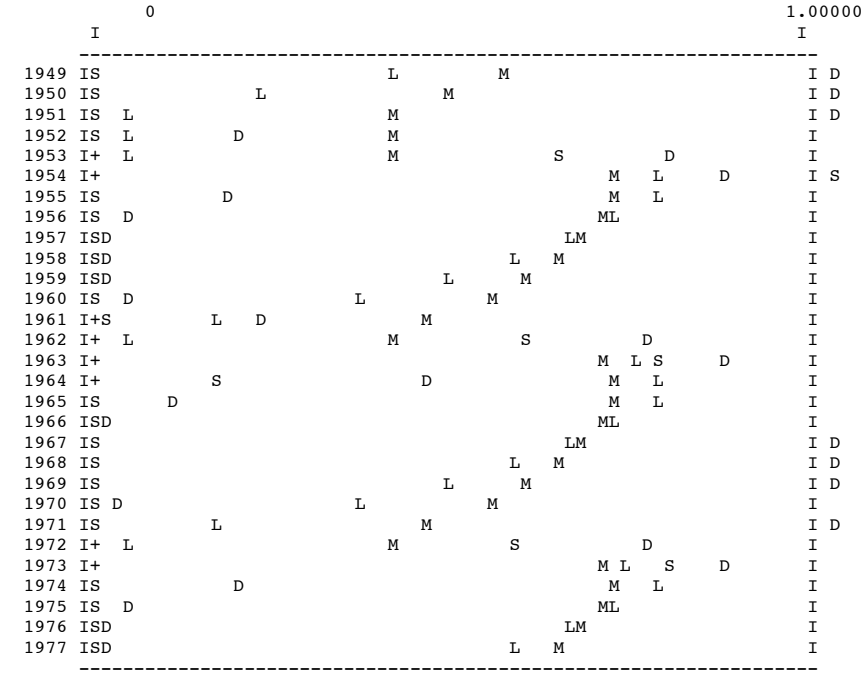


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

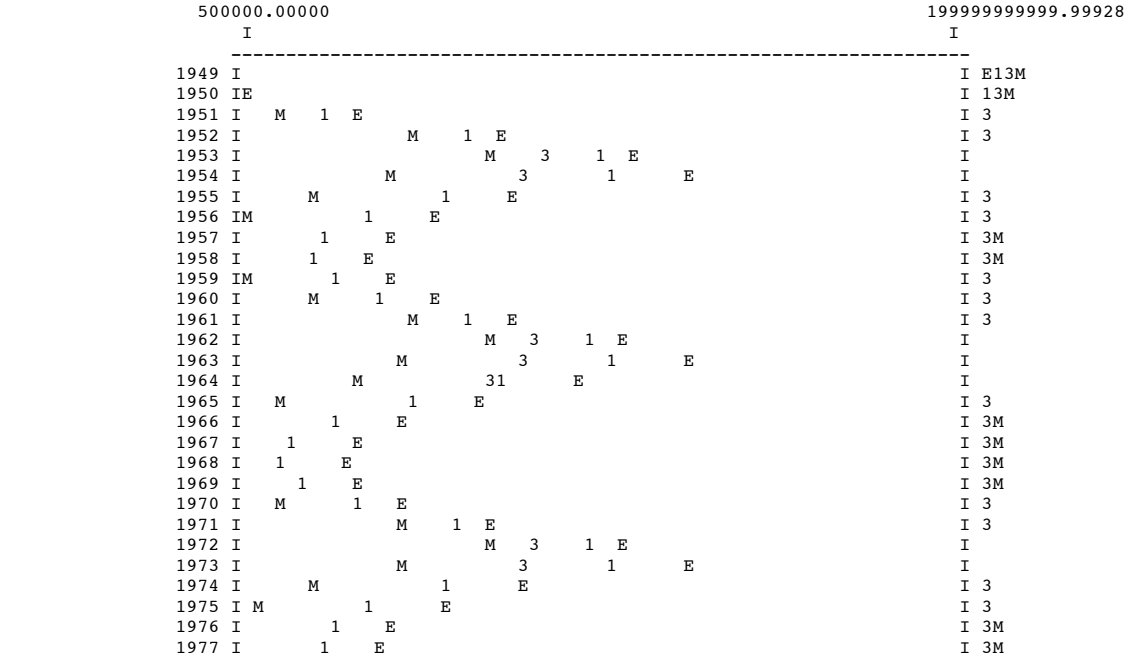


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

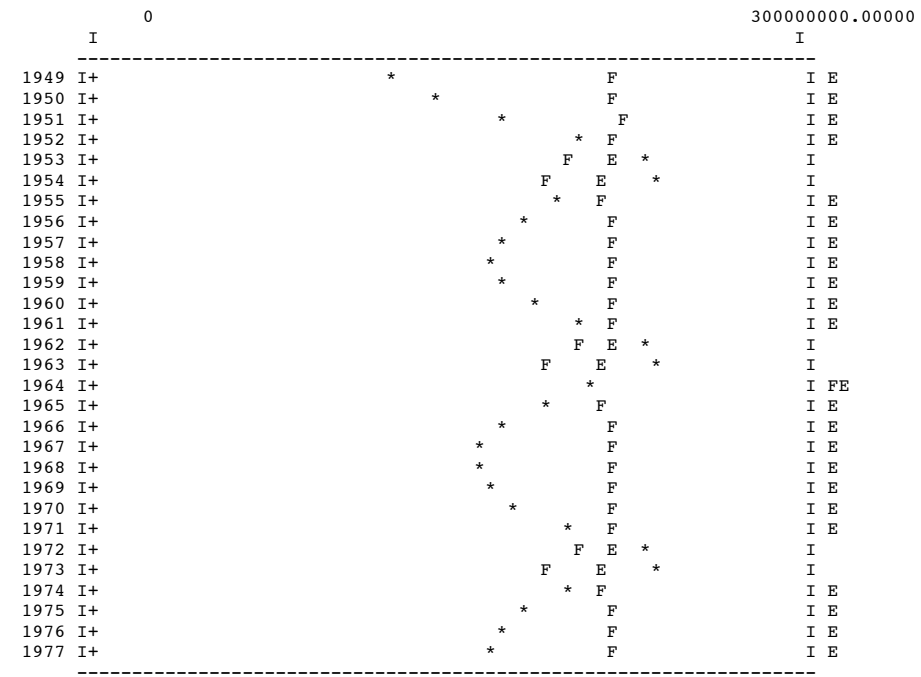


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 362.520000 MAX = 2586492.040608



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 9:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

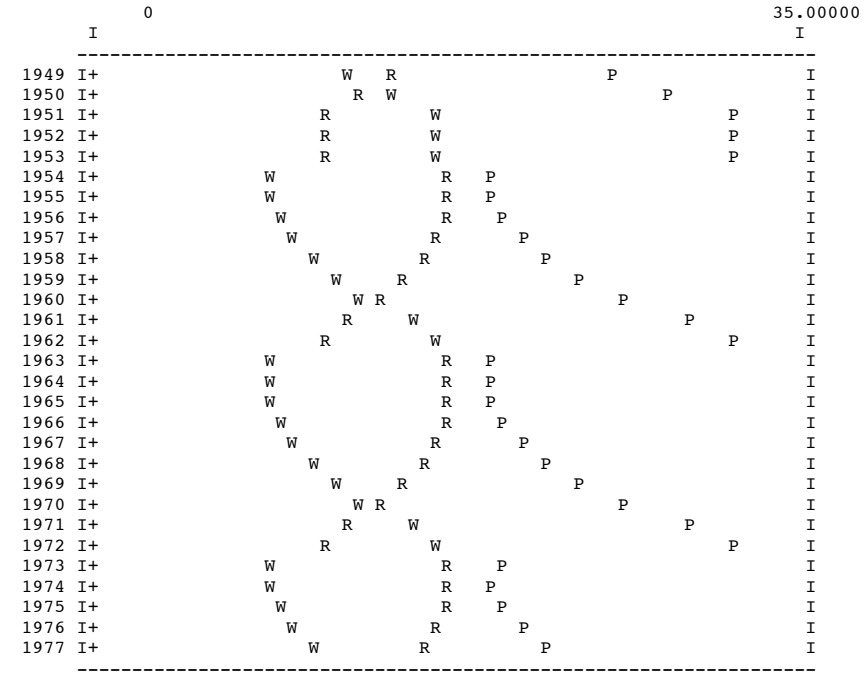


TABLE OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	134227	55379	0.587	0.021	0.021	967294.0	0	55379	0.000	0.425	14011	79.6
1950	13.6	460158	223290	0.515	0.085	0.134	1059151.8	0	223290	0.001	0.249	73817	105.9
1951	12.0	3224581	1826522	0.434	0.693	0.596	1154030.5	0.000	1826522	0.009	0.052	762136	135.2
1952	12.0	42412069	24023771	0.434	9.110	5.571	1032585.9	0.000	24020342	0.113	0.052	10022748	135.2
1953	12.0	534671492	302857801	0.434	114.845	61.199	327783.8	0.495	152821890	0.718	0.052	63766595	135.2
1954	16.8	1981275484	637765671	0.678	241.843	209.408	95993.2	0.783	138127373	0.887	0.645	21576632	46.8
1955	18.0	153355758	39754413	0.741	15.075	96.146	560546.3	0.029	38610212	0.274	0.797	3448290	24.2
1956	17.6	27782362	7805574	0.719	2.960	41.974	756844.2	0.000	7805573	0.053	0.744	878138	32.0
1957	17.1	11140922	3415454	0.693	1.295	1.330	813567.7	0.000	3415454	0.022	0.682	477634	41.3
1958	16.5	7973720	2691960	0.662	1.021	0.031	857149.2	0.000	2691960	0.017	0.607	465645	52.5
1959	15.7	9923150	3739393	0.623	1.418	0.037	901503.3	0.000	3739393	0.022	0.512	803433	66.7
1960	14.7	21679821	9328081	0.570	3.537	0.094	939135.1	0.000	9328080	0.052	0.382	2536255	86.0
1961	13.0	86677113	44742134	0.484	16.966	2.080	857791.4	0.011	44241323	0.220	0.174	16087219	117.0
1962	12.0	667985045	378371551	0.434	143.480	16.500	273625.7	0.570	162719201	0.765	0.052	67896356	135.2
1963	17.5	1894830592	542230946	0.714	205.616	166.730	100248.3	0.762	129012823	0.876	0.732	15231538	33.9
1964	18.0	116105064	30097915	0.741	11.413	196.280	608644.1	0.009	29820402	0.211	0.797	2663269	24.2
1965	17.6	27284911	7665813	0.719	2.907	4.220	757608.9	0.000	7665812	0.052	0.744	862415	32.0
1966	17.1	11128029	3411501	0.693	1.294	0.000	813589.4	0.000	3411501	0.022	0.682	477081	41.3
1967	16.5	7939646	2680456	0.662	1.016	0.000	857212.2	0.000	2680456	0.017	0.607	463655	52.5
1968	15.7	9804943	3694848	0.623	1.401	0.036	901747.0	0.000	3694848	0.022	0.512	793862	66.7
1969	14.7	21191185	9117838	0.570	3.458	0.206	940285.5	0.000	9117837	0.050	0.382	2479091	86.0
1970	13.0	83371212	43035650	0.484	16.319	1.557	866594.7	0.009	42632542	0.212	0.174	15502227	117.0
1971	12.0	618926964	350583231	0.434	132.942	10.875	291364.1	0.545	159477532	0.750	0.052	66543734	135.2
1972	17.2	1592366351	474313386	0.702	179.861	160.520	117217.2	0.729	128642386	0.857	0.703	16795059	38.1
1973	18.0	401555985	104095357	0.741	39.473	321.555	349140.9	0.258	77244246	0.548	0.797	6898708	24.2
1974	18.0	63228910	16390830	0.741	6.215	59.540	682147.2	0.000	16387828	0.116	0.797	1463602	24.2
1975	17.6	14160171	3978360	0.719	1.509	1.298	777786.7	0.000	3978360	0.027	0.744	447571	32.0
1976	17.1	5905433	1810418	0.693	0.687	0.000	822350.5	0.000	1810418	0.012	0.682	253178	41.3
1977	16.5	4319331	1458223	0.662	0.553	0.000	863900.2	0.000	1458223	0.009	0.607	252238	52.5

TABLE OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.021	0.021	0.000	0.000	0.000	0.000	0
1950	13.6	0.085	0.134	0.000	0.000	0.002	0.049	0
1951	12.0	0.693	0.596	0.000	0.000	0.012	-0.097	0
1952	12.0	9.110	5.571	0.000	0.000	12.536	-3.539	0
1953	12.0	114.845	61.199	0.000	0.000	2890.388	-53.646	0
1954	16.8	241.843	209.408	0.000	0.000	3942.399	-32.435	0
1955	18.0	15.075	96.146	0.000	0.000	10514.907	81.071	0
1956	17.6	2.960	41.974	0.000	0.000	12037.007	39.014	0
1957	17.1	1.295	1.330	0.000	0.000	12037.008	0.035	0
1958	16.5	1.021	0.031	0.000	0.000	12037.988	-0.990	0
1959	15.7	1.418	0.037	0.000	0.000	12039.895	-1.381	0
1960	14.7	3.537	0.094	0.000	0.000	12051.751	-3.443	0
1961	13.0	16.966	2.080	0.000	0.000	12273.354	-14.886	0
1962	12.0	143.480	16.500	0.000	0.000	28397.190	-126.980	0
1963	17.5	205.616	166.730	0.000	0.000	29909.285	-38.886	0
1964	18.0	11.413	196.280	0.000	0.000	64085.010	184.867	0
1965	17.6	2.907	4.220	0.000	0.000	64086.734	1.313	0
1966	17.1	1.294	0.000	0.000	0.000	64088.408	-1.294	0
1967	16.5	1.016	0.000	0.000	0.000	64089.441	-1.016	0
1968	15.7	1.401	0.036	0.000	0.000	64091.304	-1.365	0
1969	14.7	3.458	0.206	0.000	0.000	64101.876	-3.252	0
1970	13.0	16.319	1.557	0.000	0.000	64319.801	-14.762	0
1971	12.0	132.942	10.875	0.000	0.000	79220.214	-122.067	0
1972	17.2	179.861	160.520	0.000	0.000	79594.293	-19.341	0
1973	18.0	39.473	321.555	0.000	0.000	159164.388	282.082	0
1974	18.0	6.215	59.540	0.000	0.000	162007.895	53.325	0
1975	17.6	1.509	1.298	0.000	0.000	162007.939	-0.211	0
1976	17.1	0.687	0.000	0.000	0.000	162008.411	-0.686	0
1977	16.5	0.553	0.000	0.000	0.000	162008.716	-0.553	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.021	134227	55379	0.587	55379	0.425	25.846	14011	79.6	13.075
1950	13.6	0.085	460158	223290	0.515	223290	0.249	28.732	73817	105.9	15.038
1951	12.0	0.693	3224581	1826522	0.434	1826522	0.052	31.957	762136	135.2	17.231
1952	12.0	9.110	42412069	24023771	0.434	24020342	0.052	31.957	10022748	135.2	17.231
1953	12.0	114.845	534671492	302857801	0.434	152821890	0.052	31.957	63766595	135.2	17.231
1954	16.8	241.843	1981275484	637765671	0.678	138127373	0.645	22.244	21576632	46.8	10.626
1955	18.0	15.075	153355758	39754413	0.741	38610212	0.797	19.755	3448290	24.2	8.933
1956	17.6	2.960	27782362	7805574	0.719	7805573	0.744	20.618	878138	32.0	9.520
1957	17.1	1.295	11140922	3415454	0.693	3415454	0.682	21.635	477634	41.3	10.212
1958	16.5	1.021	7973720	2691960	0.662	2691960	0.607	22.868	465645	52.5	11.050
1959	15.7	1.418	9923150	3739393	0.623	3739393	0.512	24.426	803433	66.7	12.110
1960	14.7	3.537	21679821	9328081	0.570	9328080	0.382	26.548	2536255	86.0	13.553
1961	13.0	16.966	86677113	44742134	0.484	44241323	0.174	29.961	16087219	117.0	15.873
1962	12.0	143.480	667985045	378371551	0.434	162719201	0.052	31.957	67896356	135.2	17.231
1963	17.5	205.616	1894830592	542230946	0.714	129012823	0.732	20.824	15231538	33.9	9.661
1964	18.0	11.413	116105064	30097915	0.741	29820402	0.797	19.755	2663269	24.2	8.933
1965	17.6	2.907	27284911	7665813	0.719	7665812	0.744	20.618	862415	32.0	9.520
1966	17.1	1.294	11128029	3411501	0.693	3411501	0.682	21.635	477081	41.3	10.212
1967	16.5	1.016	7939646	2680456	0.662	2680456	0.607	22.868	463655	52.5	11.050
1968	15.7	1.401	9804943	3694848	0.623	3694848	0.512	24.426	793862	66.7	12.110
1969	14.7	3.458	21191185	9117838	0.570	9117837	0.382	26.548	2479091	86.0	13.553
1970	13.0	16.319	83371212	43035650	0.484	42632542	0.174	29.961	15502227	117.0	15.873
1971	12.0	132.942	618926964	350583231	0.434	159477532	0.052	31.957	66543734	135.2	17.231
1972	17.2	179.861	1592366351	474313386	0.702	128642386	0.703	21.289	16795059	38.1	9.977
1973	18.0	39.473	401555985	104095357	0.741	77244246	0.797	19.755	6898708	24.2	8.933
1974	18.0	6.215	63228910	16390830	0.741	16387828	0.797	19.755	1463602	24.2	8.933
1975	17.6	1.509	14160171	3978360	0.719	3978360	0.744	20.618	447571	32.0	9.520
1976	17.1	0.687	5905433	1810418	0.693	1810418	0.682	21.635	253178	41.3	10.212
1977	16.5	0.553	4319331	1458223	0.662	1458223	0.607	22.868	252238	52.5	11.050

TABLE OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.021	967294.0	303.0	0	303.0	0.000
1950	13.6	0.085	1059151.8	1221.8	0	1221.8	0.001
1951	12.0	0.693	1154030.5	9994.7	0.000	9994.7	0.009
1952	12.0	9.110	1032585.9	131458.1	0.000	131439.3	0.113
1953	12.0	114.845	327783.8	1657237.9	0.495	836241.4	0.718
1954	16.8	241.843	95993.2	3489853.8	0.783	755833.0	0.887
1955	18.0	15.075	560546.3	217536.1	0.029	211275.1	0.274
1956	17.6	2.960	756844.2	42712.1	0.000	42712.1	0.053
1957	17.1	1.295	813567.7	18689.4	0.000	18689.4	0.022
1958	16.5	1.021	857149.2	14730.4	0.000	14730.4	0.017
1959	15.7	1.418	901503.3	20462.0	0.000	20462.0	0.022
1960	14.7	3.537	939135.1	51043.3	0.000	51043.3	0.052
1961	13.0	16.966	857791.4	244829.0	0.011	242088.5	0.220
1962	12.0	143.480	273625.7	2070449.1	0.570	890399.5	0.765
1963	17.5	205.616	100248.3	2967087.7	0.762	705958.2	0.876
1964	18.0	11.413	608644.1	164695.8	0.009	163177.2	0.211
1965	17.6	2.907	757608.9	41947.3	0.000	41947.3	0.052
1966	17.1	1.294	813589.4	18667.7	0.000	18667.7	0.022
1967	16.5	1.016	857212.2	14667.5	0.000	14667.5	0.017
1968	15.7	1.401	901747.0	20218.2	0.000	20218.2	0.022
1969	14.7	3.458	940285.5	49892.8	0.000	49892.8	0.050
1970	13.0	16.319	866594.7	235491.1	0.009	233285.3	0.212
1971	12.0	132.942	291364.1	1918391.4	0.545	872661.1	0.750
1972	17.2	179.861	117217.2	2595442.8	0.729	703931.1	0.857
1973	18.0	39.473	349140.9	569609.8	0.258	422680.5	0.548
1974	18.0	6.215	682147.2	89690.6	0.000	89674.2	0.116
1975	17.6	1.509	777786.7	21769.6	0.000	21769.6	0.027
1976	17.1	0.687	822350.5	9906.6	0.000	9906.6	0.012
1977	16.5	0.553	863900.2	7979.4	0.000	7979.4	0.009

TABLE OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.021	226	717	-491	644	70
1950	13.6	0.085	1239	3826	-2587	3433	381
1951	12.0	0.693	14918	43696	-28778	39312	4365
1952	12.0	9.110	545913	1394909	-848996	1255315	139463
1953	12.0	114.845	6429472	42342412	-35912940	38106329	4233718
1954	16.8	241.843	1240049	16579045	-15338996	14919703	1657515
1955	18.0	15.075	91976	880707	-788731	792492	88030
1956	17.6	2.960	13920	79017	-65097	71093	7896
1957	17.1	1.295	6115	32037	-25922	28818	3200
1958	16.5	1.021	5752	29330	-23578	26382	2930
1959	15.7	1.418	10645	53756	-43111	48366	5372
1960	14.7	3.537	43942	225062	-181120	202531	22499
1961	13.0	16.966	614288	3507997	-2893709	3157091	350771
1962	12.0	143.480	5409108	46817459	-41408351	42134832	4681462
1963	17.5	205.616	1734482	12479951	-10745469	11230125	1247486
1964	18.0	11.413	493859	646283	-152424	581031	64502
1965	17.6	2.907	35271	79005	-43734	71041	7888
1966	17.1	1.294	6039	31986	-25947	28772	3195
1967	16.5	1.016	2956	29000	-26044	26086	2897
1968	15.7	1.401	2902	52440	-49538	47185	5240
1969	14.7	3.458	5370	214415	-209045	192958	21436
1970	13.0	16.319	19851	3148236	-3128385	2833382	314814
1971	12.0	132.942	228795	39594554	-39365759	35634922	3959400
1972	17.2	179.861	5354509	18247399	-12892890	16421347	1824335
1973	18.0	39.473	1704276	4065077	-2360801	3657016	406130
1974	18.0	6.215	102236	210242	-108006	188999	20982
1975	17.6	1.509	15347	32294	-16947	29034	3220
1976	17.1	0.687	6589	15239	-8650	13700	1521
1977	16.5	0.553	6159	14644	-8485	13166	1461

TABLE OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	42499	17987	1059164
0	304235	131158	7417020
0	4464347	2016992	97262196
0	142600240	73810475	1177761370
0	4328981549	869300180	3768516965
0	567445466	39355398	319623437
0	16089793	2222845	62810775
0	1911758	444367	25634571
0	998844	252199	18412878
0	1162880	301860	22926488
0	2708687	709601	50039044
0	14629890	3777854	199118012
0	310481323	71889404	1491746001
0	4786447883	730911254	3704553616
0	345011099	104080927	167700591
0	11816761	12432698	51436478
0	1891132	852415	25196344
0	994693	193365	18391950
0	1148514	122015	22829632
0	2640731	152337	49452499
0	13932790	358044	194799288
0	278545172	1706930	1447092145
0	4044446308	26779297	3700670028
0	1037846100	723916297	216055579
0	78612771	54610735	93397015
0	3835307	2485935	30660535
0	780199	488288	13335292
0	474691	271561	9839233
0	580172	323102	12492790

AVERAGE CYCLE FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1963 1972
SIMULATED MAXIMAL LARVAL DENSITIES: 241.843 205.616 179.861
MEAN OF MAXIMA: 209.106 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958 1967
SIMULATED MINIMAL LARVAL DENSITIES: 1.021 1.016
MEAN OF MINIMA: 1.019 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.021
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 241.843
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 241.822
DIFFERENCE BETWEEN MEANS OF EXTREMES: 208.088 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
A	0.968	2.562	14.132	130.422	209.106	21.987	4.027	1.366	0.908
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	6729417	15365195	70820131	607194500	1822824142	223672269	39432061	12143040	7272933
1	2552510	6757480	37267185	343937527	551436667	57982561	10620739	3601771	2394278
3	2552510	6757479	36964735	158339541	131927527	48558286	10619737	3601771	2394278
W	557037	1925827	13870731	66068895	17867743	4336755	1068051	467428	394159

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 5571.200
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.067

AVERAGE CYCLE FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1963 1972
SIMULATED MAXIMAL LARVAL DENSITIES: 241.843 205.616 179.861
MEAN OF MAXIMA: 209.106 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958 1967
SIMULATED MINIMAL LARVAL DENSITIES: 1.021 1.016
MEAN OF MINIMA: 1.019 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.021
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 241.843
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 241.822
DIFFERENCE BETWEEN MEANS OF EXTREMES: 208.088 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.2	18.0	17.7	17.2	16.7
A	0.968	2.562	14.132	130.422	209.106	21.987	4.027	1.366	0.908
M	0.587	0.524	0.467	0.434	0.698	0.741	0.726	0.702	0.673
L	0.424	0.272	0.133	0.052	0.693	0.797	0.762	0.703	0.632
S	0.000	0.000	0.007	0.537	0.758	0.099	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	21.453	19.755	20.330	21.296	22.457
W	13.086	14.779	16.326	17.231	10.088	8.933	9.324	9.981	10.771
4	79.7	102.4	123.1	135.2	39.6	24.2	29.4	38.2	48.8
D	0.015	0.037	0.182	0.744	0.873	0.344	0.074	0.024	0.015

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 5571.200
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.067

AVERAGE CYCLE FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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SIMULATED MAXIMAL LARVAL DENSITIES: 241.843 205.616 179.861
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NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
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DIFFERENCE BETWEEN MEANS OF EXTREMES: 208.088 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.2	18.0	17.7	17.2	16.7
A	0.968	2.562	14.132	130.422	209.106	21.987	4.027	1.366	0.908
I	4928	21410	393350	4022458	2776346	763370	50475	9167	5099
O	36674	161057	2683714	42918141	15768798	1864022	122754	32105	24523
E	-31745	-139647	-2290363	-38895683	-12992451	-1100652	-72279	-22938	-19424
U	1884551	11009009	243875578	4386625246	650100888	35506441	2546065	924578	928695
H	35636187	163726498	1372199838	3724580203	234459869	69214756	27163816	16713373	18531784
G	331032	2050963	49135603	542330243	289117540	23088759	1260905	311284	231812

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 5571.200
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.067

AVERAGE CYCLE FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

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NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958 1967
SIMULATED MINIMAL LARVAL DENSITIES: 1.021 1.016
MEAN OF MINIMA: 1.019 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.021
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MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 241.822
DIFFERENCE BETWEEN MEANS OF EXTREMES: 208.088 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.2	18.0	17.7	17.2	16.7
A	0.968	2.562	14.132	130.422	209.106	21.987	4.027	1.366	0.908
D	0.015	0.037	0.182	0.744	0.873	0.344	0.074	0.024	0.015
F	954134.0	1011150.4	918990.7	297591.2	104486.2	506110.4	732200.1	801647.9	845570.6
*	13967.3	36976.9	203926.0	1882026.2	3017461.4	317280.6	58116.7	19708.9	13101.5
E	13967.3	36976.9	202271.0	866434.0	721907.4	265710.9	58111.2	19708.9	13101.5

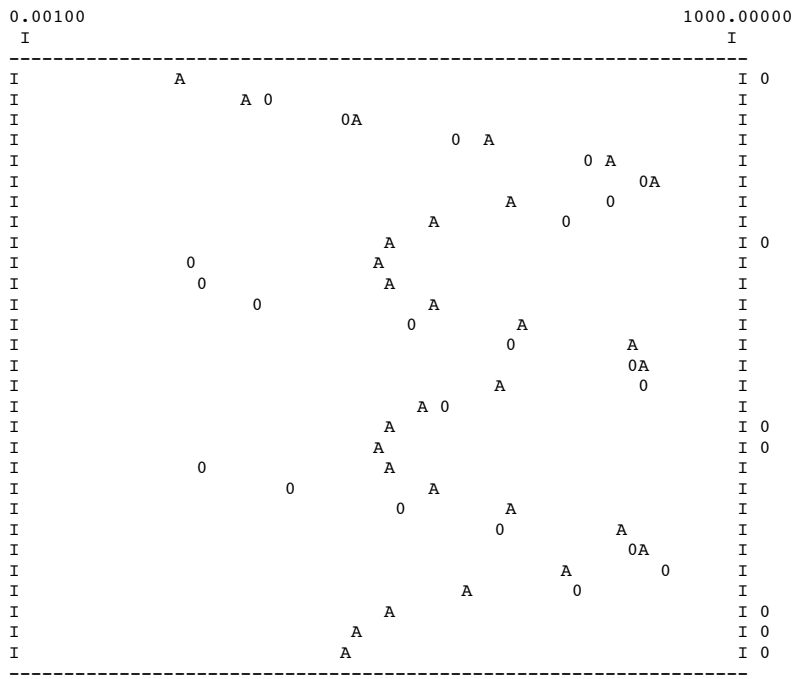
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 5571.200
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.067

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

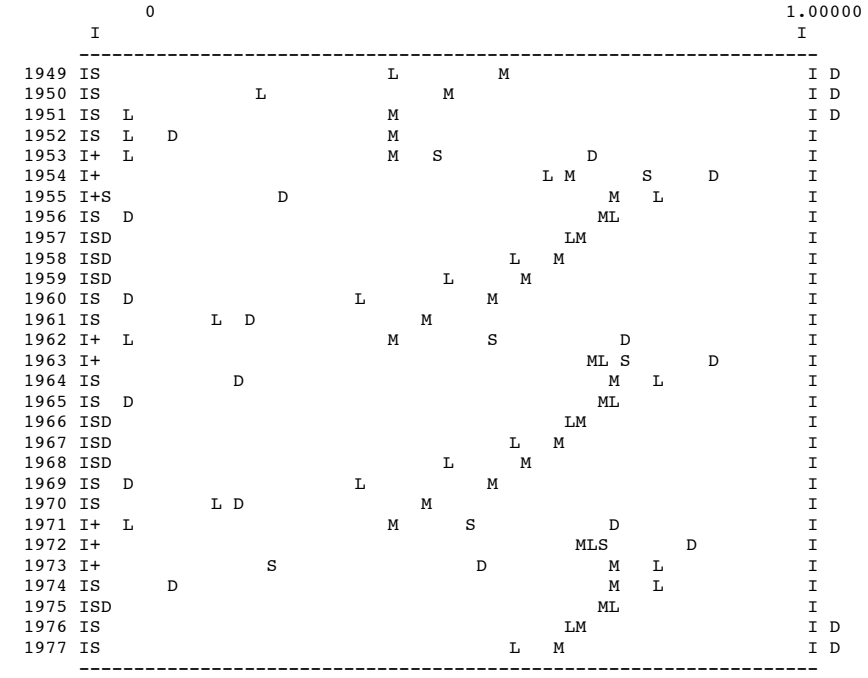


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

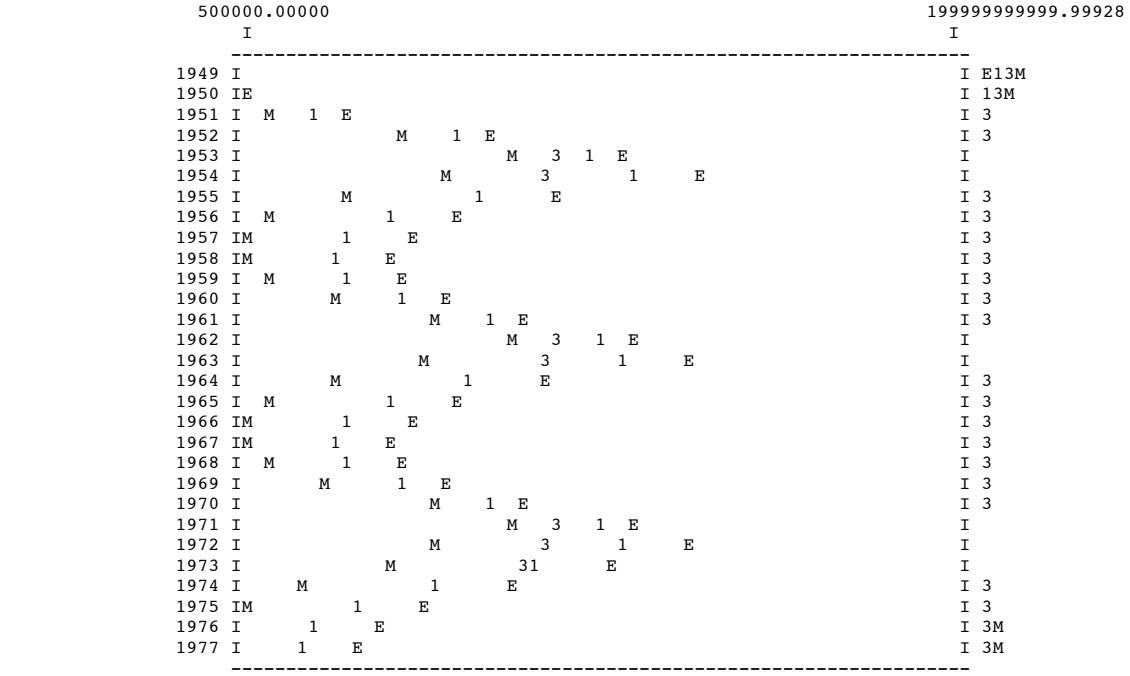


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

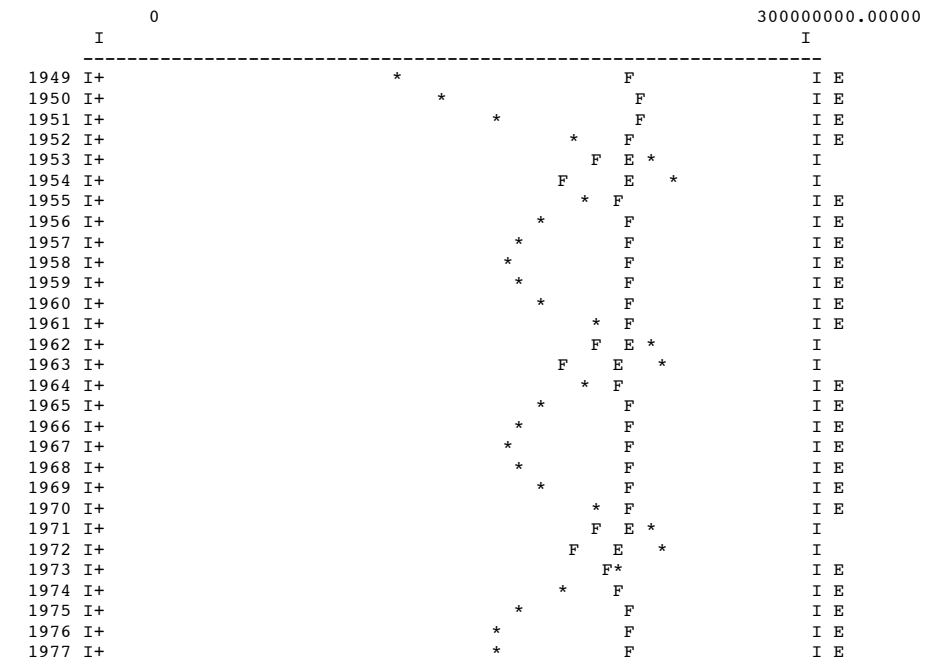


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 303.033888 MAX = 3489853.751712



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 10:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

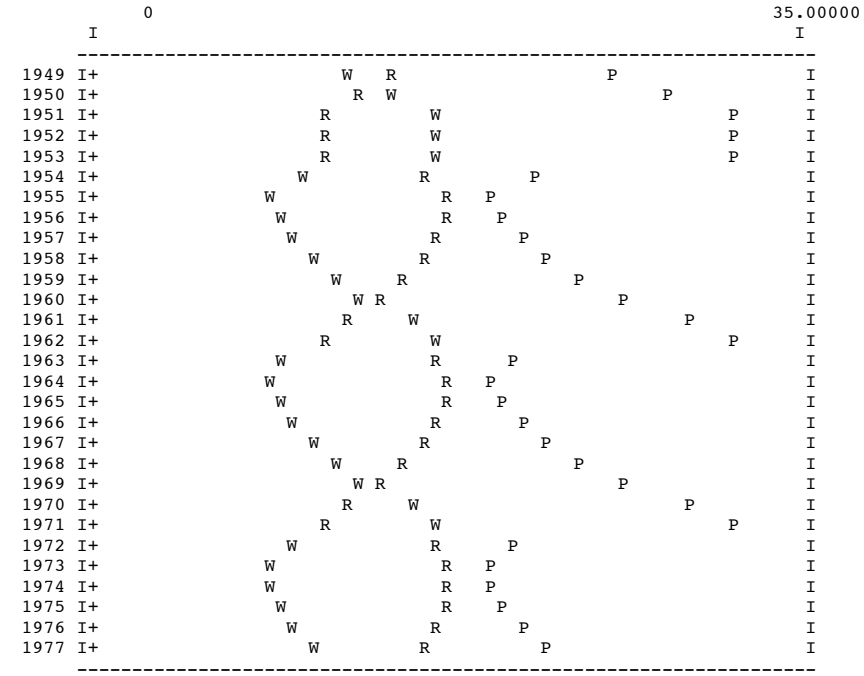


TABLE OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	339375	140018	0.587	0.028	0.028	1834063.6	0	140018	0.000	0.425	35426	79.6
1950	13.6	1161669	563698	0.515	0.113	0.105	2007675.2	0.000	563698	0.002	0.249	186352	105.9
1951	12.0	8126825	4603335	0.434	0.921	0.527	2182122.2	0.000	4603335	0.011	0.052	1920791	135.2
1952	12.0	106503717	60327662	0.434	12.064	3.710	1877610.5	0.001	60252397	0.149	0.052	25140967	135.2
1953	12.0	1296127817	734174959	0.434	146.815	92.656	509052.6	0.577	310354358	0.769	0.052	129498730	135.2
1954	17.5	3869548445	1094105251	0.717	218.791	347.229	177726.3	0.776	245393509	0.883	0.740	28076896	32.7
1955	18.0	197061464	51084243	0.741	10.215	83.734	1185540.2	0.005	50812350	0.190	0.797	4538067	24.2
1956	17.6	43905757	12335511	0.719	2.467	28.189	1448678.4	0.000	12335510	0.045	0.744	1387763	32.0
1957	17.1	18064037	5537862	0.693	1.107	2.358	1547884.9	0.000	5537862	0.019	0.682	774442	41.3
1958	16.5	13069318	4412255	0.662	0.882	0.033	1629179.5	0.000	4412255	0.015	0.607	763216	52.5
1959	15.7	16391748	6176989	0.623	1.235	0.020	1714498.9	0.000	6176989	0.019	0.512	1327167	66.7
1960	14.7	36090939	15528690	0.570	3.105	0.122	1792677.2	0.000	15528689	0.045	0.382	4222168	86.0
1961	13.0	146033847	75381675	0.484	15.074	0.510	1675813.2	0.006	74901573	0.197	0.174	27236031	117.0
1962	12.0	1174324872	665181245	0.434	133.018	8.885	552249.1	0.545	302460259	0.750	0.052	126204832	135.2
1963	17.2	3657873806	1089232281	0.702	217.817	96.486	186735.6	0.770	250396631	0.880	0.703	32666888	38.1
1964	18.0	501515949	130007979	0.741	25.998	159.849	843096.2	0.128	113393488	0.424	0.797	10127208	24.2
1965	18.0	96340018	24974222	0.741	4.994	2.050	1326929.5	0.000	24973664	0.093	0.797	2230405	24.2
1966	17.6	22240565	6248582	0.719	1.250	0.000	1481986.1	0.000	6248582	0.023	0.744	702974	32.0
1967	17.1	9394159	2879951	0.693	0.576	0.000	1562429.0	0.000	2879951	0.010	0.682	402746	41.3
1968	16.5	6990755	2360107	0.662	0.472	0.015	1640408.8	0.000	2360107	0.008	0.607	408242	52.5
1969	15.7	9137552	3443352	0.623	0.689	0.049	1729457.3	0.000	3443352	0.011	0.512	739827	66.7
1970	14.7	21859590	9405430	0.570	1.881	0.302	1826183.7	0.000	9405430	0.027	0.382	2557286	86.0
1971	13.0	120151593	62021432	0.484	12.403	10.653	1747020.6	0.002	61888516	0.162	0.174	22504167	117.0
1972	12.0	1398609214	792224231	0.434	158.423	144.824	477580.9	0.601	316105765	0.784	0.052	131898568	135.2
1973	17.8	3620908482	984152711	0.728	196.804	237.614	189331.9	0.758	238427951	0.873	0.767	24492765	28.7
1974	18.0	170998487	44327937	0.741	8.864	131.462	1221604.2	0.002	44221716	0.165	0.797	3949455	24.2
1975	17.6	43718516	12282905	0.719	2.456	0.944	1448966.3	0.000	12282904	0.044	0.744	1381845	32.0
1976	17.1	18212777	5583461	0.693	1.117	0.008	1547635.4	0.000	5583461	0.019	0.682	780819	41.3
1977	16.5	13196938	4455340	0.662	0.891	0.000	1628943.7	0.000	4455340	0.015	0.607	770668	52.5

TABLE OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.028	0.028	0.000	0.000	0.000	0.000	0
1950	13.6	0.113	0.105	0.000	0.000	0.000	-0.008	0
1951	12.0	0.921	0.527	0.000	0.000	0.155	-0.394	0
1952	12.0	12.064	3.710	0.000	0.000	69.942	-8.354	0
1953	12.0	146.815	92.656	0.000	0.000	3003.131	-54.159	0
1954	17.5	218.791	347.229	0.000	0.000	19499.415	128.438	0
1955	18.0	10.215	83.734	0.000	0.000	24904.392	73.519	0
1956	17.6	2.467	28.189	0.000	0.000	25566.026	25.722	0
1957	17.1	1.107	2.358	0.000	0.000	25567.590	1.251	0
1958	16.5	0.882	0.033	0.000	0.000	25568.311	-0.849	0
1959	15.7	1.235	0.020	0.000	0.000	25569.788	-1.215	0
1960	14.7	3.105	0.122	0.000	0.000	25578.688	-2.983	0
1961	13.0	15.074	0.510	0.000	0.000	25790.806	-14.564	0
1962	12.0	133.018	8.885	0.000	0.000	41199.823	-124.133	0
1963	17.2	217.817	96.486	0.000	0.000	55920.956	-121.331	0
1964	18.0	25.998	159.849	0.000	0.000	73837.035	133.851	0
1965	18.0	4.994	2.050	0.000	0.000	73845.704	-2.944	0
1966	17.6	1.250	0.000	0.000	0.000	73847.265	-1.249	0
1967	17.1	0.576	0.000	0.000	0.000	73847.596	-0.576	0
1968	16.5	0.472	0.015	0.000	0.000	73847.805	-0.457	0
1969	15.7	0.689	0.049	0.000	0.000	73848.214	-0.640	0
1970	14.7	1.881	0.302	0.000	0.000	73850.707	-1.579	0
1971	13.0	12.403	10.653	0.000	0.000	73853.768	-1.750	0
1972	12.0	158.423	144.824	0.000	0.000	74038.706	-13.599	0
1973	17.8	196.804	237.614	0.000	0.000	75704.192	40.810	0
1974	18.0	8.864	131.462	0.000	0.000	90734.369	122.598	0
1975	17.6	2.456	0.944	0.000	0.000	90736.656	-1.512	0
1976	17.1	1.117	0.008	0.000	0.000	90737.885	-1.109	0
1977	16.5	0.891	0.000	0.000	0.000	90738.679	-0.891	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.028	339375	140018	0.587	140018	0.425	25.846	35426	79.6	13.075
1950	13.6	0.113	1161669	563698	0.515	563698	0.249	28.732	186352	105.9	15.038
1951	12.0	0.921	8126825	4603335	0.434	4603335	0.052	31.957	1920791	135.2	17.231
1952	12.0	12.064	106503717	60327662	0.434	60252397	0.052	31.957	25140967	135.2	17.231
1953	12.0	146.815	1296127817	734174959	0.434	310354358	0.052	31.957	129498730	135.2	17.231
1954	17.5	218.791	3869548445	1094105251	0.717	245393509	0.740	20.689	28076896	32.7	9.568
1955	18.0	10.215	197061464	51084243	0.741	50812350	0.797	19.755	4538067	24.2	8.933
1956	17.6	2.467	43905757	12335511	0.719	12335510	0.744	20.618	1387763	32.0	9.520
1957	17.1	1.107	18064037	5537862	0.693	5537862	0.682	21.635	774442	41.3	10.212
1958	16.5	0.882	13069318	4412255	0.662	4412255	0.607	22.868	763216	52.5	11.050
1959	15.7	1.235	16391748	6176989	0.623	6176989	0.512	24.426	1327167	66.7	12.110
1960	14.7	3.105	36090939	15528690	0.570	15528689	0.382	26.548	4222168	86.0	13.553
1961	13.0	15.074	146033847	75381675	0.484	74901573	0.174	29.961	27236031	117.0	15.873
1962	12.0	133.018	1174324872	665181245	0.434	302460259	0.052	31.957	126204832	135.2	17.231
1963	17.2	217.817	3657873806	1089232281	0.702	250396631	0.703	21.286	32666888	38.1	9.974
1964	18.0	25.998	501515949	130007979	0.741	113393488	0.797	19.755	10127208	24.2	8.933
1965	18.0	4.994	96340018	24974222	0.741	24973664	0.797	19.755	2230405	24.2	8.933
1966	17.6	1.250	22240565	6248582	0.719	6248582	0.744	20.618	702974	32.0	9.520
1967	17.1	0.576	9394159	2879951	0.693	2879951	0.682	21.635	402746	41.3	10.212
1968	16.5	0.472	6990755	2360107	0.662	2360107	0.607	22.868	408242	52.5	11.050
1969	15.7	0.689	9137552	3443352	0.623	3443352	0.512	24.426	739827	66.7	12.110
1970	14.7	1.881	21859590	9405430	0.570	9405430	0.382	26.548	2557286	86.0	13.553
1971	13.0	12.403	120151593	62021432	0.484	61888516	0.174	29.961	22504167	117.0	15.873
1972	12.0	158.423	1398609214	792224231	0.434	316105765	0.052	31.957	131898568	135.2	17.231
1973	17.8	196.804	3620908482	984152711	0.728	238427951	0.767	20.254	24492765	28.7	9.273
1974	18.0	8.864	170998487	44327937	0.741	44221716	0.797	19.755	3949455	24.2	8.933
1975	17.6	2.456	43718516	12282905	0.719	12282904	0.744	20.618	1381845	32.0	9.520
1976	17.1	1.117	18212777	5583461	0.693	5583461	0.682	21.635	780819	41.3	10.212
1977	16.5	0.891	13196938	4455340	0.662	4455340	0.607	22.868	770668	52.5	11.050

TABLE OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.028	1834063.6	766.2	0	766.2	0.000
1950	13.6	0.113	2007675.2	3084.6	0.000	3084.6	0.002
1951	12.0	0.921	2182122.2	25189.4	0.000	25189.4	0.011
1952	12.0	12.064	1877610.5	330113.0	0.001	329701.1	0.149
1953	12.0	146.815	509052.6	4017405.4	0.577	1698259.0	0.769
1954	17.5	218.791	177726.3	5986943.9	0.776	1342793.3	0.883
1955	18.0	10.215	1185540.2	279533.0	0.005	278045.2	0.190
1956	17.6	2.467	1448678.4	67499.9	0.000	67499.9	0.045
1957	17.1	1.107	1547884.9	30303.2	0.000	30303.2	0.019
1958	16.5	0.882	1629179.5	24143.9	0.000	24143.9	0.015
1959	15.7	1.235	1714498.9	33800.5	0.000	33800.5	0.019
1960	14.7	3.105	1792677.2	84973.0	0.000	84973.0	0.045
1961	13.0	15.074	1675813.2	412488.5	0.006	409861.4	0.197
1962	12.0	133.018	552249.1	3639871.8	0.545	1655062.5	0.750
1963	17.2	217.817	186735.6	5960279.0	0.770	1370170.4	0.880
1964	18.0	25.998	843096.2	711403.7	0.128	620489.2	0.424
1965	18.0	4.994	1326929.5	136658.9	0.000	136655.9	0.093
1966	17.6	1.250	1481986.1	34192.2	0.000	34192.2	0.023
1967	17.1	0.576	1562429.0	15759.1	0.000	15759.1	0.010
1968	16.5	0.472	1640408.8	12914.5	0.000	12914.5	0.008
1969	15.7	0.689	1729457.3	18842.0	0.000	18842.0	0.011
1970	14.7	1.881	1826183.7	51466.5	0.000	51466.5	0.027
1971	13.0	12.403	1747020.6	339381.3	0.002	338654.0	0.162
1972	12.0	158.423	477580.9	4335051.0	0.601	1729730.7	0.784
1973	17.8	196.804	189331.9	5385283.6	0.758	1304677.7	0.873
1974	18.0	8.864	1221604.2	242562.5	0.002	241981.2	0.165
1975	17.6	2.456	1448966.3	67212.1	0.000	67212.1	0.044
1976	17.1	1.117	1547635.4	30552.7	0.000	30552.7	0.019
1977	16.5	0.891	1628943.7	24379.6	0.000	24379.6	0.015

TABLE OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.028	520	1814	-1294	1714	89
1950	13.6	0.113	2844	9691	-6847	9187	479
1951	12.0	0.921	34399	113960	-79561	108219	5690
1952	12.0	12.064	1207598	4185033	-2977435	3975493	209187
1953	12.0	146.815	13507894	94422235	-80914341	89695871	4719910
1954	17.5	218.791	3681877	24294666	-20612789	23075261	1213728
1955	18.0	10.215	547973	960313	-412340	911602	47893
1956	17.6	2.467	50565	118325	-67760	112353	5901
1957	17.1	1.107	16627	50576	-33949	48010	2523
1958	16.5	0.882	14030	47109	-33079	44715	2347
1959	15.7	1.235	24659	86536	-61877	82170	4318
1960	14.7	3.105	100377	357726	-257349	339777	17870
1961	13.0	15.074	1395788	5543441	-4147653	5266000	277106
1962	12.0	133.018	9747826	86650879	-76903053	82316384	4332027
1963	17.2	217.817	6997565	31182056	-24184491	29617487	1557871
1964	18.0	25.998	1994870	4396277	-2401407	4173864	219348
1965	18.0	4.994	177921	283423	-105502	268937	14118
1966	17.6	1.250	28421	48553	-20132	46081	2419
1967	17.1	0.576	15121	23959	-8838	22719	1192
1968	16.5	0.472	19093	23837	-4744	22606	1185
1969	15.7	0.689	58175	46225	11950	43875	2302
1970	14.7	1.881	673467	226151	447316	214753	11288
1971	13.0	12.403	8074606	5151986	2922620	4893894	257495
1972	12.0	158.423	10361371	94247694	-83886323	89531941	4711547
1973	17.8	196.804	2731832	20201897	-17470065	19186877	1009017
1974	18.0	8.864	873084	809953	63131	768118	40308
1975	17.6	2.456	72547	119486	-46939	113375	5954
1976	17.1	1.117	18646	51211	-32565	48610	2551
1977	16.5	0.891	14401	47667	-33266	45244	2375

TABLE OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	77683	41386	2677877
0	561677	301062	18722405
0	8465475	4650923	244655531
0	311141566	163273951	2870733113
0	7020236506	1826341493	7231590262
0	452410112	155051491	306234709
0	12740358	13243241	89532408
0	2073401	1468167	40816565
0	1145193	655187	29937788
0	1356894	717698	37652500
0	3168132	1620160	82862376
0	16905986	8567536	333271995
0	356745139	162929841	2585957970
0	6439471880	1312307223	7250131463
0	941984698	755998303	417962253
0	60750172	65549803	159965222
0	3764680	4407958	47653291
0	854456	963082	21026992
0	543623	686055	15678073
0	690284	1145190	20244211
0	1717180	4675554	46493899
0	11405483	76565193	204688538
0	343221890	1070661705	2203236269
0	6941063291	1287947796	7187961574
0	348340045	161696916	238580443
0	10804788	22733409	79603943
0	2083638	1982591	40650314
0	1157761	710915	30180794
0	1372621	722781	38016190

AVERAGE CYCLE FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1963 1973
SIMULATED MAXIMAL LARVAL DENSITIES: 218.791 217.817 196.804
MEAN OF MAXIMA: 211.137 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958 1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.882 0.472
MEAN OF MINIMA: 0.677 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.028
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 218.791
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 218.763
DIFFERENCE BETWEEN MEANS OF EXTREMES: 210.460 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
A	0.679	1.969	13.180	146.085	211.137	15.026	3.306	1.158	0.783
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	8896989	22025784	124229719	1289687301	3716110244	289858633	61321430	19505793	11886805
1	3394679	9845818	65910256	730526811	1055830081	75140053	16530879	5789968	3915848
3	3394679	9845818	65680828	309640127	244739363	69475851	16530692	5789968	3915848
W	751115	2900081	24960388	129200710	28412183	6204910	1666671	752745	645543

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8384.296
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1963 1973
SIMULATED MAXIMAL LARVAL DENSITIES: 218.791 217.817 196.804
MEAN OF MAXIMA: 211.137 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958 1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.882 0.472
MEAN OF MINIMA: 0.677 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.028
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 218.791
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 218.763
DIFFERENCE BETWEEN MEANS OF EXTREMES: 210.460 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.5	18.0	17.7	17.2	16.7
A	0.679	1.969	13.180	146.085	211.137	15.026	3.306	1.158	0.783
M	0.587	0.524	0.467	0.434	0.716	0.741	0.726	0.702	0.673
L	0.424	0.272	0.133	0.052	0.737	0.797	0.762	0.703	0.632
S	0.000	0.000	0.003	0.575	0.768	0.045	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	20.743	19.755	20.330	21.296	22.457
W	13.086	14.779	16.326	17.231	9.605	8.933	9.324	9.981	10.771
4	79.7	102.4	123.1	135.2	33.2	24.2	29.4	38.2	48.8
D	0.011	0.028	0.169	0.768	0.879	0.260	0.061	0.020	0.013

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8384.296
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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SIMULATED MAXIMAL LARVAL DENSITIES: 218.791 217.817 196.804
MEAN OF MAXIMA: 211.137 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958 1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.882 0.472
MEAN OF MINIMA: 0.677 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.028
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 218.791
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 218.763
DIFFERENCE BETWEEN MEANS OF EXTREMES: 210.460 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.5	18.0	17.7	17.2	16.7
A	0.679	1.969	13.180	146.085	211.137	15.026	3.306	1.158	0.783
I	28559	269414	3559330	11205697	4470424	1138642	100344	21231	14517
O	47484	232612	4960153	91773602	25226206	2055514	173744	50113	39578
E	-18924	36802	-1400822	-80567905	-20755781	-916872	-73400	-28882	-25061
U	1815663	12258981	337036198	6800257225	580911618	28098439	2640573	1052470	1091046
H	49359560	260872021	2553309117	7223227766	320925801	109700524	43040056	27048524	30448921
G	2198925	29927884	465621832	1475532170	357582236	33842151	2619572	776394	708844

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8384.296
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1963 1973
SIMULATED MAXIMAL LARVAL DENSITIES: 218.791 217.817 196.804
MEAN OF MAXIMA: 211.137 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1958 1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.882 0.472
MEAN OF MINIMA: 0.677 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.667 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.028
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 218.791
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 218.763
DIFFERENCE BETWEEN MEANS OF EXTREMES: 210.460 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.0	13.8	12.6	12.0	17.5	18.0	17.7	17.2	16.7
A	0.679	1.969	13.180	146.085	211.137	15.026	3.306	1.158	0.783
D	0.011	0.028	0.169	0.768	0.879	0.260	0.061	0.020	0.013
F	1817210.5	1933661.0	1766814.8	512960.8	184597.9	1083413.5	1408191.4	1525835.5	1606850.8
*	18575.7	53876.3	360660.9	3997442.7	5777502.2	411166.4	90457.0	31682.7	21427.5
E	18575.7	53876.3	359405.5	1694350.8	1339213.8	380171.9	90456.0	31682.7	21427.5

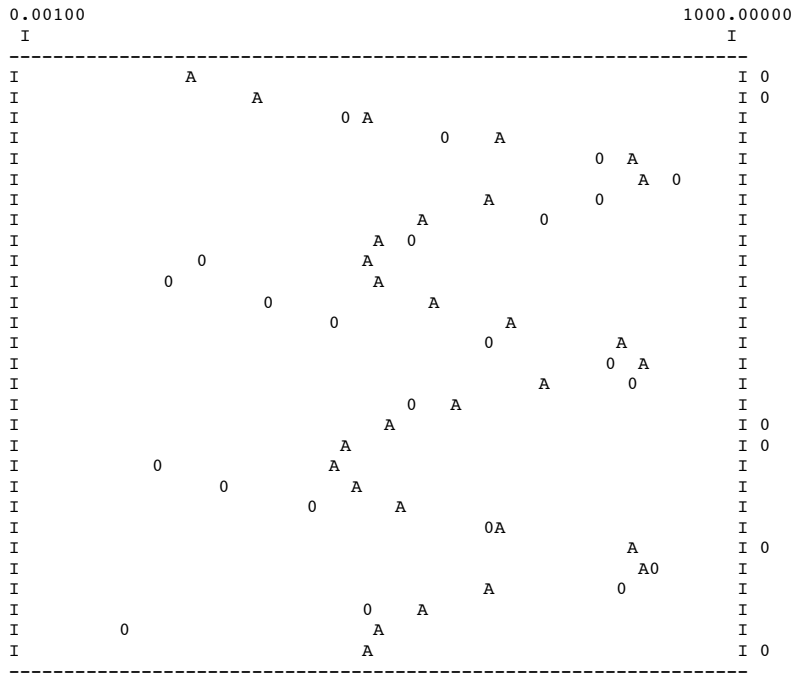
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 8384.296
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

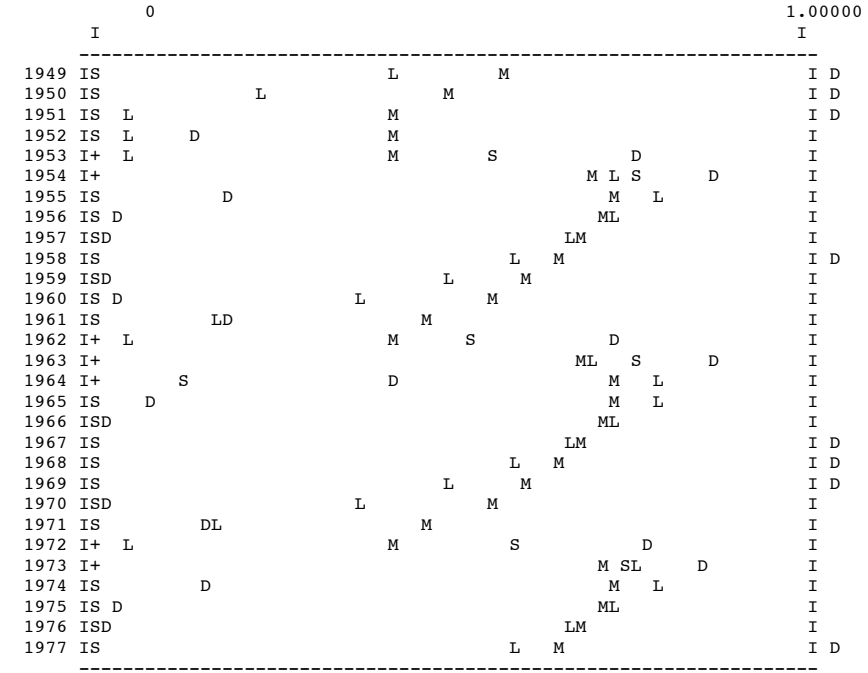


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

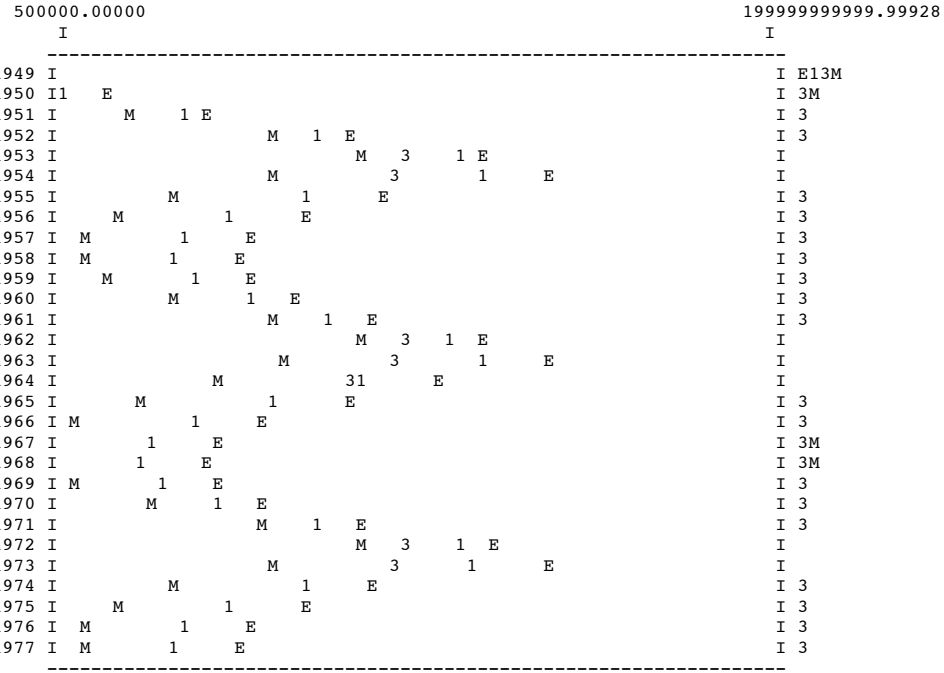


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

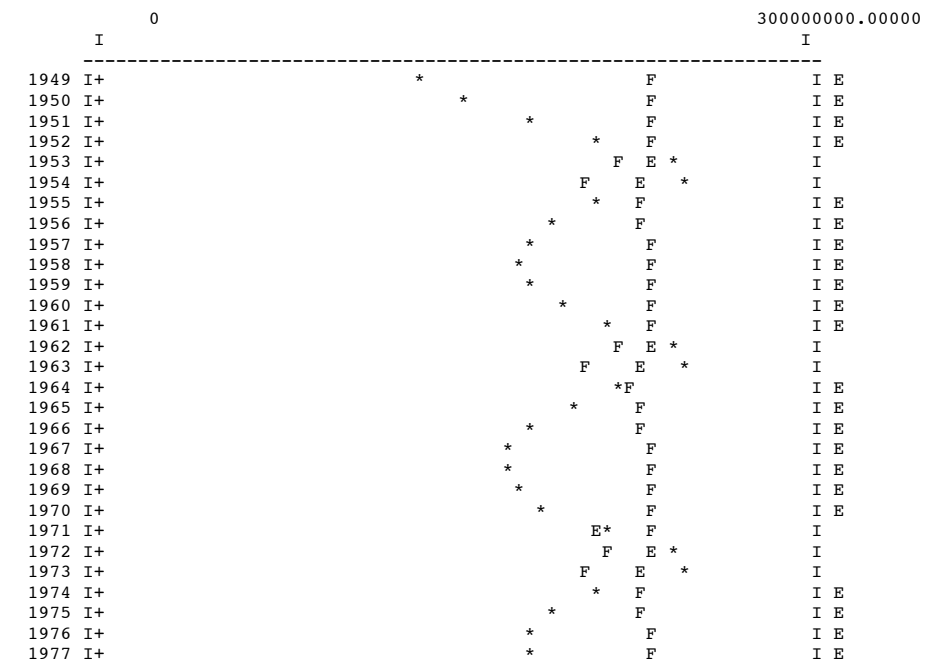


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 766.178496 MAX = 5986943.933472



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 11:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

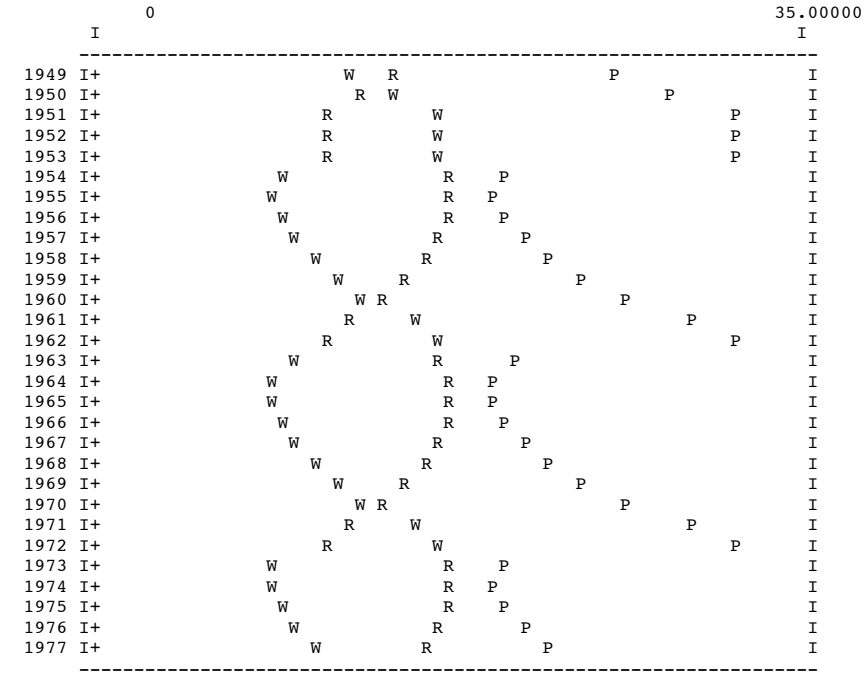


TABLE OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	223169	92074	0.587	0.026	0.026	1298871.3	0	92074	0.000	0.425	23295	79.6
1950	13.6	769752	373520	0.515	0.105	0.076	1421919.9	0	373520	0.001	0.249	123482	105.9
1951	12.0	5428462	3074882	0.434	0.868	0.336	1546330.6	0.000	3074882	0.011	0.052	1283027	135.2
1952	12.0	71789692	40664349	0.434	11.483	3.672	1340839.0	0.001	40628181	0.142	0.052	16952550	135.2
1953	12.0	893959494	506371876	0.434	142.989	55.014	368495.0	0.569	218322619	0.764	0.052	91097486	135.2
1954	17.5	3309687639	948812181	0.713	267.924	299.168	105592.2	0.812	178716121	0.903	0.730	21197677	34.1
1955	18.0	330869995	85771428	0.741	24.220	83.741	618701.0	0.110	76346719	0.403	0.797	6818549	24.2
1956	18.0	65342572	16938754	0.741	4.783	19.194	943782.7	0.000	16938518	0.089	0.797	1512784	24.2
1957	17.6	14899913	4186194	0.719	1.182	2.394	1050808.3	0.000	4186194	0.021	0.744	470953	32.0
1958	17.1	6355026	1948249	0.693	0.550	0.062	1106967.9	0.000	1948249	0.010	0.682	272453	41.3
1959	16.5	4832316	1631409	0.662	0.461	0.025	1161910.3	0.000	1631409	0.008	0.607	282195	52.5
1960	15.7	6570224	2475892	0.623	0.699	0.373	1224548.7	0.000	2475892	0.011	0.512	531961	66.7
1961	14.7	17100919	7357937	0.570	2.078	1.231	1289436.8	0.000	7357936	0.030	0.382	2000583	86.0
1962	13.0	123683821	63844744	0.484	18.028	25.096	1132753.2	0.015	62913601	0.233	0.174	22876913	117.0
1963	12.0	1758052100	995826038	0.434	281.200	191.875	204219.7	0.751	248343694	0.869	0.052	103624107	135.2
1964	18.0	2623162655	680002455	0.741	192.018	91.415	131834.0	0.757	165320960	0.873	0.797	14764867	24.2
1965	18.0	175235016	45426173	0.741	12.827	1.126	791740.4	0.015	44724024	0.236	0.797	3994316	24.2
1966	17.6	42918075	12058017	0.719	3.405	0.000	1007733.7	0.000	12058015	0.061	0.744	1356544	32.0
1967	17.1	17606562	5397614	0.693	1.524	0.000	1088093.0	0.000	5397614	0.026	0.682	754829	41.3
1968	16.5	12701281	4288004	0.662	1.211	0.010	1147373.4	0.000	4288004	0.020	0.607	741723	52.5
1969	15.7	15881787	5984818	0.623	1.690	0.202	1205347.8	0.000	5984818	0.026	0.512	1285877	66.7
1970	14.7	34814159	14979335	0.570	4.230	0.284	1247732.5	0.000	14979333	0.062	0.382	4072801	86.0
1971	13.0	139652213	72087519	0.484	20.356	7.299	1091882.8	0.024	70382617	0.261	0.174	25592829	117.0
1972	12.0	1064646701	603055453	0.434	170.290	137.449	318086.7	0.623	227534664	0.797	0.052	94941312	135.2
1973	17.9	2946002302	771588622	0.738	217.880	231.447	118419.8	0.781	168612171	0.886	0.791	15541270	25.1
1974	18.0	625188354	162067577	0.741	45.764	187.842	425229.9	0.311	111703295	0.590	0.797	9976257	24.2
1975	18.0	104171953	27004495	0.741	7.625	1.823	888834.6	0.001	26980215	0.142	0.797	2409611	24.2
1976	17.6	24074426	6763813	0.719	1.910	0.000	1036703.6	0.000	6763812	0.034	0.744	760938	32.0
1977	17.1	10268774	3148081	0.693	0.889	0.000	1100402.4	0.000	3148081	0.015	0.682	440243	41.3

TABLE OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.026	0.026	0.000	0.000	0.000	0.000	0
1950	13.6	0.105	0.076	0.000	0.000	0.001	-0.029	0
1951	12.0	0.868	0.336	0.000	0.000	0.284	-0.532	0
1952	12.0	11.483	3.672	0.000	0.000	61.292	-7.811	0
1953	12.0	142.989	55.014	0.000	0.000	7800.822	-87.975	0
1954	17.5	267.924	299.168	0.000	0.000	8776.992	31.244	0
1955	18.0	24.220	83.741	0.000	0.000	12319.739	59.521	0
1956	18.0	4.783	19.194	0.000	0.000	12527.412	14.411	0
1957	17.6	1.182	2.394	0.000	0.000	12528.880	1.212	0
1958	17.1	0.550	0.062	0.000	0.000	12529.119	-0.488	0
1959	16.5	0.461	0.025	0.000	0.000	12529.308	-0.436	0
1960	15.7	0.699	0.373	0.000	0.000	12529.415	-0.326	0
1961	14.7	2.078	1.231	0.000	0.000	12530.132	-0.847	0
1962	13.0	18.028	25.096	0.000	0.000	12580.083	7.068	0
1963	12.0	281.200	191.875	0.000	0.000	20559.038	-89.325	0
1964	18.0	192.018	91.415	0.000	0.000	30680.035	-100.603	0
1965	18.0	12.827	1.126	0.000	0.000	30816.957	-11.701	0
1966	17.6	3.405	0.000	0.000	0.000	30828.550	-3.405	0
1967	17.1	1.524	0.000	0.000	0.000	30830.873	-1.524	0
1968	16.5	1.211	0.010	0.000	0.000	30832.315	-1.201	0
1969	15.7	1.690	0.202	0.000	0.000	30834.529	-1.488	0
1970	14.7	4.230	0.284	0.000	0.000	30850.099	-3.946	0
1971	13.0	20.356	7.299	0.000	0.000	31020.583	-13.057	0
1972	12.0	170.290	137.449	0.000	0.000	32099.113	-32.841	0
1973	17.9	217.880	231.447	0.000	0.000	32283.173	13.567	0
1974	18.0	45.764	187.842	0.000	0.000	52469.211	142.078	0
1975	18.0	7.625	1.823	0.000	0.000	52502.880	-5.802	0
1976	17.6	1.910	0.000	0.000	0.000	52506.527	-1.910	0
1977	17.1	0.889	0.000	0.000	0.000	52507.318	-0.889	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.026	223169	92074	0.587	92074	0.425	25.846	23295	79.6	13.075
1950	13.6	0.105	769752	373520	0.515	373520	0.249	28.732	123482	105.9	15.038
1951	12.0	0.868	5428462	3074882	0.434	3074882	0.052	31.957	1283027	135.2	17.231
1952	12.0	11.483	71789692	40664349	0.434	40628181	0.052	31.957	16952550	135.2	17.231
1953	12.0	142.989	893959494	506371876	0.434	218322619	0.052	31.957	91097486	135.2	17.231
1954	17.5	267.924	3309687639	948812181	0.713	178716121	0.730	20.845	21197677	34.1	9.675
1955	18.0	24.220	330869995	85771428	0.741	76346719	0.797	19.755	6818549	24.2	8.933
1956	18.0	4.783	65342572	16938754	0.741	16938518	0.797	19.755	1512784	24.2	8.933
1957	17.6	1.182	14899913	4186194	0.719	4186194	0.744	20.618	470953	32.0	9.520
1958	17.1	0.550	6355026	1948249	0.693	1948249	0.682	21.635	272453	41.3	10.212
1959	16.5	0.461	4832316	1631409	0.662	1631409	0.607	22.868	282195	52.5	11.050
1960	15.7	0.699	6570224	2475892	0.623	2475892	0.512	24.426	531961	66.7	12.110
1961	14.7	2.078	17100919	7357937	0.570	7357936	0.382	26.548	2000583	86.0	13.553
1962	13.0	18.028	123683821	63844744	0.484	62913601	0.174	29.961	22876913	117.0	15.873
1963	12.0	281.200	1758052100	995826038	0.434	248343694	0.052	31.957	103624107	135.2	17.231
1964	18.0	192.018	2623162655	680002455	0.741	165320960	0.797	19.755	14764867	24.2	8.933
1965	18.0	12.827	175235016	45426173	0.741	44724024	0.797	19.755	3994316	24.2	8.933
1966	17.6	3.405	42918075	12058017	0.719	12058015	0.744	20.618	1356544	32.0	9.520
1967	17.1	1.524	17606562	5397614	0.693	5397614	0.682	21.635	754829	41.3	10.212
1968	16.5	1.211	12701281	4288004	0.662	4288004	0.607	22.868	741723	52.5	11.050
1969	15.7	1.690	15881787	5984818	0.623	5984818	0.512	24.426	1285877	66.7	12.110
1970	14.7	4.230	34814159	14979335	0.570	14979333	0.382	26.548	4072801	86.0	13.553
1971	13.0	20.356	139652213	72087519	0.484	70382617	0.174	29.961	25592829	117.0	15.873
1972	12.0	170.290	1064646701	603055453	0.434	227534664	0.052	31.957	94941312	135.2	17.231
1973	17.9	217.880	2946002302	771588622	0.738	168612171	0.791	19.861	15541270	25.1	9.006
1974	18.0	45.764	625188354	162067577	0.741	111703295	0.797	19.755	9976257	24.2	8.933
1975	18.0	7.625	104171953	27004495	0.741	26980215	0.797	19.755	2409611	24.2	8.933
1976	17.6	1.910	24074426	6763813	0.719	6763812	0.744	20.618	760938	32.0	9.520
1977	17.1	0.889	10268774	3148081	0.693	3148081	0.682	21.635	440243	41.3	10.212

TABLE OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.026	1298871.3	503.8	0	503.8	0.000
1950	13.6	0.105	1421919.9	2043.9	0	2043.9	0.001
1951	12.0	0.868	1546330.6	16825.8	0.000	16825.8	0.011
1952	12.0	11.483	1340839.0	222515.3	0.001	222317.4	0.142
1953	12.0	142.989	368495.0	2770866.9	0.569	1194661.4	0.764
1954	17.5	267.924	105592.2	5191900.3	0.812	977934.6	0.903
1955	18.0	24.220	618701.0	469341.3	0.110	417769.2	0.403
1956	18.0	4.783	943782.7	92688.9	0.000	92687.6	0.089
1957	17.6	1.182	1050808.3	22906.9	0.000	22906.9	0.021
1958	17.1	0.550	1106967.9	10660.8	0.000	10660.8	0.010
1959	16.5	0.461	1161910.3	8927.1	0.000	8927.1	0.008
1960	15.7	0.699	1224548.7	13548.1	0.000	13548.1	0.011
1961	14.7	2.078	1289436.8	40262.6	0.000	40262.6	0.030
1962	13.0	18.028	1132753.2	349358.4	0.015	344263.2	0.233
1963	12.0	281.200	204219.7	5449160.1	0.751	1358936.7	0.869
1964	18.0	192.018	131834.0	3720973.4	0.757	904636.3	0.873
1965	18.0	12.827	791740.4	248572.0	0.015	244729.9	0.236
1966	17.6	3.405	1007733.7	65981.5	0.000	65981.5	0.061
1967	17.1	1.524	1088093.0	29535.7	0.000	29535.7	0.026
1968	16.5	1.211	1147373.4	23464.0	0.000	23464.0	0.020
1969	15.7	1.690	1205347.8	32748.9	0.000	32748.9	0.026
1970	14.7	4.230	1247732.5	81966.9	0.000	81966.9	0.062
1971	13.0	20.356	1091882.8	394462.9	0.024	385133.7	0.261
1972	12.0	170.290	318086.7	3299919.4	0.623	1245069.7	0.797
1973	17.9	217.880	118419.8	4222132.9	0.781	922645.8	0.886
1974	18.0	45.764	425229.9	886833.8	0.311	611240.4	0.590
1975	18.0	7.625	888834.6	147768.6	0.001	147635.7	0.142
1976	17.6	1.910	1036703.6	37011.6	0.000	37011.6	0.034
1977	17.1	0.889	1100402.4	17226.3	0.000	17226.3	0.015

TABLE OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.026	515	1205	-690	951	236
1950	13.6	0.105	2836	6475	-3639	5151	1285
1951	12.0	0.868	33583	76137	-42554	60836	15204
1952	12.0	11.483	1078040	2762090	-1684050	2209177	552240
1953	12.0	142.989	19105417	71412294	-52306877	57118289	14277881
1954	17.5	267.924	8855727	24386150	-15530423	19493681	4871415
1955	18.0	24.220	1757121	3050972	-1293851	2436830	608776
1956	18.0	4.783	94618	185004	-90386	147809	36929
1957	17.6	1.182	21527	32294	-10767	25760	6433
1958	17.1	0.550	14627	16406	-1779	13048	3259
1959	16.5	0.461	21985	16948	5037	13485	3366
1960	15.7	0.699	79227	35403	43824	28222	7050
1961	14.7	2.078	1120260	218481	901779	174526	43599
1962	13.0	18.028	14937457	7470986	7466471	5974840	1493476
1963	12.0	281.200	11579908	85777821	-74197913	68607620	17149823
1964	18.0	192.018	5264202	16285168	-11020966	13017232	3252880
1965	18.0	12.827	1018632	1131359	-112727	903314	225660
1966	17.6	3.405	66298	134686	-68388	107617	26878
1967	17.1	1.524	18654	53529	-34875	42748	10678
1968	16.5	1.211	14627	48847	-34220	39005	9745
1969	15.7	1.690	25140	90693	-65553	72479	18112
1970	14.7	4.230	108886	395665	-286779	316418	79087
1971	13.0	20.356	1641655	6560778	-4919123	5248054	1311937
1972	12.0	170.290	13647654	71805081	-58157427	57439723	14359257
1973	17.9	217.880	11875022	24105953	-12230931	19269364	4815207
1974	18.0	45.764	3360890	6829615	-3468725	5455526	1362944
1975	18.0	7.625	276549	414135	-137586	330492	82548
1976	17.6	1.910	43428	60400	-16972	48217	12040
1977	17.1	0.889	23483	28431	-4948	22667	5661

TABLE OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	38522	40987	1760869
0	278513	300209	12406866
0	4235699	4540573	163506460
0	153969060	145756913	1946844900
0	3980752936	2583156033	5164240126
0	443876585	539241648	235266769
0	30311076	42465042	110490419
0	1846041	2451070	32427005
0	426438	775490	14100509
0	278519	701705	10609897
0	367955	1383892	13995846
0	996810	6602432	33427811
0	8630048	129727195	159794858
0	377356620	2006093190	2109197307
0	4708380474	1282038505	4858323516
0	235112950	287666333	122527993
0	11233429	24619580	75844081
0	1761844	1829820	39384043
0	906770	709724	29021740
0	1053199	732532	36443938
0	2488170	1637247	79856573
0	14023402	9437121	317464127
0	316741945	194389488	2297761031
0	3997124178	1822272200	5073800605
0	745436023	1332097937	131357950
0	74292544	113292215	130555991
0	4121383	6865336	49488659
0	796721	1481084	22556309
0	483674	1076971	17068526

AVERAGE CYCLE FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1963 1973
SIMULATED MAXIMAL LARVAL DENSITIES: 267.924 281.200 217.880
MEAN OF MAXIMA: 255.668 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.461 1.211
MEAN OF MINIMA: 0.836 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 10.333 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.026
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 281.200
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 281.174
DIFFERENCE BETWEEN MEANS OF EXTREMES: 254.832 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
A	0.752	1.932	11.305	110.436	255.668	87.334	8.412	2.166	0.988
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	7161285	15604281	76180941	694096672	2671247347	1193073668	114916513	27297471	11410120
1	2663249	6843369	40036601	391090691	905408947	309280486	29789807	7669341	3497981
3	2663249	6843369	39456244	169590294	198557328	117790324	29547585	7669340	3497981
W	563851	1962596	14848654	69638570	46787684	10519891	2638903	862811	489175

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 4876.539
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.002

AVERAGE CYCLE FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

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CYCLELENGTH: 10.333 (SIMULATED), 9.200 (OBSERVED)
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MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 281.200
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 281.174
DIFFERENCE BETWEEN MEANS OF EXTREMES: 254.832 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	15.8	18.0	18.0	17.6	17.1
A	0.752	1.932	11.305	110.436	255.668	87.334	8.412	2.166	0.988
M	0.600	0.542	0.496	0.450	0.628	0.741	0.741	0.719	0.693
L	0.456	0.315	0.202	0.092	0.524	0.797	0.797	0.744	0.682
S	0.000	0.000	0.008	0.402	0.781	0.393	0.005	0.000	0.000
P	25.342	27.644	29.489	31.291	24.221	19.755	19.755	20.618	21.635
W	12.732	14.298	15.552	16.778	11.970	8.933	8.933	9.520	10.212
4	75.0	96.0	112.7	129.2	64.8	24.2	24.2	32.0	41.3
D	0.012	0.028	0.144	0.598	0.886	0.622	0.156	0.039	0.017

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 4876.539
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.002

AVERAGE CYCLE FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
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T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	15.8	18.0	18.0	17.6	17.1
A	0.752	1.932	11.305	110.436	255.668	87.334	8.412	2.166	0.988
I	16653	73898	1279985	15896842	10770219	3460737	463266	43751	18921
O	38038	169068	3180449	50229453	44756641	8721918	576832	75793	32788
E	-21385	-95169	-1900464	-34332611	-33986422	-5261180	-113566	-32042	-13867
U	1044879	6418637	159780351	2785077911	1965897694	113238856	5733617	995001	556321
H	35419761	171466132	1468133596	4115746012	1741649411	121191467	52586581	25346953	18900054
G	1107116	6860042	156624532	2137173807	1051126030	147807863	11311995	1362131	829466

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 4876.539
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.002

AVERAGE CYCLE FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
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MEAN OF MAXIMA: 255.668 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1968
SIMULATED MINIMAL LARVAL DENSITIES: 0.461 1.211
MEAN OF MINIMA: 0.836 (SIMULATED), 0.099 (OBSERVED)

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T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	3
R	15.2	14.1	13.2	12.3	15.8	18.0	18.0	17.6	17.1
A	0.752	1.932	11.305	110.436	255.668	87.334	8.412	2.166	0.988
D	0.012	0.028	0.144	0.598	0.886	0.622	0.156	0.039	0.017
F	1263059.4	1339537.3	1240719.5	606445.0	142743.9	391921.6	874785.9	1031748.5	1098487.8
*	14573.3	37446.9	219080.3	2140048.3	4954397.8	1692382.8	163009.8	41966.6	19141.0
E	14573.3	37446.9	215904.6	927998.1	1086505.7	644548.7	161684.4	41966.6	19141.0

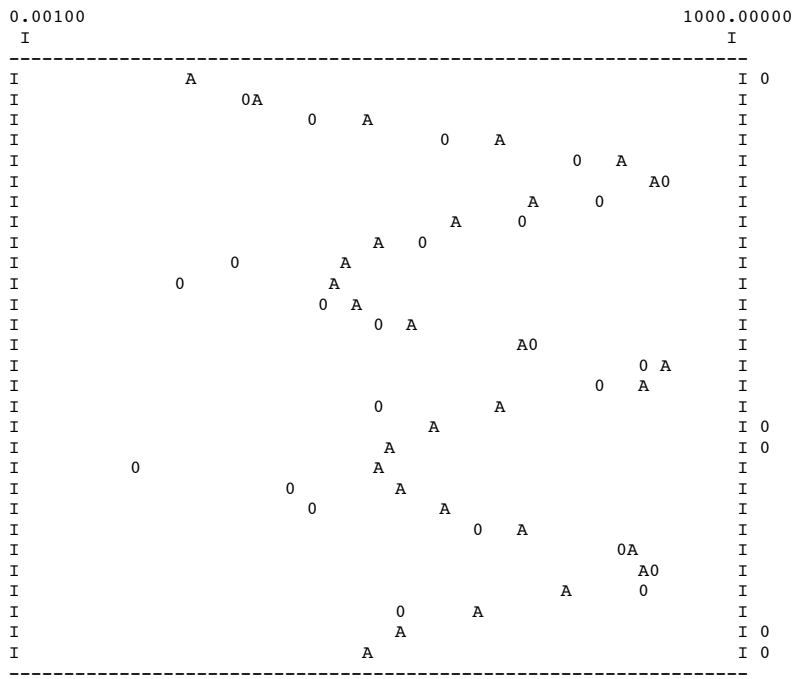
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 4876.539
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0.002

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

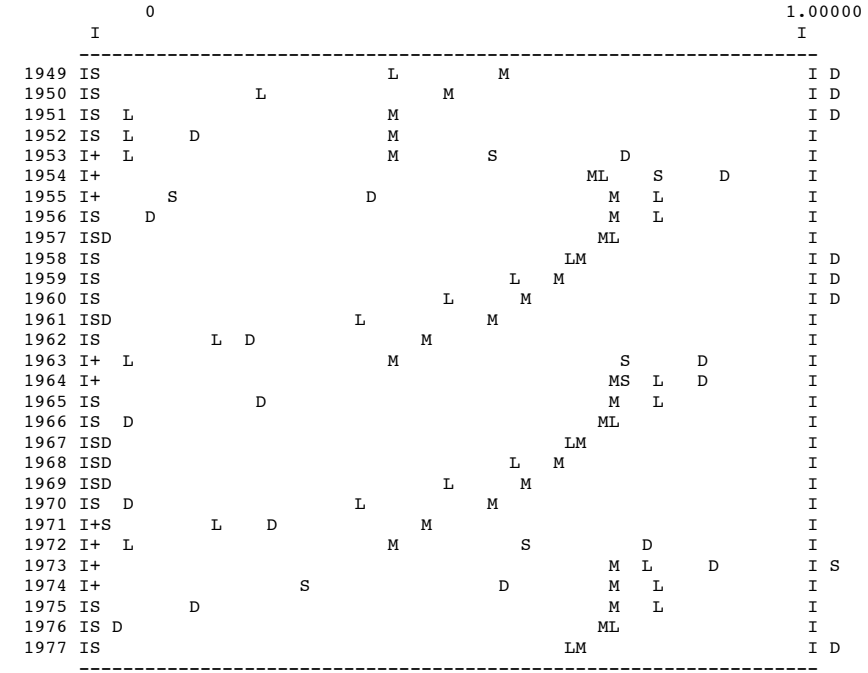


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

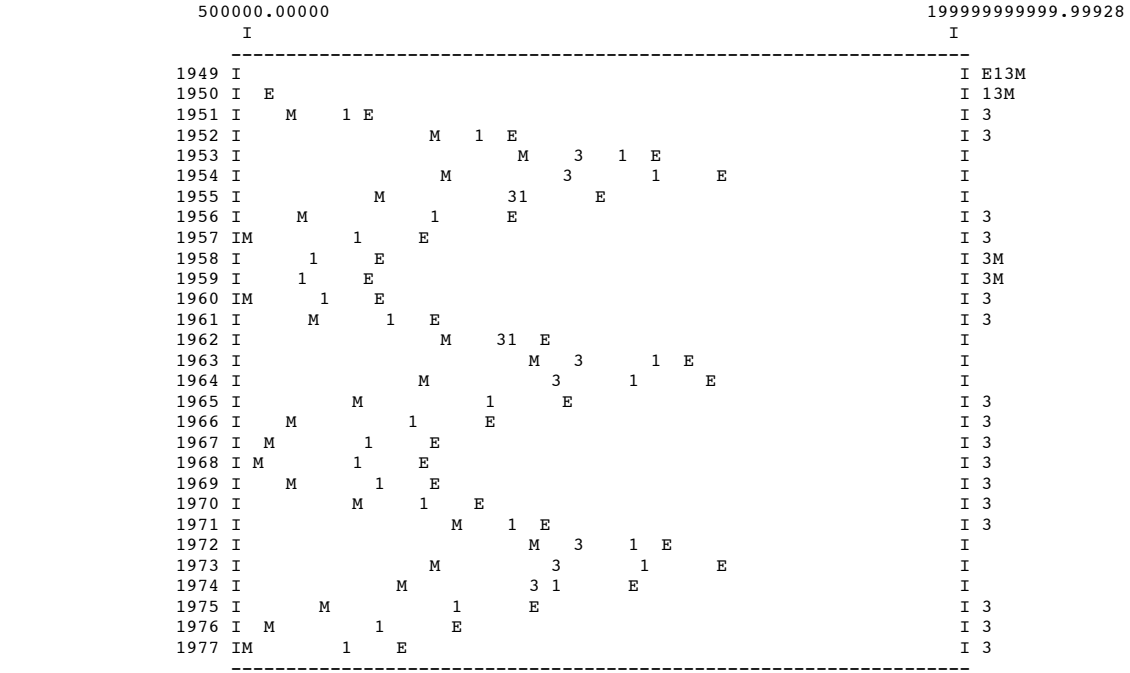


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

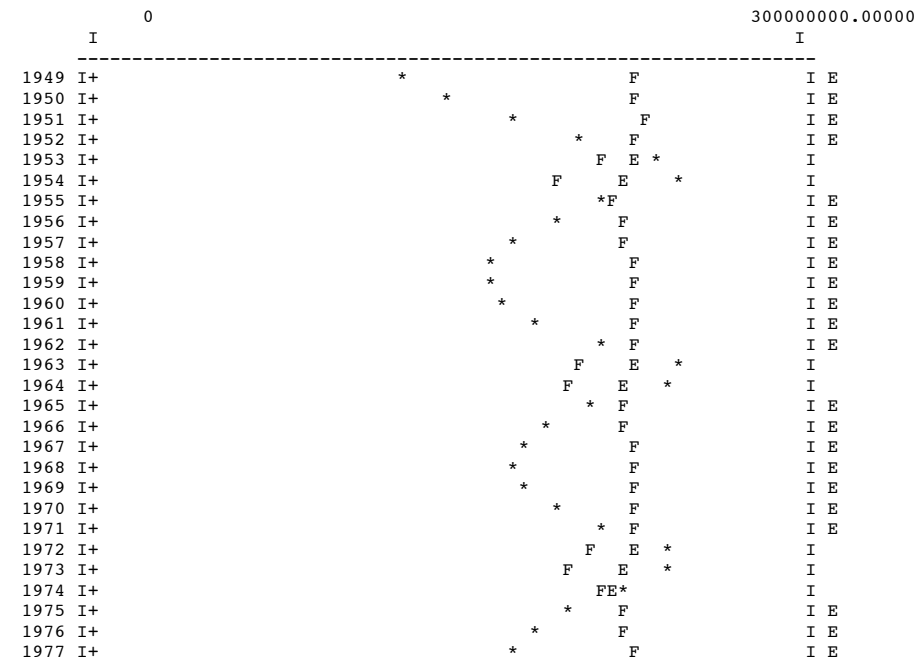


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 503.828928 MAX = 5449160.079936



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 12:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

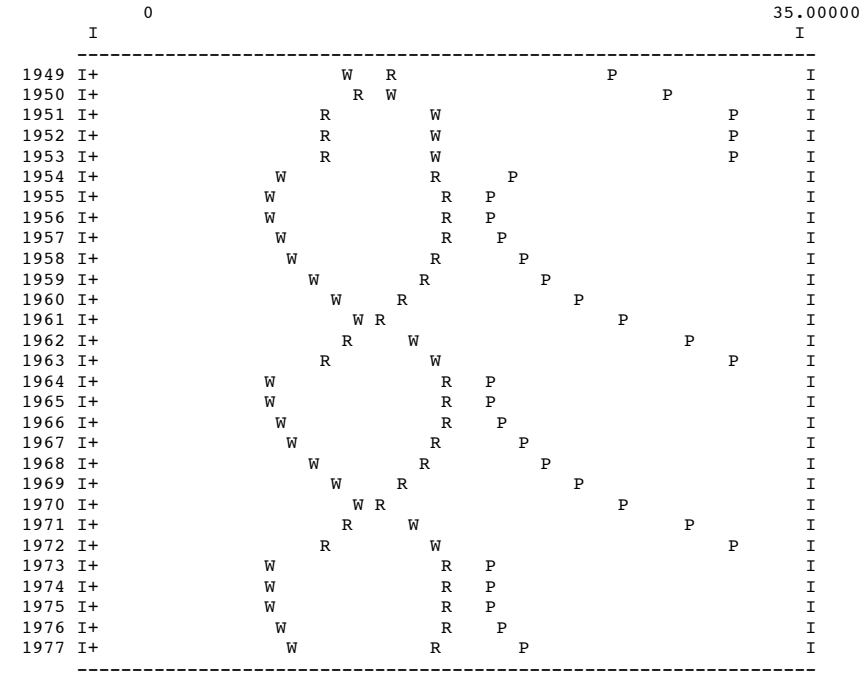


TABLE OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	91264	37653	0.587	0.017	0.017	812489.7	0	37653	0.000	0.425	9526	79.6
1950	13.6	311362	151087	0.515	0.068	0.050	889793.1	0	151087	0.001	0.249	49947	105.9
1951	12.0	2172226	1230429	0.434	0.556	0.755	970945.1	0.000	1230429	0.007	0.052	513409	135.2
1952	12.0	28443654	16111542	0.434	7.274	4.259	889517.0	0.000	16111295	0.090	0.052	6722613	135.2
1953	12.0	355423843	201325272	0.434	90.894	54.033	329573.9	0.412	118440081	0.663	0.052	49420411	135.2
1954	15.9	1664047015	606585360	0.635	273.861	237.444	80969.8	0.795	124305198	0.894	0.542	25074125	62.2
1955	18.0	392895245	101850234	0.741	45.983	110.294	265098.1	0.312	70022557	0.591	0.797	6253736	24.2
1956	18.0	45686801	11843389	0.741	5.347	16.270	583457.5	0.000	11842852	0.100	0.797	1057688	24.2
1957	17.6	10099086	2837381	0.719	1.281	2.176	656030.2	0.000	2837381	0.023	0.744	319209	32.0
1958	17.1	4185342	1283093	0.693	0.579	0.072	692001.1	0.000	1283093	0.010	0.682	179434	41.3
1959	16.5	3050949	1030012	0.662	0.465	0.000	726665.4	0.000	1030012	0.008	0.607	178167	52.5
1960	15.7	3858368	1453969	0.623	0.656	0.586	766412.9	0.000	1453969	0.010	0.512	312394	66.7
1961	14.7	8593408	3697448	0.570	1.669	1.229	811429.6	0.000	3697448	0.024	0.382	1005316	86.0
1962	13.0	35627056	18390443	0.484	8.303	23.143	823179.5	0.000	18388547	0.109	0.174	6686522	117.0
1963	12.0	321533726	182128650	0.434	82.227	288.645	354732.1	0.375	113842449	0.637	0.052	47501999	135.2
1964	15.6	1816207190	697945367	0.616	315.108	54.845	74931.1	0.815	129281565	0.904	0.494	28805459	69.4
1965	18.0	314180240	81444943	0.741	36.771	1.930	306656.5	0.233	62427833	0.527	0.797	5575449	24.2
1966	18.0	37483844	9716936	0.741	4.387	0.000	595090.8	0.000	9716886	0.082	0.797	867818	24.2
1967	17.6	8350921	2346227	0.719	1.059	0.000	658717.8	0.000	2346227	0.019	0.744	263954	32.0
1968	17.1	3483719	1067998	0.693	0.482	0.000	693178.1	0.000	1067998	0.008	0.682	149354	41.3
1969	16.5	2568728	867213	0.662	0.392	0.223	727556.2	0.000	867213	0.006	0.607	150007	52.5
1970	15.7	3325654	1253223	0.623	0.566	0.261	767511.4	0.000	1253223	0.009	0.512	269263	66.7
1971	14.7	7874328	3388052	0.570	1.530	6.206	813122.6	0.000	3388052	0.022	0.382	921193	86.0
1972	13.0	43590804	22501275	0.484	10.159	196.400	800742.6	0.001	22488865	0.133	0.174	8177497	117.0
1973	12.0	516256129	292426655	0.434	132.025	316.260	246108.2	0.543	133693310	0.748	0.052	55784987	135.2
1974	17.2	1714405116	512534206	0.701	231.399	139.460	78513.8	0.782	111905566	0.886	0.701	14740232	38.5
1975	18.0	116635988	30235547	0.741	13.651	1.974	486101.3	0.020	29634558	0.250	0.797	2646671	24.2
1976	17.6	25206630	7081911	0.719	3.197	0.000	632804.2	0.000	7081910	0.058	0.744	796725	32.0
1977	17.1	10245826	3141046	0.693	1.418	0.000	681834.4	0.000	3141046	0.025	0.682	439259	41.3

TABLE OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.017	0.017	0.000	0.000	0.000	0.000	0
1950	13.6	0.068	0.050	0.000	0.000	0.000	-0.018	0
1951	12.0	0.556	0.755	0.000	0.000	0.040	0.199	0
1952	12.0	7.274	4.259	0.000	0.000	9.131	-3.015	0
1953	12.0	90.894	54.033	0.000	0.000	1367.887	-36.861	0
1954	15.9	273.861	237.444	0.000	0.000	2694.092	-36.417	0
1955	18.0	45.983	110.294	0.000	0.000	6829.954	64.311	0
1956	18.0	5.347	16.270	0.000	0.000	6949.265	10.923	0
1957	17.6	1.281	2.176	0.000	0.000	6950.066	0.895	0
1958	17.1	0.579	0.072	0.000	0.000	6950.323	-0.507	0
1959	16.5	0.465	0.000	0.000	0.000	6950.539	-0.465	0
1960	15.7	0.656	0.586	0.000	0.000	6950.544	-0.070	0
1961	14.7	1.669	1.229	0.000	0.000	6950.738	-0.440	0
1962	13.0	8.303	23.143	0.000	0.000	7170.966	14.840	0
1963	12.0	82.227	288.645	0.000	0.000	49779.181	206.418	0
1964	15.6	315.108	54.845	0.000	0.000	117516.171	-260.263	0
1965	18.0	36.771	1.930	0.000	0.000	118730.049	-34.841	0
1966	18.0	4.387	0.000	0.000	0.000	118749.294	-4.387	0
1967	17.6	1.059	0.000	0.000	0.000	118750.416	-1.059	0
1968	17.1	0.482	0.000	0.000	0.000	118750.649	-0.482	0
1969	16.5	0.392	0.223	0.000	0.000	118750.677	-0.169	0
1970	15.7	0.566	0.261	0.000	0.000	118750.770	-0.305	0
1971	14.7	1.530	6.206	0.000	0.000	118772.638	4.676	0
1972	13.0	10.159	196.400	0.000	0.000	153458.395	186.241	0
1973	12.0	132.025	316.260	0.000	0.000	187401.020	184.235	0
1974	17.2	231.399	139.460	0.000	0.000	195853.780	-91.939	0
1975	18.0	13.651	1.974	0.000	0.000	195990.126	-11.677	0
1976	17.6	3.197	0.000	0.000	0.000	196000.349	-3.197	0
1977	17.1	1.418	0.000	0.000	0.000	196002.359	-1.418	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.017	91264	37653	0.587	37653	0.425	25.846	9526	79.6	13.075
1950	13.6	0.068	311362	151087	0.515	151087	0.249	28.732	49947	105.9	15.038
1951	12.0	0.556	2172226	1230429	0.434	1230429	0.052	31.957	513409	135.2	17.231
1952	12.0	7.274	28443654	16111542	0.434	16111295	0.052	31.957	6722613	135.2	17.231
1953	12.0	90.894	355423843	201325272	0.434	118440081	0.052	31.957	49420411	135.2	17.231
1954	15.9	273.861	1664047015	606585360	0.635	124305198	0.542	23.937	25074125	62.2	11.777
1955	18.0	45.983	392895245	101850234	0.741	70022557	0.797	19.755	6253736	24.2	8.933
1956	18.0	5.347	45686801	11843389	0.741	11842852	0.797	19.755	1057688	24.2	8.933
1957	17.6	1.281	10099086	2837381	0.719	2837381	0.744	20.618	319209	32.0	9.520
1958	17.1	0.579	4185342	1283093	0.693	1283093	0.682	21.635	179434	41.3	10.212
1959	16.5	0.465	3050949	1030012	0.662	1030012	0.607	22.868	178167	52.5	11.050
1960	15.7	0.656	3858368	1453969	0.623	1453969	0.512	24.426	312394	66.7	12.110
1961	14.7	1.669	8593408	3697448	0.570	3697448	0.382	26.548	1005316	86.0	13.553
1962	13.0	8.303	35627056	18390443	0.484	18388547	0.174	29.961	6686522	117.0	15.873
1963	12.0	82.227	321533726	182128650	0.434	113842449	0.052	31.957	47501999	135.2	17.231
1964	15.6	315.108	1816207190	697945367	0.616	129281565	0.494	24.722	28805459	69.4	12.311
1965	18.0	36.771	314180240	81444943	0.741	62427833	0.797	19.755	5575449	24.2	8.933
1966	18.0	4.387	37483844	9716936	0.741	9716886	0.797	19.755	867818	24.2	8.933
1967	17.6	1.059	8350921	2346227	0.719	2346227	0.744	20.618	263954	32.0	9.520
1968	17.1	0.482	3483719	1067998	0.693	1067998	0.682	21.635	149354	41.3	10.212
1969	16.5	0.392	2568728	867213	0.662	867213	0.607	22.868	150007	52.5	11.050
1970	15.7	0.566	3325654	1253223	0.623	1253223	0.512	24.426	269263	66.7	12.110
1971	14.7	1.530	7874328	3388052	0.570	3388052	0.382	26.548	921193	86.0	13.553
1972	13.0	10.159	43590804	22501275	0.484	22488865	0.174	29.961	8177497	117.0	15.873
1973	12.0	132.025	516256129	292426655	0.434	133693310	0.052	31.957	55784987	135.2	17.231
1974	17.2	231.399	1714405116	512534206	0.701	111905566	0.701	21.333	14740232	38.5	10.006
1975	18.0	13.651	116635988	30235547	0.741	29634558	0.797	19.755	2646671	24.2	8.933
1976	17.6	3.197	25206630	7081911	0.719	7081910	0.744	20.618	796725	32.0	9.520
1977	17.1	1.418	10245826	3141046	0.693	3141046	0.682	21.635	439259	41.3	10.212

TABLE OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.017	812489.7	206.0	0	206.0	0.000
1950	13.6	0.068	889793.1	826.7	0	826.7	0.001
1951	12.0	0.556	970945.1	6732.9	0.000	6732.9	0.007
1952	12.0	7.274	889517.0	88162.4	0.000	88161.0	0.090
1953	12.0	90.894	329573.9	1101651.9	0.412	648104.1	0.663
1954	15.9	273.861	80969.8	3319235.1	0.795	680198.0	0.894
1955	18.0	45.983	265098.1	557324.5	0.312	383163.4	0.591
1956	18.0	5.347	583457.5	64807.0	0.000	64804.1	0.100
1957	17.6	1.281	656030.2	15526.1	0.000	15526.1	0.023
1958	17.1	0.579	692001.1	7021.1	0.000	7021.1	0.010
1959	16.5	0.465	726665.4	5636.2	0.000	5636.2	0.008
1960	15.7	0.656	766412.9	7956.1	0.000	7956.1	0.010
1961	14.7	1.669	811429.6	20232.4	0.000	20232.4	0.024
1962	13.0	8.303	823179.5	100632.5	0.000	100622.1	0.109
1963	12.0	82.227	354732.1	996608.0	0.375	622945.9	0.637
1964	15.6	315.108	74931.1	3819157.0	0.815	707428.7	0.904
1965	18.0	36.771	306656.5	445666.7	0.233	341605.1	0.527
1966	18.0	4.387	595090.8	53171.1	0.000	53170.8	0.082
1967	17.6	1.059	658717.8	12838.6	0.000	12838.6	0.019
1968	17.1	0.482	693178.1	5844.1	0.000	5844.1	0.008
1969	16.5	0.392	727556.2	4745.4	0.000	4745.4	0.006
1970	15.7	0.566	767511.4	6857.6	0.000	6857.6	0.009
1971	14.7	1.530	813122.6	18539.4	0.000	18539.4	0.022
1972	13.0	10.159	800742.6	123127.0	0.001	123059.1	0.133
1973	12.0	132.025	246108.2	1600158.7	0.543	731569.8	0.748
1974	17.2	231.399	78513.8	2804587.2	0.782	612347.3	0.886
1975	18.0	13.651	486101.3	165448.9	0.020	162160.3	0.250
1976	17.6	3.197	632804.2	38752.2	0.000	38752.2	0.058
1977	17.1	1.418	681834.4	17187.8	0.000	17187.8	0.025

TABLE OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.017	110	486	-376	384	95
1950	13.6	0.068	617	2575	-1958	2047	512
1951	12.0	0.556	7215	28666	-21451	22893	5722
1952	12.0	7.274	200911	797743	-596832	637980	159475
1953	12.0	90.894	5173689	30413213	-25239524	24324562	6080312
1954	15.9	273.861	4888166	24097117	-19208951	19266988	4815359
1955	18.0	45.983	1108126	3773551	-2665425	3015469	753441
1956	18.0	5.347	48942	135737	-86795	108462	27101
1957	17.6	1.281	7993	21873	-13880	17454	4361
1958	17.1	0.579	3836	10538	-6702	8392	2098
1959	16.5	0.465	3761	10154	-6393	8085	2021
1960	15.7	0.656	7172	18404	-11232	14677	3669
1961	14.7	1.669	31425	70126	-38701	56030	13997
1962	13.0	8.303	586516	934597	-348081	747127	186720
1963	12.0	82.227	7844078	30177871	-22333793	24133082	6032118
1964	15.6	315.108	2500806	23845319	-21344513	19068348	4766065
1965	18.0	36.771	428543	2683677	-2255134	2145611	536227
1966	18.0	4.387	33929	98771	-64842	78929	19720
1967	17.6	1.059	7011	17337	-10326	13829	3454
1968	17.1	0.482	4228	8648	-4420	6883	1720
1969	16.5	0.392	5653	8555	-2902	6807	1699
1970	15.7	0.566	18445	16280	2165	12969	3238
1971	14.7	1.530	245329	76469	168860	61008	15239
1972	13.0	10.159	2962808	1569293	1393515	1254096	313411
1973	12.0	132.025	6583881	39841643	-33257762	31863833	7964703
1974	17.2	231.399	1912675	12794871	-10882196	10229144	2556395
1975	18.0	13.651	399260	717674	-318414	573236	143221
1976	17.6	3.197	29065	75865	-46800	60613	15144
1977	17.1	1.418	8052	30356	-22304	24241	6058

TABLE OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	10824	8753	720091
0	77382	65313	5019488
0	1111251	975493	65606096
0	30990597	27164223	804820430
0	1181554606	699509982	3195731159
0	481154310	427739076	491959533
0	26158391	26780312	80164449
0	940814	1183352	22456832
0	200603	256059	9541091
0	124202	158458	6983277
0	152287	197720	8834041
0	350978	480493	19635163
0	1730220	2775351	80621318
0	31428814	70036442	682617411
0	1171802651	1055108323	3196313002
0	455010951	120720468	614720169
0	18621648	10356717	77386365
0	685534	853847	18694191
0	159104	240981	7913792
0	102153	192883	5820058
0	128791	340188	7444584
0	313988	1490079	16942337
0	2004323	28045087	73993312
0	54158996	389873040	818591682
0	1540856579	853571287	3159549303
0	147471707	91357597	181666721
0	4971515	9649835	49354451
0	693059	800862	23182815
0	358718	307136	16906553

AVERAGE CYCLE FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 273.861 315.108 231.399
MEAN OF MAXIMA: 273.456 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.465 0.392
MEAN OF MINIMA: 0.428 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.017
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 315.108
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 315.091
DIFFERENCE BETWEEN MEANS OF EXTREMES: 273.028 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.430	1.251	8.579	101.715	273.456	32.135	4.310	1.253	0.531
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	2498461	6213320	35887171	397737899	1731553107	274570491	36125758	9565277	3834530
1	952759	2771976	19001086	225293525	605688311	71176908	9547412	2774884	1175545
3	952759	2771976	18996235	121991946	121830776	54028316	9547216	2774884	1175545
W	210534	813306	7195544	50902465	22873272	4825285	907410	340807	164394

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 6808.307
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 273.861 315.108 231.399
MEAN OF MAXIMA: 273.456 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.465 0.392
MEAN OF MINIMA: 0.428 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.017
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 315.108
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 315.091
DIFFERENCE BETWEEN MEANS OF EXTREMES: 273.028 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.2	18.0	17.9	17.4	17.1
A	0.430	1.251	8.579	101.715	273.456	32.135	4.310	1.253	0.531
M	0.587	0.524	0.467	0.434	0.651	0.741	0.734	0.711	0.693
L	0.424	0.272	0.133	0.052	0.579	0.797	0.779	0.724	0.682
S	0.000	0.000	0.000	0.443	0.797	0.189	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	23.330	19.755	20.042	20.957	21.635
W	13.086	14.779	16.326	17.231	11.365	8.933	9.129	9.751	10.212
4	79.7	102.4	123.1	135.2	56.7	24.2	26.8	35.1	41.3
D	0.007	0.018	0.111	0.683	0.895	0.456	0.080	0.022	0.009

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 6808.307
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
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DIFFERENCE BETWEEN MEANS OF EXTREMES: 273.028 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.2	18.0	17.9	17.4	17.1
A	0.430	1.251	8.579	101.715	273.456	32.135	4.310	1.253	0.531
I	8744	94656	1250078	6533882	3100549	645309	37312	7685	4032
O	12419	58420	1100544	33477575	20245769	2391634	103457	23188	9593
E	-3675	36236	149534	-26943693	-17145220	-1746324	-66145	-15503	-5561
U	247449	1615264	38859469	1298071278	361212322	16583851	773135	239475	113177
H	13865662	73406908	768676507	3183864488	429448807	68968421	21444612	11453812	6401667
G	678628	10598643	162357901	869396530	213272380	15595621	946020	268058	175670

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 6808.307
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

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MEAN OF MINIMA: 0.428 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
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MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 315.091
DIFFERENCE BETWEEN MEANS OF EXTREMES: 273.028 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.2	18.0	17.9	17.4	17.1
A	0.430	1.251	8.579	101.715	273.456	32.135	4.310	1.253	0.531
D	0.007	0.018	0.111	0.683	0.895	0.456	0.080	0.022	0.009
F	807905.8	865165.8	837813.0	310138.1	78138.2	352618.6	603784.1	665527.5	692589.6
*	5213.5	15168.3	103973.9	1232806.2	3314326.4	389480.0	52243.4	15184.2	6432.6
E	5213.5	15168.3	103947.4	667539.9	666658.0	295642.9	52242.4	15184.2	6432.6

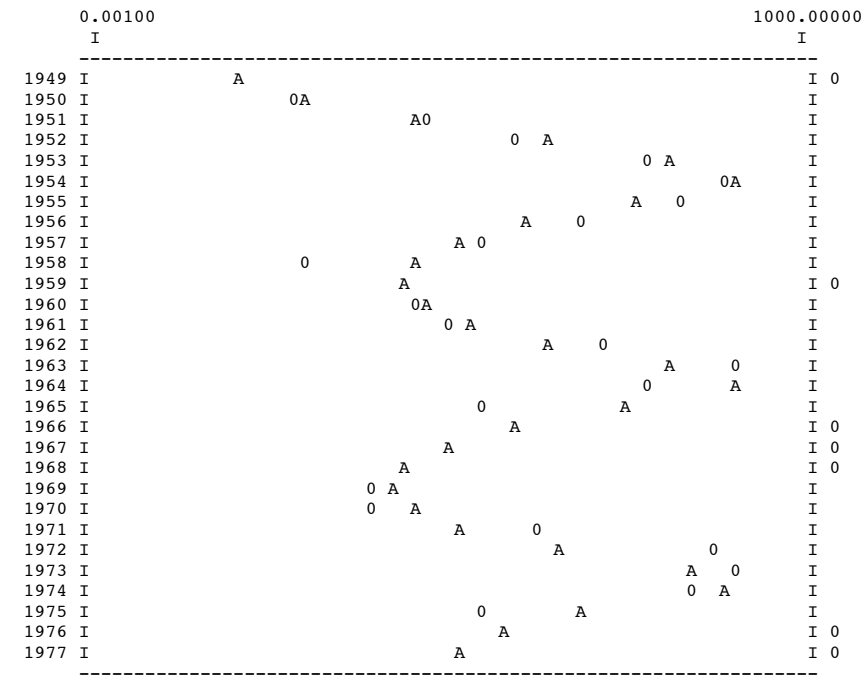
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 6808.307
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

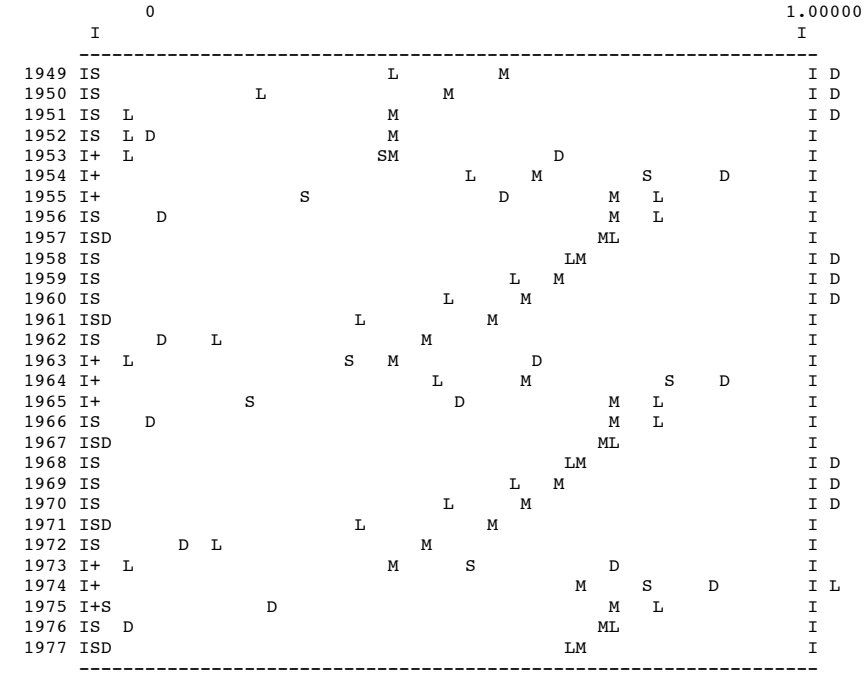


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

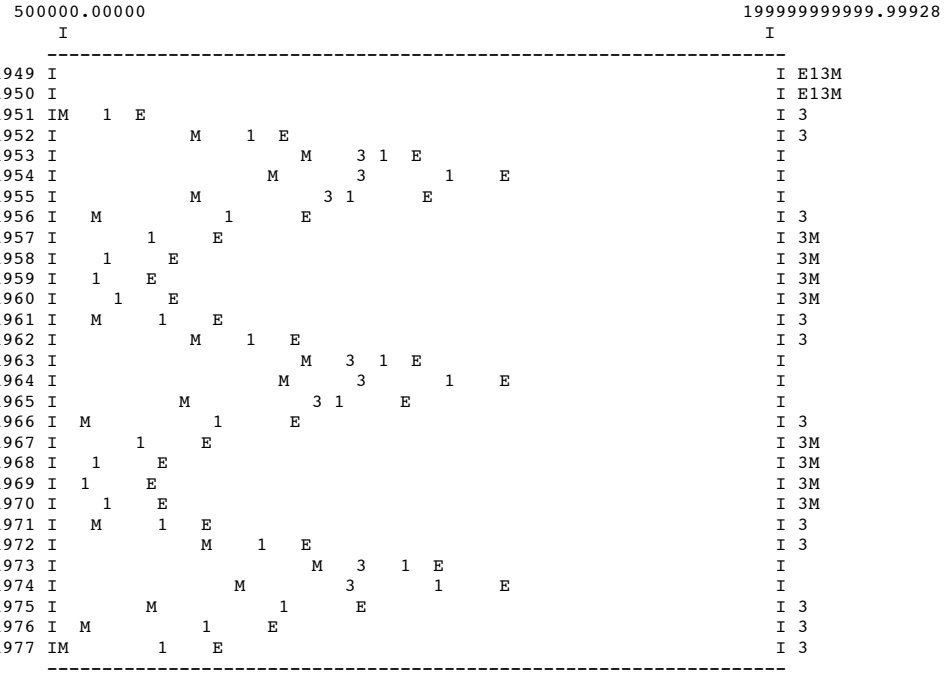


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

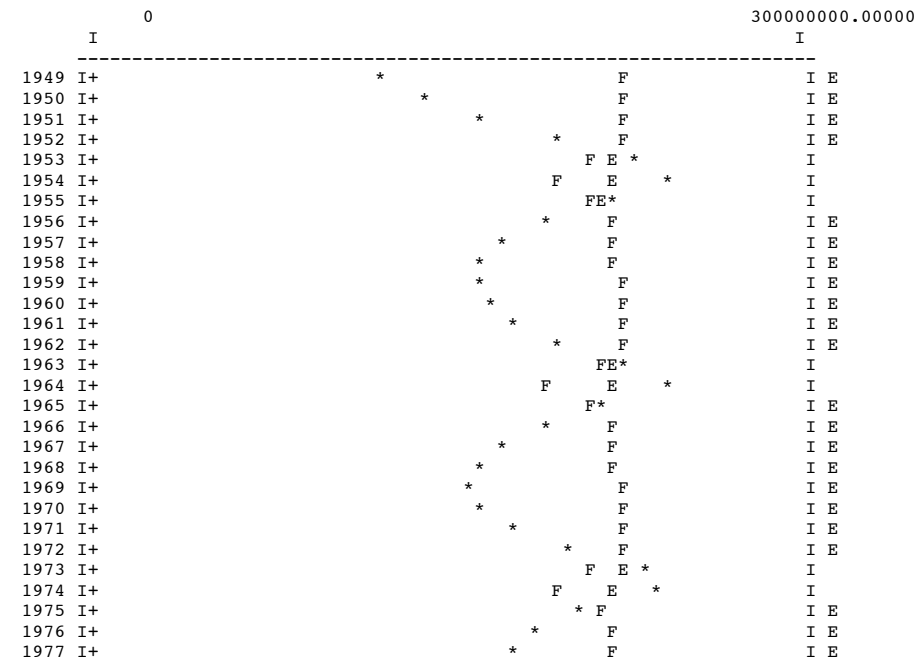


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 206.037216 MAX = 3819157.048224



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 13:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

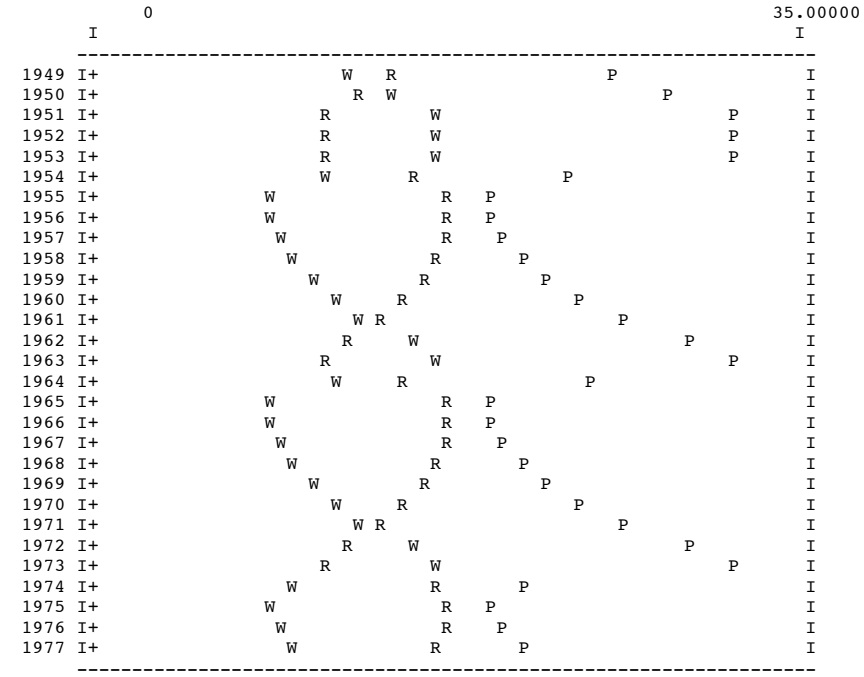


TABLE OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	98594	40677	0.587	0.011	0.011	1356637.6	0	40677	0.000	0.425	10291	79.6
1950	13.6	343289	166580	0.515	0.045	0.027	1486049.2	0	166580	0.001	0.249	55069	105.9
1951	12.0	2445240	1385074	0.434	0.375	0.144	1624732.1	0.000	1385074	0.005	0.052	577937	135.2
1952	12.0	32759236	18556048	0.434	5.018	6.941	1530772.5	0.000	18556046	0.062	0.052	7742711	135.2
1953	12.0	432149129	244785325	0.434	66.194	93.262	688839.0	0.296	172418162	0.578	0.052	71943353	135.2
1954	14.7	3179932858	1366517986	0.570	369.527	364.468	121134.3	0.831	231439287	0.913	0.383	62795202	85.8
1955	18.0	1410278221	365586423	0.741	98.860	186.852	246416.8	0.582	152760867	0.772	0.797	13643121	24.2
1956	18.0	92983791	24104188	0.741	6.518	10.948	950462.1	0.000	24097605	0.122	0.797	2152164	24.2
1957	17.6	20918751	5877213	0.719	1.589	2.434	1089056.7	0.000	5877213	0.029	0.744	661195	32.0
1958	17.1	8789467	2694572	0.693	0.729	0.051	1152328.5	0.000	2694572	0.013	0.682	376822	41.3
1959	16.5	6489634	2190926	0.662	0.592	0.024	1210647.1	0.000	2190926	0.010	0.607	378978	52.5
1960	15.7	8307079	3130400	0.623	0.847	0.259	1275741.2	0.000	3130400	0.013	0.512	672587	66.7
1961	14.7	18704829	8048044	0.570	2.176	1.864	1344487.1	0.000	8048043	0.032	0.382	2188220	86.0
1962	13.0	78011427	40268966	0.484	10.889	33.808	1322209.6	0.001	40232228	0.143	0.174	14629415	117.0
1963	12.0	682908582	386824797	0.434	104.603	387.000	494535.3	0.462	207926889	0.697	0.052	86759755	135.2
1964	16.5	3522076705	1191553599	0.662	322.214	156.180	108006.4	0.829	203927831	0.912	0.605	35428371	52.8
1965	18.0	500159040	129656227	0.741	35.061	1.300	527162.6	0.218	101454971	0.513	0.797	9060975	24.2
1966	18.0	74241268	19245563	0.741	5.204	0.037	977016.1	0.000	19244900	0.097	0.797	1718768	24.2
1967	17.6	16861809	4737397	0.719	1.281	0.000	1095293.8	0.000	4737397	0.023	0.744	532964	32.0
1968	17.1	7098991	2176326	0.693	0.589	0.037	1155164.3	0.000	2176326	0.010	0.682	304348	41.3
1969	16.5	5246338	1771185	0.662	0.479	0.040	1212943.9	0.000	1771185	0.008	0.607	306373	52.5
1970	15.7	6721699	2532973	0.623	0.685	0.941	1279010.3	0.000	2532973	0.011	0.512	544226	66.7
1971	14.7	15158385	6522131	0.570	1.764	9.305	1352836.9	0.000	6522131	0.026	0.382	1773332	86.0
1972	13.0	63555151	32806735	0.484	8.871	162.110	1362875.3	0.000	32800644	0.116	0.174	11927111	117.0
1973	12.0	572161963	324093797	0.434	87.640	290.260	565323.1	0.398	194990511	0.654	0.052	81361911	135.2
1974	15.8	3530416488	1311960352	0.628	354.774	148.270	108196.6	0.836	214789953	0.916	0.524	44952365	64.8
1975	18.0	677906470	175733694	0.741	47.521	4.875	432735.3	0.324	118711425	0.600	0.797	10602155	24.2
1976	18.0	78985477	20475405	0.741	5.537	0.034	970290.0	0.000	20474099	0.104	0.797	1828548	24.2
1977	17.6	17887016	5025434	0.719	1.359	0.000	1093717.7	0.000	5025434	0.025	0.744	565368	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.011	0.011	0.000	0.000	0.000	0.000	0
1950	13.6	0.045	0.027	0.000	0.000	0.000	-0.018	0
1951	12.0	0.375	0.144	0.000	0.000	0.053	-0.231	0
1952	12.0	5.018	6.941	0.000	0.000	3.752	1.923	0
1953	12.0	66.194	93.262	0.000	0.000	736.445	27.068	0
1954	14.7	369.527	364.468	0.000	0.000	762.042	-5.059	0
1955	18.0	98.860	186.852	0.000	0.000	8504.604	87.992	0
1956	18.0	6.518	10.948	0.000	0.000	8524.228	4.430	0
1957	17.6	1.589	2.434	0.000	0.000	8524.941	0.845	0
1958	17.1	0.729	0.051	0.000	0.000	8525.400	-0.678	0
1959	16.5	0.592	0.024	0.000	0.000	8525.723	-0.568	0
1960	15.7	0.847	0.259	0.000	0.000	8526.069	-0.588	0
1961	14.7	2.176	1.864	0.000	0.000	8526.166	-0.312	0
1962	13.0	10.889	33.808	0.000	0.000	9051.431	22.919	0
1963	12.0	104.603	387.000	0.000	0.000	88799.296	282.397	0
1964	16.5	322.214	156.180	0.000	0.000	116366.704	-166.034	0
1965	18.0	35.061	1.300	0.000	0.000	117506.512	-33.761	0
1966	18.0	5.204	0.037	0.000	0.000	117533.213	-5.167	0
1967	17.6	1.281	0.000	0.000	0.000	117534.853	-1.281	0
1968	17.1	0.589	0.037	0.000	0.000	117535.158	-0.552	0
1969	16.5	0.479	0.040	0.000	0.000	117535.350	-0.439	0
1970	15.7	0.685	0.941	0.000	0.000	117535.416	0.256	0
1971	14.7	1.764	9.305	0.000	0.000	117592.287	7.541	0
1972	13.0	8.871	162.110	0.000	0.000	141074.342	153.239	0
1973	12.0	87.640	290.260	0.000	0.000	182129.235	202.620	0
1974	15.8	354.774	148.270	0.000	0.000	224773.216	-206.504	0
1975	18.0	47.521	4.875	0.000	0.000	226591.904	-42.646	0
1976	18.0	5.537	0.034	0.000	0.000	226622.186	-5.503	0
1977	17.6	1.359	0.000	0.000	0.000	226624.032	-1.359	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.011	98594	40677	0.587	40677	0.425	25.846	10291	79.6	13.075
1950	13.6	0.045	343289	166580	0.515	166580	0.249	28.732	55069	105.9	15.038
1951	12.0	0.375	2445240	1385074	0.434	1385074	0.052	31.957	577937	135.2	17.231
1952	12.0	5.018	32759236	18556048	0.434	18556046	0.052	31.957	7742711	135.2	17.231
1953	12.0	66.194	432149129	244785325	0.434	172418162	0.052	31.957	71943353	135.2	17.231
1954	14.7	369.527	3179932858	1366517986	0.570	231439287	0.383	26.527	62795202	85.8	13.538
1955	18.0	98.860	1410278221	365586423	0.741	152760867	0.797	19.755	13643121	24.2	8.933
1956	18.0	6.518	92983791	24104188	0.741	24097605	0.797	19.755	2152164	24.2	8.933
1957	17.6	1.589	20918751	5877213	0.719	5877213	0.744	20.618	661195	32.0	9.520
1958	17.1	0.729	8789467	2694572	0.693	2694572	0.682	21.635	376822	41.3	10.212
1959	16.5	0.592	6489634	2190926	0.662	2190926	0.607	22.868	378978	52.5	11.050
1960	15.7	0.847	8307079	3130400	0.623	3130400	0.512	24.426	672587	66.7	12.110
1961	14.7	2.176	18704829	8048044	0.570	8048043	0.382	26.548	2188220	86.0	13.553
1962	13.0	10.889	78011427	40268966	0.484	40232228	0.174	29.961	14629415	117.0	15.873
1963	12.0	104.603	682908582	386824797	0.434	207926889	0.052	31.957	86759755	135.2	17.231
1964	16.5	322.214	3522076705	1191553599	0.662	203927831	0.605	22.896	35428371	52.8	11.069
1965	18.0	35.061	500159040	129656227	0.741	101454971	0.797	19.755	9060975	24.2	8.933
1966	18.0	5.204	74241268	19245563	0.741	19244900	0.797	19.755	1718768	24.2	8.933
1967	17.6	1.281	16861809	4737397	0.719	4737397	0.744	20.618	532964	32.0	9.520
1968	17.1	0.589	7098991	2176326	0.693	2176326	0.682	21.635	304348	41.3	10.212
1969	16.5	0.479	5246338	1771185	0.662	1771185	0.607	22.868	306373	52.5	11.050
1970	15.7	0.685	6721699	2532973	0.623	2532973	0.512	24.426	544226	66.7	12.110
1971	14.7	1.764	15158385	6522131	0.570	6522131	0.382	26.548	1773332	86.0	13.553
1972	13.0	8.871	63555151	32806735	0.484	32800644	0.174	29.961	11927111	117.0	15.873
1973	12.0	87.640	572161963	324093797	0.434	194990511	0.052	31.957	81361911	135.2	17.231
1974	15.8	354.774	3530416488	1311960352	0.628	214789953	0.524	24.219	44952365	64.8	11.969
1975	18.0	47.521	677906470	175733694	0.741	118711425	0.797	19.755	10602155	24.2	8.933
1976	18.0	5.537	78985477	20475405	0.741	20474099	0.797	19.755	1828548	24.2	8.933
1977	17.6	1.359	17887016	5025434	0.719	5025434	0.744	20.618	565368	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.011	1356637.6	222.6	0	222.6	0.000
1950	13.6	0.045	1486049.2	911.5	0	911.5	0.001
1951	12.0	0.375	1624732.1	7579.1	0.000	7579.1	0.005
1952	12.0	5.018	1530772.5	101538.7	0.000	101538.7	0.062
1953	12.0	66.194	688839.0	1339465.3	0.296	943472.2	0.578
1954	14.7	369.527	121134.3	7477586.4	0.831	1266435.8	0.913
1955	18.0	98.860	246416.8	2000488.9	0.582	835907.5	0.772
1956	18.0	6.518	950462.1	131898.1	0.000	131862.1	0.122
1957	17.6	1.589	1089056.7	32160.1	0.000	32160.1	0.029
1958	17.1	0.729	1152328.5	14744.7	0.000	14744.7	0.013
1959	16.5	0.592	1210647.1	11988.7	0.000	11988.7	0.010
1960	15.7	0.847	1275741.2	17129.5	0.000	17129.5	0.013
1961	14.7	2.176	1344487.1	44038.9	0.000	44038.9	0.032
1962	13.0	10.889	1322209.6	220351.8	0.001	220150.8	0.143
1963	12.0	104.603	494535.3	2116705.3	0.462	1137775.9	0.697
1964	16.5	322.214	108006.4	6520181.3	0.829	1115893.1	0.912
1965	18.0	35.061	527162.6	709478.9	0.218	555161.6	0.513
1966	18.0	5.204	977016.1	105311.7	0.000	105308.1	0.097
1967	17.6	1.281	1095293.8	25923.0	0.000	25923.0	0.023
1968	17.1	0.589	1155164.3	11908.9	0.000	11908.9	0.010
1969	16.5	0.479	1212943.9	9691.9	0.000	9691.9	0.008
1970	15.7	0.685	1279010.3	13860.4	0.000	13860.4	0.011
1971	14.7	1.764	1352836.9	35689.1	0.000	35689.1	0.026
1972	13.0	8.871	1362875.3	179518.5	0.000	179485.1	0.116
1973	12.0	87.640	565323.1	1773441.3	0.398	1066988.1	0.654
1974	15.8	354.774	108196.6	7179047.0	0.836	1175330.6	0.916
1975	18.0	47.521	432735.3	961614.8	0.324	649588.9	0.600
1976	18.0	5.537	970290.0	112041.4	0.000	112034.3	0.104
1977	17.6	1.359	1093717.7	27499.2	0.000	27499.2	0.025

TABLE OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.011	321	536	-215	421	104
1950	13.6	0.045	1770	2884	-1114	2289	572
1951	12.0	0.375	19754	31973	-12219	25528	6380
1952	12.0	5.018	460280	781868	-321588	625252	156296
1953	12.0	66.194	14761742	45249673	-30487931	36190870	9046682
1954	14.7	369.527	16205795	71683575	-55477780	57327457	14329635
1955	18.0	98.860	3118512	12264974	-9146462	9805252	2450486
1956	18.0	6.518	163269	322727	-159458	257950	64467
1957	17.6	1.589	27471	48841	-21370	39017	9746
1958	17.1	0.729	13236	23136	-9900	18461	4612
1959	16.5	0.592	12855	22440	-9585	17905	4472
1960	15.7	0.847	23706	41582	-17876	33211	8297
1961	14.7	2.176	92689	166707	-74018	133280	33309
1962	13.0	10.889	1205005	2452925	-1247920	1961776	490374
1963	12.0	104.603	19217374	68320885	-49103511	54641935	13658792
1964	16.5	322.214	9412089	40612193	-31200104	32475778	8117357
1965	18.0	35.061	1724846	4980286	-3255440	3981756	995135
1966	18.0	5.204	116336	222385	-106049	177742	44424
1967	17.6	1.281	21089	37059	-15970	29592	7393
1968	17.1	0.589	10444	18125	-7681	14452	3612
1969	16.5	0.479	10249	17711	-7462	14122	3529
1970	15.7	0.685	18986	32608	-13622	26033	6505
1971	14.7	1.764	75704	127059	-51355	101541	25376
1972	13.0	8.871	1065530	1753455	-687925	1402108	350459
1973	12.0	87.640	19627270	60188759	-40561489	48137068	12032699
1974	15.8	354.774	9725308	49998155	-40272847	39984636	9994488
1975	18.0	47.521	1864365	6831118	-4966753	5462224	1365221
1976	18.0	5.537	123545	245533	-121988	196258	49052
1977	17.6	1.359	24210	40034	-15824	31971	7988

TABLE OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	20215	25545	778036
0	149464	187369	5536509
0	2153401	2670835	74012771
0	52810151	62232364	949352677
0	3056972572	1995867804	5447795254
0	3142028043	1485397352	1815815713
0	147928209	75366726	142291963
0	3891504	3945836	45021278
0	779193	879614	19694982
0	475216	546341	14644752
0	585411	674811	18770599
0	1381769	1580592	42204122
0	7154375	7970405	174640614
0	143439770	141052823	1457515956
0	4615319864	2598117077	5646444500
0	1098650597	539706404	631077866
0	60078989	41685573	132100169
0	2681129	2812290	36658238
0	590952	675438	15942052
0	371692	431237	11849518
0	461938	538421	15195895
0	1082460	1268727	34214384
0	5451033	6599877	142171546
0	102527728	125688433	1213642005
0	4065362623	2649671950	5614411591
0	1626539719	611456183	975403533
0	82432625	45057541	139833558
0	2965265	3060140	38810217
0	639653	811874	16893468

AVERAGE CYCLE FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 369.527 322.214 354.774
MEAN OF MAXIMA: 348.839 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.592 0.479
MEAN OF MINIMA: 0.536 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.011
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 369.527
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 369.516
DIFFERENCE BETWEEN MEANS OF EXTREMES: 348.303 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.526	1.438	8.260	86.146	348.839	60.481	5.753	1.410	0.659
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	5124022	12102818	58108604	562406558	3410808683	862781243	82070178	18555858	7944229
1	1943317	5318416	30543916	318567973	1290010645	223658781	21275052	5213348	2435449
3	1943317	5318416	30529639	191778520	216719023	124309087	21272201	5213348	2435449
W	423960	1513163	11433079	80021673	47725312	11102083	1899826	586509	340585

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21090.805
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 369.527 322.214 354.774
MEAN OF MAXIMA: 348.839 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.592 0.479
MEAN OF MINIMA: 0.536 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.011
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 369.527
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 369.516
DIFFERENCE BETWEEN MEANS OF EXTREMES: 348.303 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.6	18.0	18.0	17.6	17.1
A	0.526	1.438	8.260	86.146	348.839	60.481	5.753	1.410	0.659
M	0.587	0.524	0.467	0.434	0.620	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.504	0.797	0.797	0.744	0.682
S	0.000	0.000	0.000	0.385	0.832	0.375	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	24.547	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	12.192	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	67.8	24.2	24.2	32.0	41.3
D	0.008	0.021	0.107	0.643	0.913	0.628	0.108	0.025	0.011

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21090.805
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 369.527 322.214 354.774
MEAN OF MAXIMA: 348.839 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.592 0.479
MEAN OF MINIMA: 0.536 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.011
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 369.527
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 369.516
DIFFERENCE BETWEEN MEANS OF EXTREMES: 348.303 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.6	18.0	18.0	17.6	17.1
A	0.526	1.438	8.260	86.146	348.839	60.481	5.753	1.410	0.659
I	14820	62715	910271	17868795	11781064	2235907	134383	24256	11840
O	25691	108579	1662749	57919772	54097974	8025459	263548	41978	20630
E	-10870	-45864	-752477	-40050977	-42316910	-5789551	-129165	-17721	-8790
U	871231	4919603	99592549	3912551686	1955739453	96813274	3179299	669932	423454
H	27318338	130274977	1206836879	5569550448	1140765704	138075230	40163244	17510167	13247135
G	1012229	5747039	109657873	2414552277	878853313	54036613	3272755	788975	488789

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21090.805
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 369.527 322.214 354.774
MEAN OF MAXIMA: 348.839 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.592 0.479
MEAN OF MINIMA: 0.536 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.011
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 369.527
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 369.516
DIFFERENCE BETWEEN MEANS OF EXTREMES: 348.303 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.6	18.0	18.0	17.6	17.1
A	0.526	1.438	8.260	86.146	348.839	60.481	5.753	1.410	0.659
D	0.008	0.021	0.107	0.643	0.913	0.628	0.108	0.025	0.011
F	1346933.6	1440685.3	1405285.8	582899.1	112445.8	402104.9	965922.8	1092689.4	1153746.4
*	10633.8	29102.4	167136.3	1743203.9	7058938.3	1223860.9	116417.1	28527.4	13326.8
E	10633.8	29102.4	167058.2	1049412.1	1185886.5	680219.3	116401.5	28527.4	13326.8

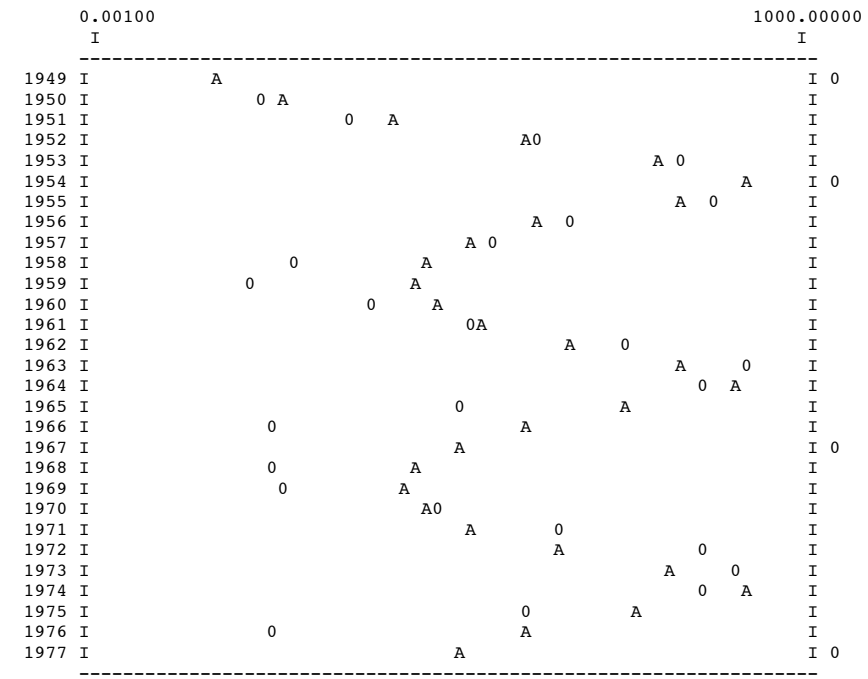
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21090.805
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

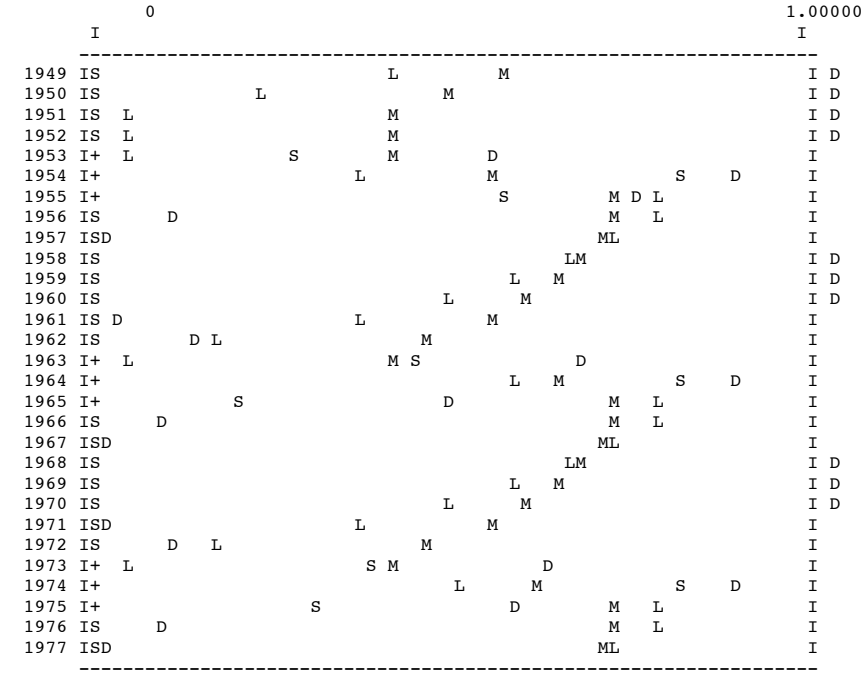


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

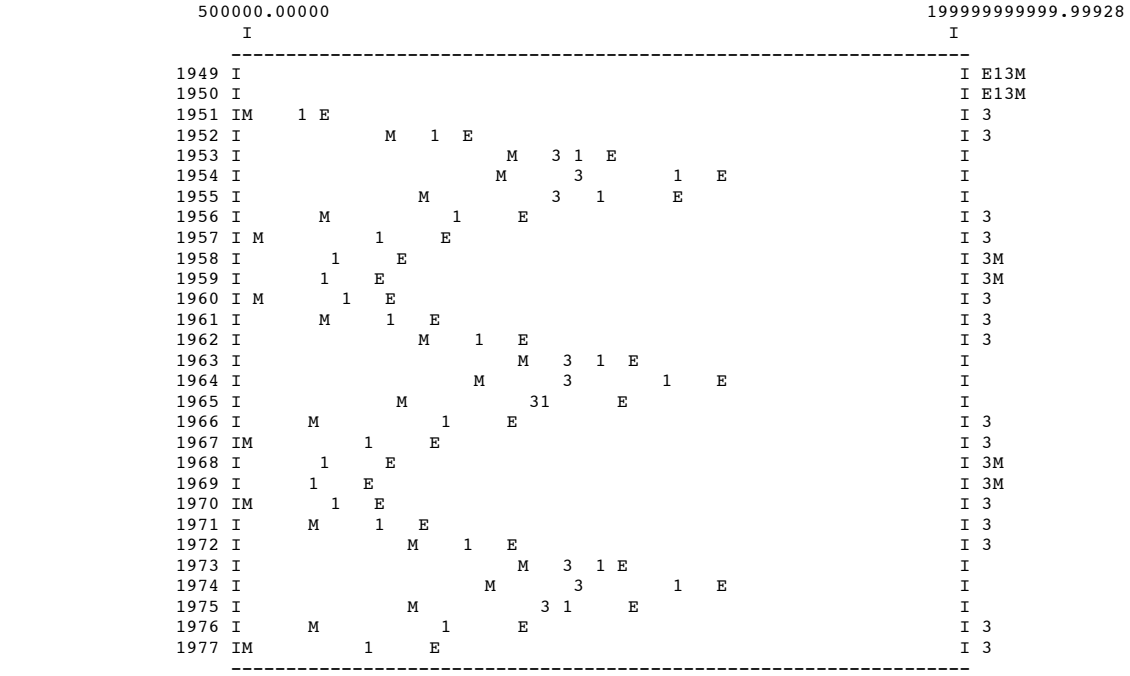


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

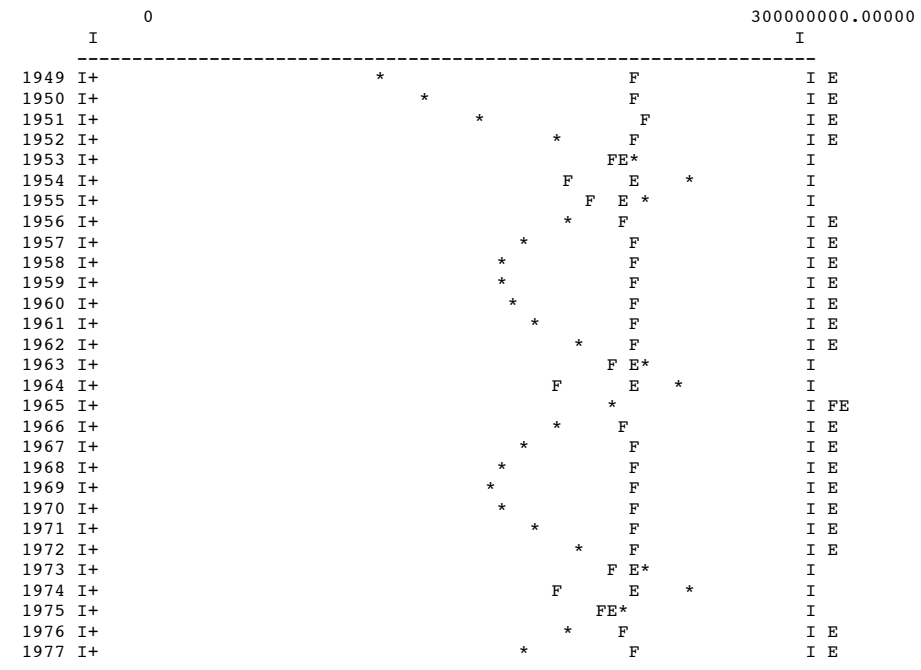


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 222.584544 MAX = 7477586.419392



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 14:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

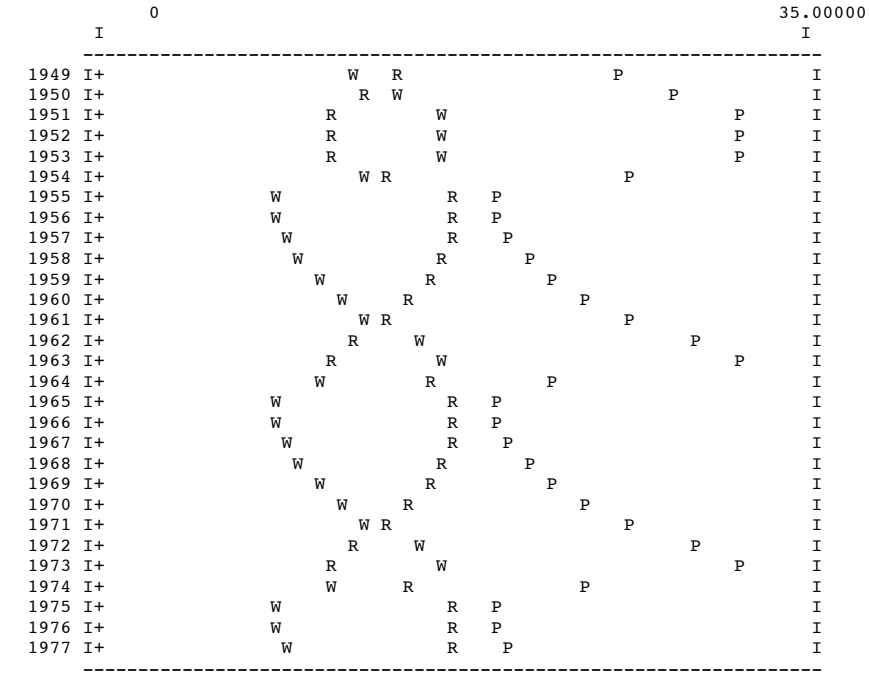


TABLE OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	91044	37562	0.587	0.011	0.011	1252739.4	0	37562	0.000	0.425	9503	79.6
1950	13.6	314795	152753	0.515	0.045	0.014	1372245.9	0	152753	0.001	0.249	50498	105.9
1951	12.0	2226765	1261322	0.434	0.369	0.054	1500398.6	0.000	1261322	0.005	0.052	526300	135.2
1952	12.0	29625246	16780840	0.434	4.914	3.217	1415475.9	0.000	16780838	0.061	0.052	7001987	135.2
1953	12.0	386452669	218901152	0.434	64.104	55.400	649798.8	0.284	156707193	0.569	0.052	65387780	135.2
1954	14.5	2777065264	1212799184	0.563	355.159	352.532	118137.3	0.823	214678024	0.909	0.366	59848926	88.3
1955	18.0	1247099313	323285554	0.741	94.672	194.912	235890.2	0.568	139536585	0.764	0.797	12462057	24.2
1956	18.0	81513895	21130847	0.741	6.188	9.888	883826.8	0.000	21127122	0.116	0.797	1886870	24.2
1957	17.6	18298220	5140963	0.719	1.505	2.582	1007217.1	0.000	5140963	0.027	0.744	578366	32.0
1958	17.1	7664489	2349689	0.693	0.688	0.000	1064835.3	0.000	2349689	0.012	0.682	328592	41.3
1959	16.5	5641739	1904674	0.662	0.558	0.000	1118577.8	0.000	1904674	0.009	0.607	329463	52.5
1960	15.7	7200838	2713530	0.623	0.795	0.293	1179007.8	0.000	2713530	0.012	0.512	583019	66.7
1961	14.7	16171706	6958129	0.570	2.038	1.147	1244110.8	0.000	6958129	0.030	0.382	1891878	86.0
1962	13.0	67321836	34751072	0.484	10.177	15.080	1234187.1	0.001	34731654	0.133	0.174	12629273	117.0
1963	12.0	591042526	334788449	0.434	98.040	251.120	479953.1	0.439	187746250	0.682	0.052	78339164	135.2
1964	16.2	3096987128	1084496438	0.650	317.587	207.400	104527.6	0.824	191019601	0.909	0.576	35605909	57.0
1965	18.0	446315052	115698250	0.741	33.881	0.680	496914.9	0.206	91834713	0.503	0.797	8201787	24.2
1966	18.0	65385129	16949786	0.741	4.964	0.000	906687.1	0.000	16949431	0.093	0.797	1513759	24.2
1967	17.6	14795470	4156850	0.719	1.217	0.000	1012602.1	0.000	4156850	0.022	0.744	467651	32.0
1968	17.1	6207036	1902880	0.693	0.557	0.000	1067280.3	0.000	1902880	0.010	0.682	266108	41.3
1969	16.5	4571828	1543467	0.662	0.452	0.000	1120554.4	0.000	1543467	0.007	0.607	266983	52.5
1970	15.7	5838515	2200158	0.623	0.644	0.399	1181816.9	0.000	2200158	0.010	0.512	472718	66.7
1971	14.7	13124715	5647113	0.570	1.654	7.133	1251284.7	0.000	5647113	0.024	0.382	1535420	86.0
1972	13.0	54821728	28298602	0.484	8.287	92.080	1269404.4	0.000	28295735	0.109	0.174	10289016	117.0
1973	12.0	490428440	277796892	0.434	81.351	103.220	551141.5	0.371	174736685	0.634	0.052	72910782	135.2
1974	15.5	3074574530	1188171276	0.614	347.947	329.470	105880.4	0.830	201730911	0.912	0.488	45413906	70.2
1975	18.0	640687003	166085291	0.741	48.637	5.873	393223.8	0.333	110784105	0.607	0.797	9894163	24.2
1976	18.0	70118513	18176822	0.741	5.323	0.000	899975.1	0.000	18176035	0.100	0.797	1623307	24.2
1977	17.6	15801218	4439420	0.719	1.300	0.000	1011055.9	0.000	4439420	0.023	0.744	499441	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.011	0.011	0.000	0.000	0.000	0.000	0
1950	13.6	0.045	0.014	0.000	0.000	0.001	-0.031	0
1951	12.0	0.369	0.054	0.000	0.000	0.100	-0.315	0
1952	12.0	4.914	3.217	0.000	0.000	2.981	-1.697	0
1953	12.0	64.104	55.400	0.000	0.000	78.733	-8.704	0
1954	14.5	355.159	352.532	0.000	0.000	85.637	-2.627	0
1955	18.0	94.672	194.912	0.000	0.000	10133.732	100.240	0
1956	18.0	6.188	9.888	0.000	0.000	10147.421	3.700	0
1957	17.6	1.505	2.582	0.000	0.000	10148.580	1.077	0
1958	17.1	0.688	0.000	0.000	0.000	10149.054	-0.688	0
1959	16.5	0.558	0.000	0.000	0.000	10149.365	-0.558	0
1960	15.7	0.795	0.293	0.000	0.000	10149.616	-0.502	0
1961	14.7	2.038	1.147	0.000	0.000	10150.410	-0.891	0
1962	13.0	10.177	15.080	0.000	0.000	10174.453	4.903	0
1963	12.0	98.040	251.120	0.000	0.000	33607.832	153.080	0
1964	16.2	317.587	207.400	0.000	0.000	45748.976	-110.187	0
1965	18.0	33.881	0.680	0.000	0.000	46851.308	-33.201	0
1966	18.0	4.964	0.000	0.000	0.000	46875.945	-4.964	0
1967	17.6	1.217	0.000	0.000	0.000	46877.426	-1.217	0
1968	17.1	0.557	0.000	0.000	0.000	46877.737	-0.557	0
1969	16.5	0.452	0.000	0.000	0.000	46877.941	-0.452	0
1970	15.7	0.644	0.399	0.000	0.000	46878.001	-0.245	0
1971	14.7	1.654	7.133	0.000	0.000	46908.023	5.479	0
1972	13.0	8.287	92.080	0.000	0.000	53929.284	83.793	0
1973	12.0	81.351	103.220	0.000	0.000	54407.546	21.869	0
1974	15.5	347.947	329.470	0.000	0.000	54748.956	-18.477	0
1975	18.0	48.637	5.873	0.000	0.000	56577.704	-42.764	0
1976	18.0	5.323	0.000	0.000	0.000	56606.037	-5.323	0
1977	17.6	1.300	0.000	0.000	0.000	56607.727	-1.300	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.011	91044	37562	0.587	37562	0.425	25.846	9503	79.6	13.075
1950	13.6	0.045	314795	152753	0.515	152753	0.249	28.732	50498	105.9	15.038
1951	12.0	0.369	2226765	1261322	0.434	1261322	0.052	31.957	526300	135.2	17.231
1952	12.0	4.914	29625246	16780840	0.434	16780838	0.052	31.957	7001987	135.2	17.231
1953	12.0	64.104	386452669	218901152	0.434	156707193	0.052	31.957	65387780	135.2	17.231
1954	14.5	355.159	2777065264	1212799184	0.563	214678024	0.366	26.804	59848926	88.3	13.727
1955	18.0	94.672	1247099313	323285554	0.741	139536585	0.797	19.755	12462057	24.2	8.933
1956	18.0	6.188	81513895	21130847	0.741	21127122	0.797	19.755	1886870	24.2	8.933
1957	17.6	1.505	18298220	5140963	0.719	5140963	0.744	20.618	578366	32.0	9.520
1958	17.1	0.688	7664489	2349689	0.693	2349689	0.682	21.635	328592	41.3	10.212
1959	16.5	0.558	5641739	1904674	0.662	1904674	0.607	22.868	329463	52.5	11.050
1960	15.7	0.795	7200838	2713530	0.623	2713530	0.512	24.426	583019	66.7	12.110
1961	14.7	2.038	16171706	6958129	0.570	6958129	0.382	26.548	1891878	86.0	13.553
1962	13.0	10.177	67321836	34751072	0.484	34731654	0.174	29.961	12629273	117.0	15.873
1963	12.0	98.040	591042526	334788449	0.434	187746250	0.052	31.957	78339164	135.2	17.231
1964	16.2	317.587	3096987128	1084496438	0.650	191019601	0.576	23.367	35605909	57.0	11.390
1965	18.0	33.881	446315052	115698250	0.741	91834713	0.797	19.755	8201787	24.2	8.933
1966	18.0	4.964	65385129	16949786	0.741	16949431	0.797	19.755	1513759	24.2	8.933
1967	17.6	1.217	14795470	4156850	0.719	4156850	0.744	20.618	467651	32.0	9.520
1968	17.1	0.557	6207036	1902880	0.693	1902880	0.682	21.635	266108	41.3	10.212
1969	16.5	0.452	4571828	1543467	0.662	1543467	0.607	22.868	266983	52.5	11.050
1970	15.7	0.644	5838515	2200158	0.623	2200158	0.512	24.426	472718	66.7	12.110
1971	14.7	1.654	13124715	5647113	0.570	5647113	0.382	26.548	1535420	86.0	13.553
1972	13.0	8.287	54821728	28298602	0.484	28295735	0.174	29.961	10289016	117.0	15.873
1973	12.0	81.351	490428440	277796892	0.434	174736685	0.052	31.957	72910782	135.2	17.231
1974	15.5	347.947	3074574530	1188171276	0.614	201730911	0.488	24.808	45413906	70.2	12.369
1975	18.0	48.637	640687003	166085291	0.741	110784105	0.797	19.755	9894163	24.2	8.933
1976	18.0	5.323	70118513	18176822	0.741	18176035	0.797	19.755	1623307	24.2	8.933
1977	17.6	1.300	15801218	4439420	0.719	4439420	0.744	20.618	499441	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.011	1252739.4	205.5	0	205.5	0.000
1950	13.6	0.045	1372245.9	835.9	0	835.9	0.001
1951	12.0	0.369	1500398.6	6902.0	0.000	6902.0	0.005
1952	12.0	4.914	1415475.9	91824.8	0.000	91824.7	0.061
1953	12.0	64.104	649798.8	1197827.1	0.284	857501.8	0.569
1954	14.5	355.159	118137.3	6636437.1	0.823	1174718.1	0.909
1955	18.0	94.672	235890.2	1769018.6	0.568	763544.2	0.764
1956	18.0	6.188	883826.8	115628.0	0.000	115607.6	0.116
1957	17.6	1.505	1007217.1	28131.3	0.000	28131.3	0.027
1958	17.1	0.688	1064835.3	12857.5	0.000	12857.5	0.012
1959	16.5	0.558	1118577.8	10422.4	0.000	10422.4	0.009
1960	15.7	0.795	1179007.8	14848.4	0.000	14848.4	0.012
1961	14.7	2.038	1244110.8	38074.9	0.000	38074.9	0.030
1962	13.0	10.177	1234187.1	190157.9	0.001	190051.6	0.133
1963	12.0	98.040	479953.1	1831962.4	0.439	1027347.5	0.682
1964	16.2	317.587	104527.6	5934364.5	0.824	1045259.3	0.909
1965	18.0	33.881	496914.9	633100.8	0.206	502519.5	0.503
1966	18.0	4.964	906687.1	92749.2	0.000	92747.3	0.093
1967	17.6	1.217	1012602.1	22746.3	0.000	22746.3	0.022
1968	17.1	0.557	1067280.3	10412.6	0.000	10412.6	0.010
1969	16.5	0.452	1120554.4	8445.9	0.000	8445.9	0.007
1970	15.7	0.644	1181816.9	12039.3	0.000	12039.3	0.010
1971	14.7	1.654	1251284.7	30901.0	0.000	30901.0	0.024
1972	13.0	8.287	1269404.4	154850.0	0.000	154834.3	0.109
1973	12.0	81.351	551141.5	1520104.6	0.371	956159.1	0.634
1974	15.5	347.947	105880.4	6501673.2	0.830	1103871.5	0.912
1975	18.0	48.637	393223.8	908818.7	0.333	606210.6	0.607
1976	18.0	5.323	899975.1	99463.6	0.000	99459.3	0.100
1977	17.6	1.300	1011055.9	24292.5	0.000	24292.5	0.023

TABLE OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.011	232	492	-260	388	96
1950	13.6	0.045	1281	2635	-1354	2088	521
1951	12.0	0.369	14392	28896	-14504	23074	5765
1952	12.0	4.914	334735	692291	-357556	553626	138394
1953	12.0	64.104	11083818	39100162	-28016344	31272572	7817243
1954	14.5	355.159	12313014	63437038	-51124024	50732960	12681328
1955	18.0	94.672	2460580	10633829	-8173249	8501312	2124658
1956	18.0	6.188	130923	271972	-141049	217387	54337
1957	17.6	1.505	21674	41891	-20217	33465	8359
1958	17.1	0.688	10401	19932	-9531	15907	3974
1959	16.5	0.558	10114	19297	-9183	15398	3848
1960	15.7	0.795	18740	35581	-16841	28421	7101
1961	14.7	2.038	74059	140806	-66747	112570	28132
1962	13.0	10.177	987491	2015332	-1027841	1611773	402888
1963	12.0	98.040	15116964	58360164	-43243200	46675374	11667395
1964	16.2	317.587	6632057	36887670	-30255613	29497941	7373128
1965	18.0	33.881	1331383	4294473	-2963090	3433429	858112
1966	18.0	4.964	92364	189279	-96915	151278	37809
1967	17.6	1.217	16531	31982	-15451	25538	6378
1968	17.1	0.557	8166	15682	-7516	12504	3123
1969	16.5	0.452	8010	15293	-7283	12194	3047
1970	15.7	0.644	14837	28004	-13167	22360	5586
1971	14.7	1.654	58633	107699	-49066	86062	21508
1972	13.0	8.287	804218	1435878	-631660	1148149	286979
1973	12.0	81.351	15086235	50577560	-35491325	40450249	10111295
1974	15.5	347.947	7154067	46197098	-39043031	36945637	9235015
1975	18.0	48.637	1449399	6207171	-4757772	4963444	1240579
1976	18.0	5.323	99103	211484	-112381	169047	42253
1977	17.6	1.300	18273	34755	-16482	27757	6934

TABLE OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	14007	18461	718420
0	102257	135603	5076862
0	1460344	1945866	67401622
0	35072427	45258000	859359672
0	1981227143	1498592268	5002028669
0	2112986469	1132922047	1786317919
0	96204180	59466056	131343624
0	2460020	3164104	39668810
0	501429	693994	17247227
0	307013	429321	12776998
0	377954	530921	16324975
0	886709	1249485	36605633
0	4531688	6368208	151220360
0	88393396	115585993	1267940521
0	2956927026	2043825467	5205676238
0	776450057	359295845	685449127
0	38857177	32176447	120878631
0	1711628	2232525	32401068
0	382633	529391	14000188
0	241180	337108	10364738
0	299266	420630	13246307
0	697949	990469	29732180
0	3464229	5081644	123246373
0	62962394	94555841	1053450809
0	2562399775	2037789877	5159247881
0	1182503898	431928690	1067806805
0	56183629	35028672	129106425
0	1914052	2424451	34563421
0	416027	598880	14935082

AVERAGE CYCLE FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 355.159 317.587 347.947
MEAN OF MAXIMA: 340.231 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.558 0.452
MEAN OF MINIMA: 0.505 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.011
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 355.159
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 355.148
DIFFERENCE BETWEEN MEANS OF EXTREMES: 339.726 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.495	1.354	7.793	81.165	340.231	59.063	5.492	1.341	0.623
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	4451382	10507728	50589603	489307878	2982875640	778033789	72339179	16298302	6935762
1	1688813	4622188	26610171	277162164	1161822299	201689698	18752485	4579077	2126284
3	1688813	4622188	26602742	173063376	202476178	114051801	18750862	4579077	2126284
W	368745	1317866	9973425	72212575	46956247	10186002	1674645	515152	297350

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 18552.084
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 355.159 317.587 347.947
MEAN OF MAXIMA: 340.231 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.558 0.452
MEAN OF MINIMA: 0.505 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.011
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 355.159
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 355.148
DIFFERENCE BETWEEN MEANS OF EXTREMES: 339.726 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.4	18.0	18.0	17.6	17.1
A	0.495	1.354	7.793	81.165	340.231	59.063	5.492	1.341	0.623
M	0.587	0.524	0.467	0.434	0.609	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.477	0.797	0.797	0.744	0.682
S	0.000	0.000	0.000	0.365	0.826	0.369	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	24.993	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	12.495	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	71.8	24.2	24.2	32.0	41.3
D	0.008	0.019	0.101	0.628	0.910	0.624	0.103	0.024	0.011

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 18552.084
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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SIMULATED MAXIMAL LARVAL DENSITIES: 355.159 317.587 347.947
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NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.558 0.452
MEAN OF MINIMA: 0.505 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.011
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 355.159
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 355.148
DIFFERENCE BETWEEN MEANS OF EXTREMES: 339.726 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.4	18.0	18.0	17.6	17.1
A	0.495	1.354	7.793	81.165	340.231	59.063	5.492	1.341	0.623
I	11619	49028	708814	13762339	8699712	1747120	107463	18826	9283
O	22073	92467	1381167	49345962	48840602	7045157	224245	36209	17807
E	-10454	-43439	-672352	-35583623	-40140889	-5298037	-116781	-17383	-8523
U	562305	3152087	62142739	2500184648	1357313474	63748328	2028566	433363	274096
H	23804891	113956118	1060250334	5122317596	1179857950	127109560	35544433	15394165	11570868
G	791852	4465239	85133278	1860069204	641382194	42223725	2607026	607421	383214

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 18552.084
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 355.159 317.587 347.947
MEAN OF MAXIMA: 340.231 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.558 0.452
MEAN OF MINIMA: 0.505 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.011
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 355.159
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 355.148
DIFFERENCE BETWEEN MEANS OF EXTREMES: 339.726 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.4	18.0	18.0	17.6	17.1
A	0.495	1.354	7.793	81.165	340.231	59.063	5.492	1.341	0.623
D	0.008	0.019	0.101	0.628	0.910	0.624	0.103	0.024	0.011
F	1244356.9	1331931.4	1306355.8	560297.8	109515.1	375343.0	896829.7	1010291.7	1066057.8
*	9241.2	25292.6	145610.9	1516631.4	6357491.6	1103646.0	102613.6	25056.7	11635.0
E	9241.2	25292.6	145570.2	947002.8	1107949.6	624091.5	102604.7	25056.7	11635.0

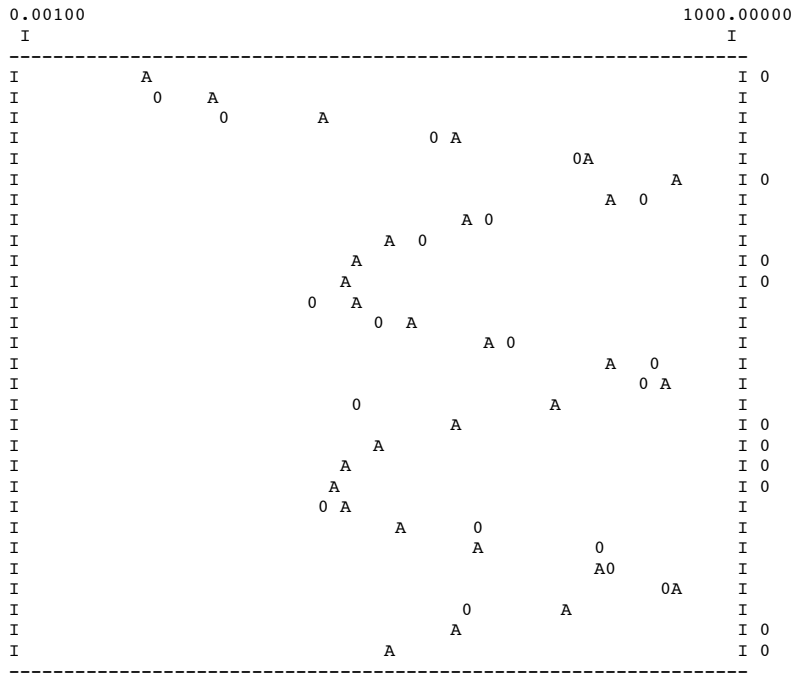
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 18552.084
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

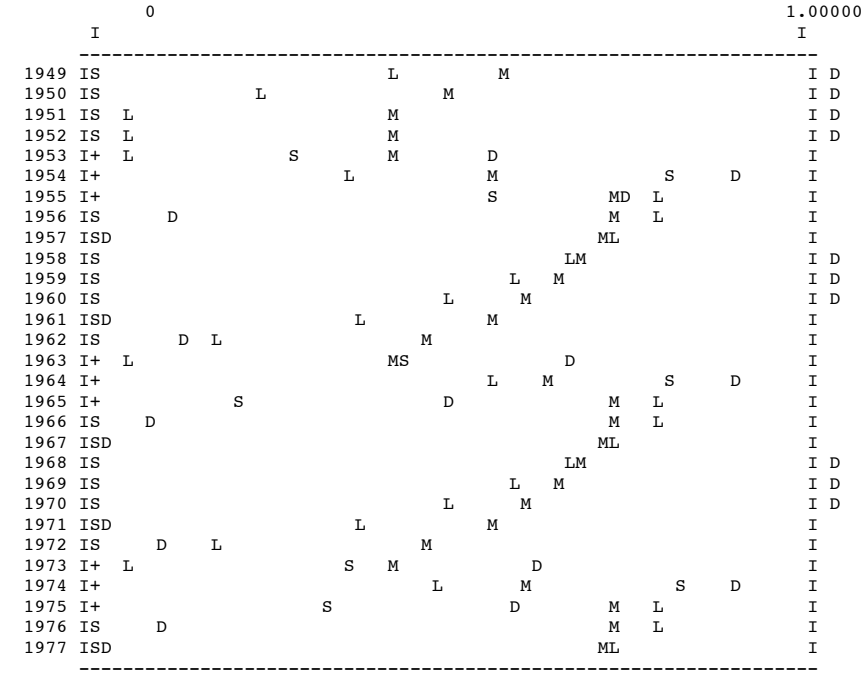


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

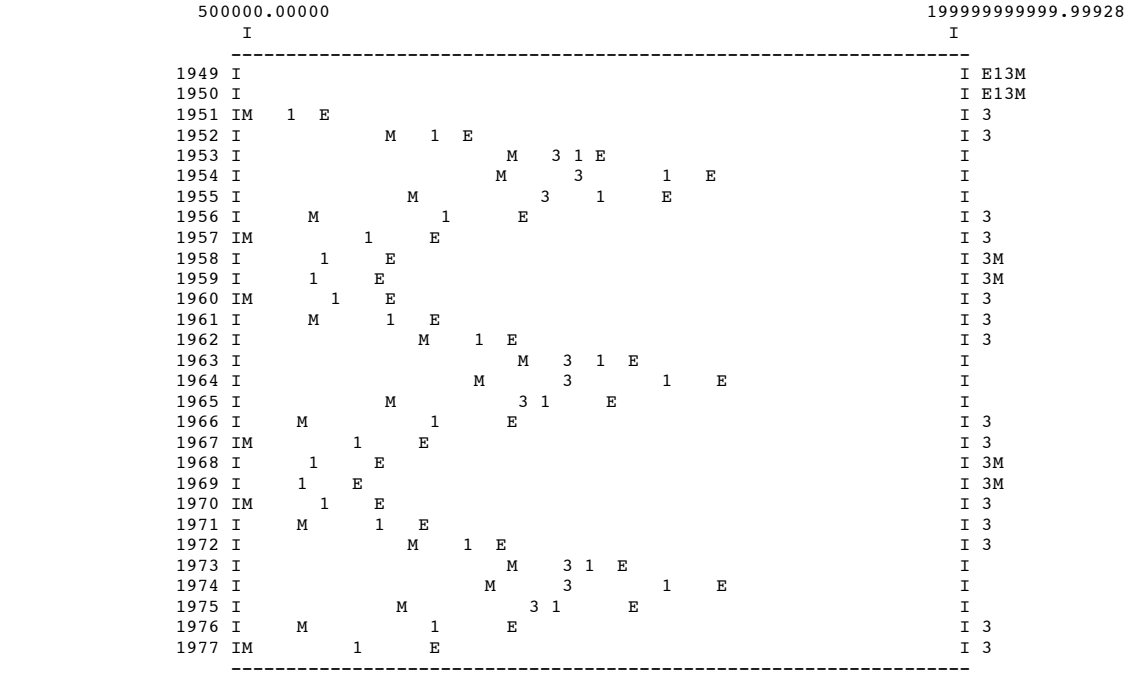


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

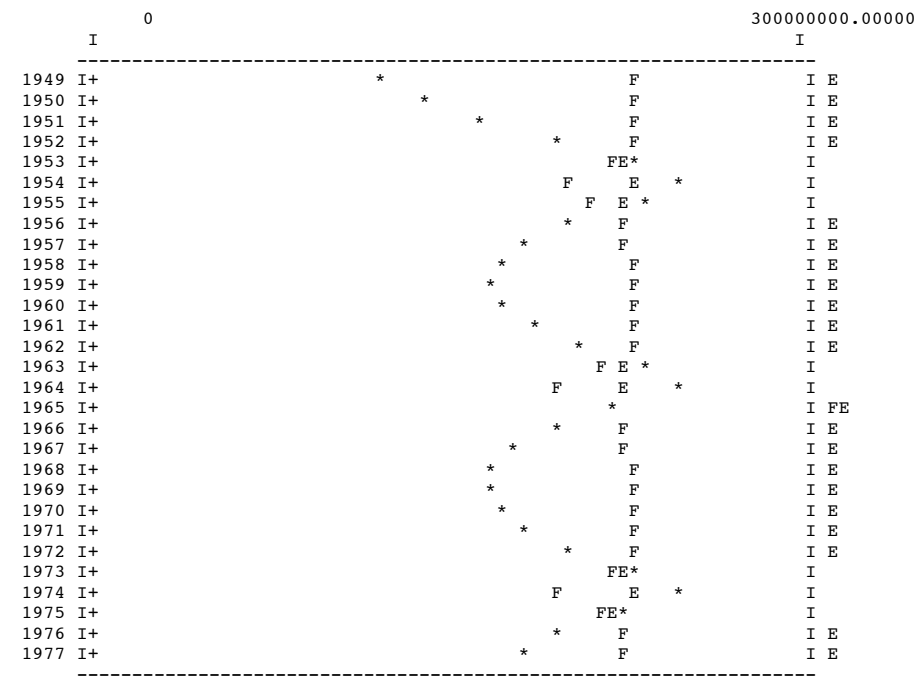


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 205.539264 MAX = 6636437.134848



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 15:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

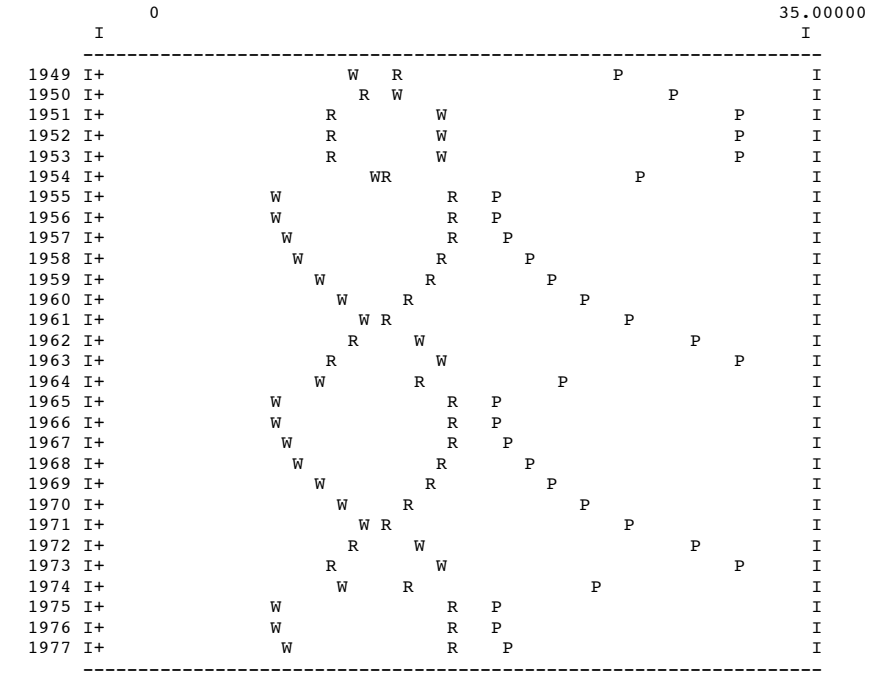


TABLE OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	41062	16941	0.587	0.008	0.008	776926.1	0	16941	0.000	0.425	4286	79.6
1950	13.6	147297	71475	0.515	0.034	0.010	851131.0	0	71475	0.000	0.249	23628	105.9
1951	12.0	1080705	612151	0.434	0.289	0.006	931408.8	0.000	612151	0.004	0.052	255426	135.2
1952	12.0	14931889	8457976	0.434	3.994	0.365	888476.5	0.000	8457975	0.050	0.052	3529182	135.2
1953	12.0	209626312	118740132	0.434	56.070	28.439	439163.0	0.237	90569354	0.530	0.052	37791047	135.2
1954	13.9	2081741460	971033053	0.534	458.531	325.810	61904.0	0.855	140779947	0.926	0.294	43715660	99.1
1955	18.0	1148728022	297784765	0.741	140.617	138.489	104251.0	0.684	94216416	0.832	0.797	8414498	24.2
1956	18.0	59416255	15402475	0.741	7.273	22.915	535574.9	0.001	15392615	0.136	0.797	1374719	24.2
1957	17.6	13530327	3801403	0.719	1.795	2.645	621274.2	0.000	3801402	0.032	0.744	427663	32.0
1958	17.1	5737987	1759085	0.693	0.831	0.157	658709.8	0.000	1759085	0.014	0.682	245999	41.3
1959	16.5	4272513	1442417	0.662	0.681	0.015	692261.1	0.000	1442417	0.011	0.607	249504	52.5
1960	15.7	5513073	2077520	0.623	0.981	0.457	729006.5	0.000	2077520	0.015	0.512	446368	66.7
1961	14.7	12509412	5382369	0.570	2.542	1.913	765700.2	0.000	5382368	0.037	0.382	1463437	86.0
1962	13.0	52564442	27133406	0.484	12.813	20.004	735160.7	0.003	27062618	0.168	0.174	9840625	117.0
1963	12.0	462678512	262078302	0.434	123.756	232.177	247972.7	0.521	125509101	0.735	0.052	52370037	135.2
1964	17.0	2320228407	717800197	0.691	338.952	168.747	54217.7	0.843	112753337	0.919	0.675	16104764	42.3
1965	18.0	287137275	74434595	0.741	35.149	2.406	301427.3	0.218	58182737	0.514	0.797	5196318	24.2
1966	18.0	46877282	12151997	0.741	5.738	0.010	553313.5	0.000	12150909	0.107	0.797	1085201	24.2
1967	17.6	10807564	3036431	0.719	1.434	0.000	625460.1	0.000	3036431	0.026	0.744	341603	32.0
1968	17.1	4606278	1412139	0.693	0.667	0.000	660608.3	0.000	1412139	0.012	0.682	197480	41.3
1969	16.5	3450188	1164797	0.662	0.550	0.109	693780.2	0.000	1164797	0.009	0.607	201482	52.5
1970	15.7	4500606	1695987	0.623	0.801	0.789	731094.3	0.000	1695987	0.013	0.512	364394	66.7
1971	14.7	10517721	4525413	0.570	2.137	12.660	770389.5	0.000	4525412	0.031	0.382	1230435	86.0
1972	13.0	51221971	26440432	0.484	12.485	177.092	738888.2	0.002	26381410	0.163	0.174	9592921	117.0
1973	12.0	516477170	292551861	0.434	138.146	322.563	226721.3	0.558	129392756	0.757	0.052	53990534	135.2
1974	17.4	2245120823	655363340	0.708	309.469	159.220	56052.6	0.833	109146631	0.914	0.718	13555166	36.0
1975	18.0	295837545	76689966	0.741	36.214	6.962	295974.0	0.228	59179316	0.522	0.797	5285323	24.2
1976	18.0	48471568	12565284	0.741	5.933	0.000	551054.4	0.000	12563755	0.111	0.797	1122072	24.2
1977	17.6	11146715	3131717	0.719	1.479	0.000	624938.7	0.000	3131717	0.027	0.744	352322	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.008	0.008	0.000	0.000	0.000	0.000	0
1950	13.6	0.034	0.010	0.000	0.000	0.001	-0.024	0
1951	12.0	0.289	0.006	0.000	0.000	0.081	-0.283	0
1952	12.0	3.994	0.365	0.000	0.000	13.250	-3.629	0
1953	12.0	56.070	28.439	0.000	0.000	776.735	-27.631	0
1954	13.9	458.531	325.810	0.000	0.000	18391.643	-132.721	0
1955	18.0	140.617	138.489	0.000	0.000	18396.170	-2.128	0
1956	18.0	7.273	22.915	0.000	0.000	18640.836	15.642	0
1957	17.6	1.795	2.645	0.000	0.000	18641.559	0.850	0
1958	17.1	0.831	0.157	0.000	0.000	18642.013	-0.674	0
1959	16.5	0.681	0.015	0.000	0.000	18642.456	-0.666	0
1960	15.7	0.981	0.457	0.000	0.000	18642.731	-0.524	0
1961	14.7	2.542	1.913	0.000	0.000	18643.126	-0.629	0
1962	13.0	12.813	20.004	0.000	0.000	18694.841	7.191	0
1963	12.0	123.756	232.177	0.000	0.000	30449.976	108.421	0
1964	17.0	338.952	168.747	0.000	0.000	59419.776	-170.205	0
1965	18.0	35.149	2.406	0.000	0.000	60491.863	-32.743	0
1966	18.0	5.738	0.010	0.000	0.000	60524.676	-5.728	0
1967	17.6	1.434	0.000	0.000	0.000	60526.732	-1.434	0
1968	17.1	0.667	0.000	0.000	0.000	60527.176	-0.667	0
1969	16.5	0.550	0.109	0.000	0.000	60527.371	-0.441	0
1970	15.7	0.801	0.789	0.000	0.000	60527.371	-0.012	0
1971	14.7	2.137	12.660	0.000	0.000	60638.106	10.523	0
1972	13.0	12.485	177.092	0.000	0.000	87733.430	164.607	0
1973	12.0	138.146	322.563	0.000	0.000	121743.130	184.417	0
1974	17.4	309.469	159.220	0.000	0.000	144317.858	-150.249	0
1975	18.0	36.214	6.962	0.000	0.000	145173.522	-29.252	0
1976	18.0	5.933	0.000	0.000	0.000	145208.727	-5.933	0
1977	17.6	1.479	0.000	0.000	0.000	145210.913	-1.479	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.008	41062	16941	0.587	16941	0.425	25.846	4286	79.6	13.075
1950	13.6	0.034	147297	71475	0.515	71475	0.249	28.732	23628	105.9	15.038
1951	12.0	0.289	1080705	612151	0.434	612151	0.052	31.957	255426	135.2	17.231
1952	12.0	3.994	14931889	8457976	0.434	8457975	0.052	31.957	3529182	135.2	17.231
1953	12.0	56.070	209626312	118740132	0.434	90569354	0.052	31.957	37791047	135.2	17.231
1954	13.9	458.531	2081741460	971033053	0.534	140779947	0.294	27.985	43715660	99.1	14.530
1955	18.0	140.617	1148728022	297784765	0.741	94216416	0.797	19.755	8414498	24.2	8.933
1956	18.0	7.273	59416255	15402475	0.741	15392615	0.797	19.755	1374719	24.2	8.933
1957	17.6	1.795	13530327	3801403	0.719	3801402	0.744	20.618	427663	32.0	9.520
1958	17.1	0.831	5737987	1759085	0.693	1759085	0.682	21.635	245999	41.3	10.212
1959	16.5	0.681	4272513	1442417	0.662	1442417	0.607	22.868	249504	52.5	11.050
1960	15.7	0.981	5513073	2077520	0.623	2077520	0.512	24.426	446368	66.7	12.110
1961	14.7	2.542	12509412	5382369	0.570	5382368	0.382	26.548	1463437	86.0	13.553
1962	13.0	12.813	52564442	27133406	0.484	27062618	0.174	29.961	9840625	117.0	15.873
1963	12.0	123.756	462678512	262078302	0.434	125509101	0.052	31.957	52370037	135.2	17.231
1964	17.0	338.952	2320228407	717800197	0.691	112753337	0.675	21.746	16104764	42.3	10.287
1965	18.0	35.149	287137275	74434595	0.741	58182737	0.797	19.755	5196318	24.2	8.933
1966	18.0	5.738	46877282	12151997	0.741	12150909	0.797	19.755	1085201	24.2	8.933
1967	17.6	1.434	10807564	3036431	0.719	3036431	0.744	20.618	341603	32.0	9.520
1968	17.1	0.667	4606278	1412139	0.693	1412139	0.682	21.635	197480	41.3	10.212
1969	16.5	0.550	3450188	1164797	0.662	1164797	0.607	22.868	201482	52.5	11.050
1970	15.7	0.801	4500606	1695987	0.623	1695987	0.512	24.426	364394	66.7	12.110
1971	14.7	2.137	10517721	4525413	0.570	4525412	0.382	26.548	1230435	86.0	13.553
1972	13.0	12.485	51221971	26440432	0.484	26381410	0.174	29.961	9592921	117.0	15.873
1973	12.0	138.146	516477170	292551861	0.434	129392756	0.052	31.957	53990534	135.2	17.231
1974	17.4	309.469	2245120823	655363340	0.708	109146631	0.718	21.053	13555166	36.0	9.816
1975	18.0	36.214	295837545	76689966	0.741	59179316	0.797	19.755	5285323	24.2	8.933
1976	18.0	5.933	48471568	12565284	0.741	12563755	0.797	19.755	1122072	24.2	8.933
1977	17.6	1.479	11146715	3131717	0.719	3131717	0.744	20.618	352322	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.008	776926.1	92.7	0	92.7	0.000
1950	13.6	0.034	851131.0	391.1	0	391.1	0.000
1951	12.0	0.289	931408.8	3349.7	0.000	3349.7	0.004
1952	12.0	3.994	888476.5	46282.0	0.000	46282.0	0.050
1953	12.0	56.070	439163.0	649746.0	0.237	495595.5	0.530
1954	13.9	458.531	61904.0	5313492.9	0.855	770347.9	0.926
1955	18.0	140.617	104251.0	1629478.2	0.684	515552.2	0.832
1956	18.0	7.273	535574.9	84282.3	0.001	84228.4	0.136
1957	17.6	1.795	621274.2	20801.3	0.000	20801.3	0.032
1958	17.1	0.831	658709.8	9625.7	0.000	9625.7	0.014
1959	16.5	0.681	692261.1	7892.9	0.000	7892.9	0.011
1960	15.7	0.981	729006.5	11368.2	0.000	11368.2	0.015
1961	14.7	2.542	765700.2	29452.3	0.000	29452.3	0.037
1962	13.0	12.813	735160.7	148474.0	0.003	148086.6	0.168
1963	12.0	123.756	247972.7	1434092.5	0.521	686785.8	0.735
1964	17.0	338.952	54217.7	3927802.7	0.843	616986.3	0.919
1965	18.0	35.149	301427.3	407306.1	0.218	318375.9	0.514
1966	18.0	5.738	553313.5	66495.7	0.000	66489.8	0.107
1967	17.6	1.434	625460.1	16615.4	0.000	16615.4	0.026
1968	17.1	0.667	660608.3	7727.2	0.000	7727.2	0.012
1969	16.5	0.550	693780.2	6373.8	0.000	6373.8	0.009
1970	15.7	0.801	731094.3	9280.4	0.000	9280.4	0.013
1971	14.7	2.137	770389.5	24763.1	0.000	24763.1	0.031
1972	13.0	12.485	738888.2	144682.0	0.002	144359.1	0.163
1973	12.0	138.146	226721.3	1600843.8	0.558	708037.2	0.757
1974	17.4	309.469	56052.6	3586148.2	0.833	597250.4	0.914
1975	18.0	36.214	295974.0	419647.5	0.228	323829.2	0.522
1976	18.0	5.933	551054.4	68757.2	0.000	68748.9	0.111
1977	17.6	1.479	624938.7	17136.8	0.000	17136.8	0.027

TABLE OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.008	261	234	27	208	10
1950	13.6	0.034	1457	1281	176	1194	59
1951	12.0	0.289	16446	14387	2059	13593	712
1952	12.0	3.994	398963	339005	59958	321664	16899
1953	12.0	56.070	13931784	25237744	-11305960	23963123	1259880
1954	13.9	458.531	14224054	54747949	-40523895	51985126	2733190
1955	18.0	140.617	2565517	9028018	-6462501	8568052	449932
1956	18.0	7.273	135853	226618	-90765	214984	11288
1957	17.6	1.795	22905	33202	-10297	31463	1648
1958	17.1	0.831	11040	15604	-4564	14756	772
1959	16.5	0.681	10736	15208	-4472	14378	753
1960	15.7	0.981	19857	28581	-8724	27078	1419
1961	14.7	2.542	78497	118714	-40217	112659	5915
1962	13.0	12.813	1061509	1892193	-830684	1796588	94463
1963	12.0	123.756	16881288	48434334	-31553046	45992023	2418278
1964	17.0	338.952	8122919	24008683	-15885764	22789821	1197372
1965	18.0	35.149	1446884	3122283	-1675399	2962886	155572
1966	18.0	5.738	96912	152144	-55232	144314	7571
1967	17.6	1.434	18118	24812	-6694	23498	1231
1968	17.1	0.667	9388	12144	-2756	11472	597
1969	16.5	0.550	10073	12041	-1968	11371	593
1970	15.7	0.801	23835	23010	825	21779	1139
1971	14.7	2.137	201859	103173	98686	97750	5128
1972	13.0	12.485	2149884	1956497	193387	1856723	97580
1973	12.0	138.146	15887056	50434904	-34547848	47892345	2518381
1974	17.4	309.469	8513342	22668358	-14155016	21517781	1130528
1975	18.0	36.214	1578183	3286630	-1708447	3119511	163863
1976	18.0	5.933	95697	159930	-64233	151727	7967
1977	17.6	1.479	21359	25998	-4639	24625	1291

TABLE OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	0	20769	324029
0	0	154230	2375512
0	0	2223568	32729357
0	0	53941939	436756358
0	0	1883652262	2989338047
0	0	1318594160	1370375929
0	0	62001790	77081205
0	0	3283391	28388725
0	0	733434	12698184
0	0	455709	9545494
0	0	563641	12341494
0	0	1324455	27957877
0	0	6768224	116275882
0	0	124532478	958516474
0	0	2281130618	3150115655
0	0	453466890	218670927
0	0	34967720	74763747
0	0	2362284	22936322
0	0	589052	10193436
0	0	397263	7679020
0	0	552797	9982330
0	0	1748273	22871861
0	0	21696539	98205080
0	0	271284404	937697736
0	0	2127851236	3127581404
0	0	534200960	158302658
0	0	38141332	75322078
0	0	2447712	23644788
0	0	752641	10506850

AVERAGE CYCLE FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 458.531 338.952 309.469
MEAN OF MAXIMA: 368.984 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.681 0.550
MEAN OF MINIMA: 0.616 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.008
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 458.531
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 458.523
DIFFERENCE BETWEEN MEANS OF EXTREMES: 368.368 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.605	1.656	9.764	105.991	368.984	70.660	6.315	1.569	0.749
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	3386992	8035946	39572767	396260664	2215696896	577234280	51588368	11828202	5172132
1	1281660	3506644	20677271	224456765	781398863	149636442	13373252	3323183	1585612
3	1281660	3506643	20634001	115157070	120893305	70526156	13369093	3323183	1585612
W	278130	983099	7654242	48050539	24458530	6298713	1193997	373862	221739

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 28410.581
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 31.406

AVERAGE CYCLE FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
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MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 458.531
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 458.523
DIFFERENCE BETWEEN MEANS OF EXTREMES: 368.368 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.1	18.0	18.0	17.6	17.1
A	0.605	1.656	9.764	105.991	368.984	70.660	6.315	1.569	0.749
M	0.587	0.524	0.467	0.434	0.644	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.562	0.797	0.797	0.744	0.682
S	0.000	0.000	0.002	0.439	0.844	0.377	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	23.595	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	11.544	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	59.1	24.2	24.2	32.0	41.3
D	0.009	0.024	0.127	0.674	0.920	0.623	0.118	0.028	0.013

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 28410.581
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 31.406

AVERAGE CYCLE FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

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T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.1	18.0	18.0	17.6	17.1
A	0.605	1.656	9.764	105.991	368.984	70.660	6.315	1.569	0.749
I	15049	98934	1203452	15566709	10286771	1863528	109487	20794	10214
O	17624	78758	1395898	41368994	33808330	5145643	179564	28004	13874
E	-2574	20176	-192446	-25802284	-23521558	-3282115	-70076	-7210	-3660
U	0	0	0	0	0	0	0	0	0
H	17735083	82403439	777656856	3089011702	582449838	75722343	24989945	11132823	8612257
G	1075652	10229443	149919607	2097544705	768754003	45036947	2697795	691709	426486

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 28410.581
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 31.406

AVERAGE CYCLE FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
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N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	16.1	18.0	18.0	17.6	17.1
A	0.605	1.656	9.764	105.991	368.984	70.660	6.315	1.569	0.749
D	0.009	0.024	0.127	0.674	0.920	0.623	0.118	0.028	0.013
F	770410.6	822499.5	787508.5	304619.0	57391.4	233884.1	546647.6	623891.0	659659.1
*	7013.2	19188.4	113146.0	1228227.4	4275814.6	818810.6	73178.4	18184.5	8676.5
E	7013.2	19188.4	112909.3	630139.5	661528.2	385919.1	73155.7	18184.5	8676.5

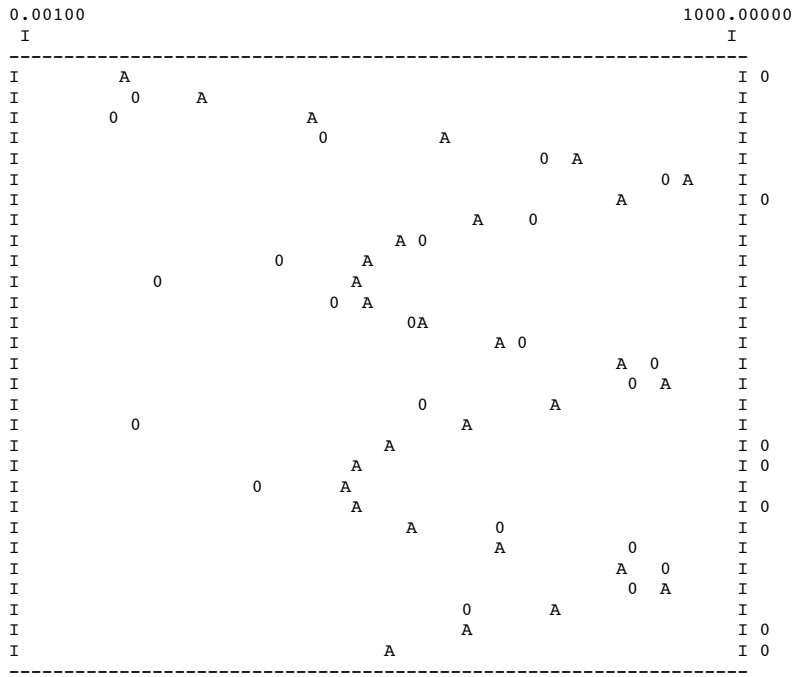
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 28410.581
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 31.406

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

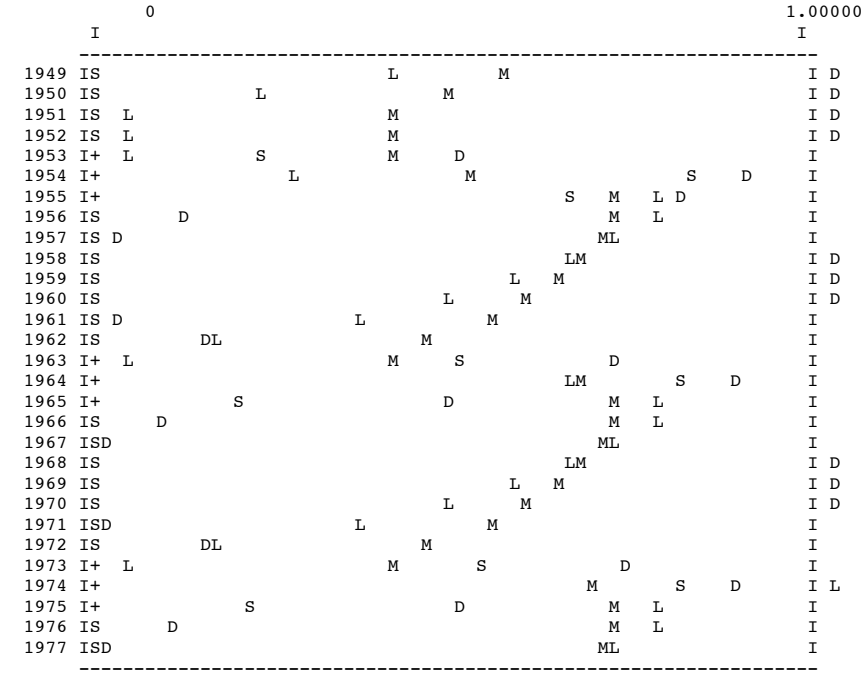


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

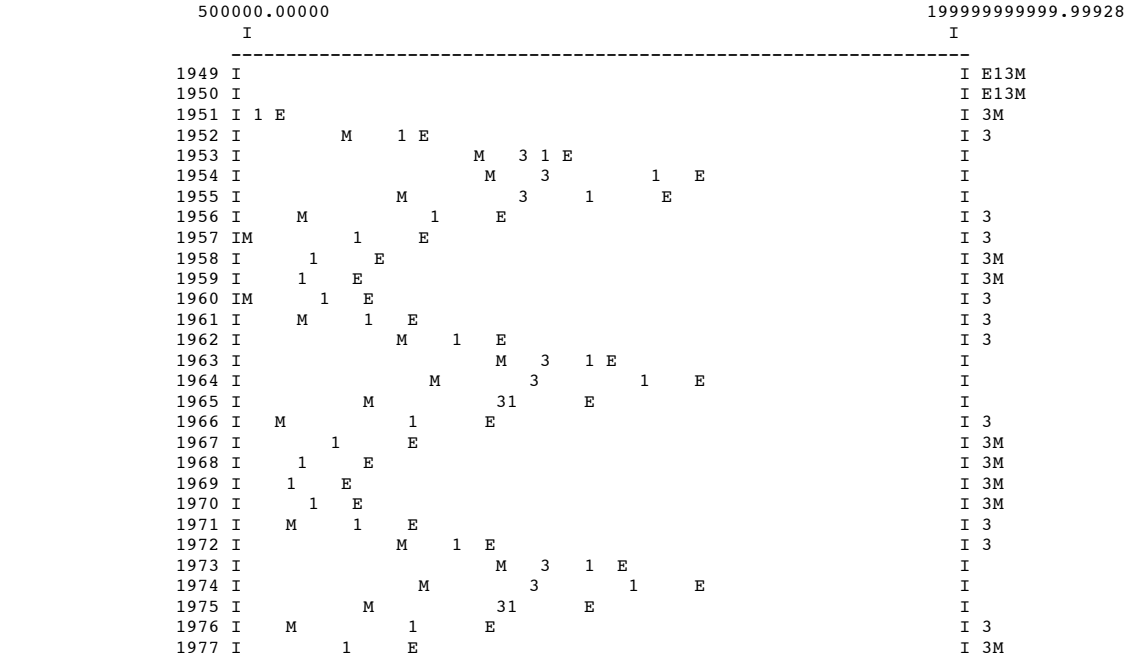


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

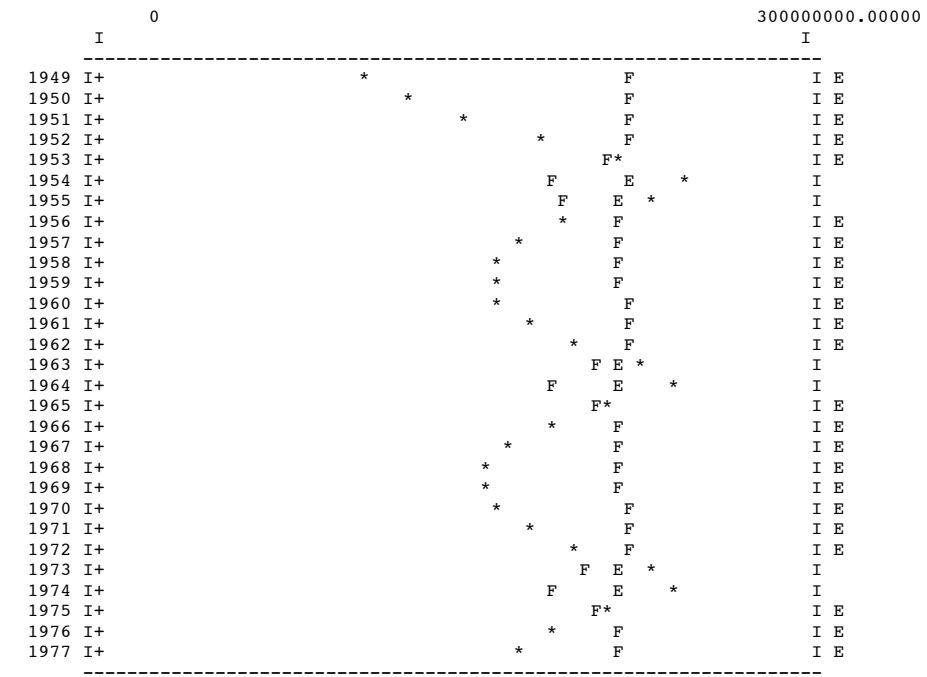


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 92.701152 MAX = 5313492.866016



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 16:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

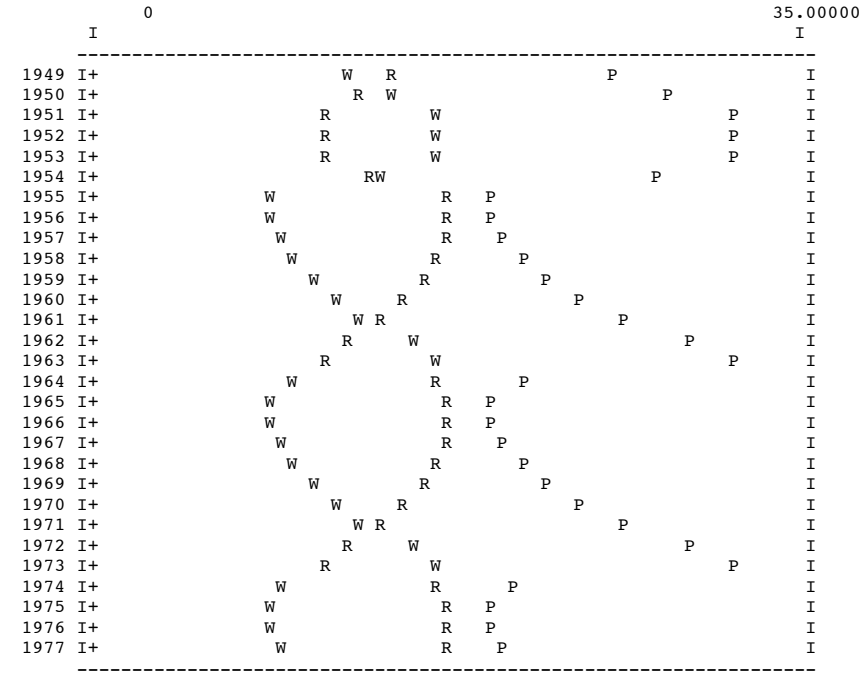


TABLE OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	40659	16775	0.587	0.008	0.008	769289.2	0	16775	0.000	0.425	4244	79.6
1950	13.6	139614	67747	0.515	0.032	0.007	842781.2	0	67747	0.000	0.249	22396	105.9
1951	12.0	981803	556129	0.434	0.265	0.001	922527.0	0.000	556129	0.003	0.052	232050	135.2
1952	12.0	13000175	7363782	0.434	3.512	0.191	885275.5	0.000	7363781	0.044	0.052	3072617	135.2
1953	12.0	169844017	96205962	0.434	45.880	16.667	489868.0	0.172	79623928	0.471	0.052	33223949	135.2
1954	13.1	1542496345	789925001	0.488	376.713	358.984	82040.4	0.818	144074933	0.906	0.183	51760860	115.6
1955	18.0	1193183843	309309047	0.741	147.509	124.834	98952.6	0.696	94071294	0.839	0.797	8401537	24.2
1956	18.0	47838626	12401207	0.741	5.914	20.880	545859.4	0.000	12399742	0.111	0.797	1107424	24.2
1957	17.6	10845897	3047201	0.719	1.453	1.836	619089.8	0.000	3047201	0.026	0.744	342814	32.0
1958	17.1	4547863	1394230	0.693	0.665	0.064	654136.8	0.000	1394230	0.012	0.682	194976	41.3
1959	16.5	3347834	1130242	0.662	0.539	0.003	687087.0	0.000	1130242	0.009	0.607	195505	52.5
1960	15.7	4273573	1610433	0.623	0.768	0.457	724284.8	0.000	1610433	0.012	0.512	346012	66.7
1961	14.7	9605792	4133042	0.570	1.971	1.181	764720.4	0.000	4133042	0.029	0.382	1123752	86.0
1962	13.0	40120913	20710141	0.484	9.877	9.489	761289.8	0.000	20700923	0.130	0.174	7527358	117.0
1963	12.0	358610243	203130167	0.434	96.872	159.595	297415.8	0.435	114794272	0.679	0.052	47899158	135.2
1964	16.2	1910163035	673171263	0.648	321.034	189.210	63936.4	0.825	117757889	0.910	0.571	22231282	57.8
1965	18.0	249118419	64578967	0.741	30.798	1.010	322564.0	0.176	53206653	0.474	0.797	4751903	24.2
1966	18.0	38621161	10011763	0.741	4.775	0.012	558927.1	0.000	10011626	0.089	0.797	894141	24.2
1967	17.6	8777159	2465980	0.719	1.176	0.000	622270.2	0.000	2465980	0.021	0.744	277426	32.0
1968	17.1	3681865	1128743	0.693	0.538	0.000	655589.5	0.000	1128743	0.009	0.682	157849	41.3
1969	16.5	2710492	915073	0.662	0.436	0.072	688264.4	0.000	915073	0.007	0.607	158286	52.5
1970	15.7	3460770	1304140	0.623	0.622	0.471	725960.8	0.000	1304140	0.010	0.512	280203	66.7
1971	14.7	7786817	3350399	0.570	1.598	8.495	769003.1	0.000	3350399	0.023	0.382	910955	86.0
1972	13.0	32726063	16892970	0.484	8.056	128.530	782134.1	0.000	16891655	0.106	0.174	6142216	117.0
1973	12.0	303274845	171786141	0.434	81.924	298.870	336722.6	0.374	107611013	0.636	0.052	44901865	135.2
1974	15.5	1950829398	751130821	0.615	358.212	182.990	63024.6	0.835	123975294	0.915	0.492	27721654	69.6
1975	18.0	331297226	85882179	0.741	40.957	5.349	271083.8	0.271	62614568	0.558	0.797	5592127	24.2
1976	18.0	40345253	10458699	0.741	4.988	0.000	556482.0	0.000	10458468	0.093	0.797	934049	24.2
1977	17.6	9142164	2568530	0.719	1.225	0.000	621709.0	0.000	2568530	0.022	0.744	288963	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.008	0.008	0.000	0.000	0.000	0.000	0
1950	13.6	0.032	0.007	0.000	0.000	0.001	-0.025	0
1951	12.0	0.265	0.001	0.000	0.000	0.070	-0.264	0
1952	12.0	3.512	0.191	0.000	0.000	11.098	-3.321	0
1953	12.0	45.880	16.667	0.000	0.000	864.519	-29.213	0
1954	13.1	376.713	358.984	0.000	0.000	1178.843	-17.729	0
1955	18.0	147.509	124.834	0.000	0.000	1692.984	-22.675	0
1956	18.0	5.914	20.880	0.000	0.000	1916.962	14.966	0
1957	17.6	1.453	1.836	0.000	0.000	1917.109	0.383	0
1958	17.1	0.665	0.064	0.000	0.000	1917.470	-0.601	0
1959	16.5	0.539	0.003	0.000	0.000	1917.757	-0.536	0
1960	15.7	0.768	0.457	0.000	0.000	1917.854	-0.311	0
1961	14.7	1.971	1.181	0.000	0.000	1918.478	-0.790	0
1962	13.0	9.877	9.489	0.000	0.000	1918.628	-0.388	0
1963	12.0	96.872	159.595	0.000	0.000	5852.772	62.723	0
1964	16.2	321.034	189.210	0.000	0.000	23230.239	-131.824	0
1965	18.0	30.798	1.010	0.000	0.000	24117.537	-29.788	0
1966	18.0	4.775	0.012	0.000	0.000	24140.219	-4.763	0
1967	17.6	1.176	0.000	0.000	0.000	24141.602	-1.176	0
1968	17.1	0.538	0.000	0.000	0.000	24141.892	-0.538	0
1969	16.5	0.436	0.072	0.000	0.000	24142.024	-0.364	0
1970	15.7	0.622	0.471	0.000	0.000	24142.047	-0.151	0
1971	14.7	1.598	8.495	0.000	0.000	24189.619	6.897	0
1972	13.0	8.056	128.530	0.000	0.000	38703.552	120.474	0
1973	12.0	81.924	298.870	0.000	0.000	85768.961	216.946	0
1974	15.5	358.212	182.990	0.000	0.000	116471.827	-175.222	0
1975	18.0	40.957	5.349	0.000	0.000	117739.756	-35.608	0
1976	18.0	4.988	0.000	0.000	0.000	117764.632	-4.988	0
1977	17.6	1.225	0.000	0.000	0.000	117766.132	-1.225	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.008	40659	16775	0.587	16775	0.425	25.846	4244	79.6	13.075
1950	13.6	0.032	139614	67747	0.515	67747	0.249	28.732	22396	105.9	15.038
1951	12.0	0.265	981803	556129	0.434	556129	0.052	31.957	232050	135.2	17.231
1952	12.0	3.512	13000175	7363782	0.434	7363781	0.052	31.957	3072617	135.2	17.231
1953	12.0	45.880	169844017	96205962	0.434	79623928	0.052	31.957	33223949	135.2	17.231
1954	13.1	376.713	1542496345	789925001	0.488	144074933	0.183	29.799	51760860	115.6	15.763
1955	18.0	147.509	1193183843	309309047	0.741	94071294	0.797	19.755	8401537	24.2	8.933
1956	18.0	5.914	47838626	12401207	0.741	12399742	0.797	19.755	1107424	24.2	8.933
1957	17.6	1.453	10845897	3047201	0.719	3047201	0.744	20.618	342814	32.0	9.520
1958	17.1	0.665	4547863	1394230	0.693	1394230	0.682	21.635	194976	41.3	10.212
1959	16.5	0.539	3347834	1130242	0.662	1130242	0.607	22.868	195505	52.5	11.050
1960	15.7	0.768	4273573	1610433	0.623	1610433	0.512	24.426	346012	66.7	12.110
1961	14.7	1.971	9605792	4133042	0.570	4133042	0.382	26.548	1123752	86.0	13.553
1962	13.0	9.877	40120913	20710141	0.484	20700923	0.174	29.961	7527358	117.0	15.873
1963	12.0	96.872	358610243	203130167	0.434	114794272	0.052	31.957	47899158	135.2	17.231
1964	16.2	321.034	1910163035	673171263	0.648	117757889	0.571	23.456	22231282	57.8	11.450
1965	18.0	30.798	249118419	64578967	0.741	53206653	0.797	19.755	4751903	24.2	8.933
1966	18.0	4.775	38621161	10011763	0.741	10011626	0.797	19.755	894141	24.2	8.933
1967	17.6	1.176	8777159	2465980	0.719	2465980	0.744	20.618	277426	32.0	9.520
1968	17.1	0.538	3681865	1128743	0.693	1128743	0.682	21.635	157849	41.3	10.212
1969	16.5	0.436	2710492	915073	0.662	915073	0.607	22.868	158286	52.5	11.050
1970	15.7	0.622	3460770	1304140	0.623	1304140	0.512	24.426	280203	66.7	12.110
1971	14.7	1.598	7786817	3350399	0.570	3350399	0.382	26.548	910955	86.0	13.553
1972	13.0	8.056	32726063	16892970	0.484	16891655	0.174	29.961	6142216	117.0	15.873
1973	12.0	81.924	303274845	171786141	0.434	107611013	0.052	31.957	44901865	135.2	17.231
1974	15.5	358.212	1950829398	751130821	0.615	123975294	0.492	24.751	27721654	69.6	12.331
1975	18.0	40.957	331297226	85882179	0.741	62614568	0.797	19.755	5592127	24.2	8.933
1976	18.0	4.988	40345253	10458699	0.741	10458468	0.797	19.755	934049	24.2	8.933
1977	17.6	1.225	9142164	2568530	0.719	2568530	0.744	20.618	288963	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.008	769289.2	91.8	0	91.8	0.000
1950	13.6	0.032	842781.2	370.7	0	370.7	0.000
1951	12.0	0.265	922527.0	3043.1	0.000	3043.1	0.003
1952	12.0	3.512	885275.5	40294.6	0.000	40294.6	0.044
1953	12.0	45.880	489868.0	526439.0	0.172	435702.1	0.471
1954	13.1	376.713	82040.4	4322469.6	0.818	788378.0	0.906
1955	18.0	147.509	98952.6	1692539.1	0.696	514758.1	0.839
1956	18.0	5.914	545859.4	67859.4	0.000	67851.4	0.111
1957	17.6	1.453	619089.8	16674.3	0.000	16674.3	0.026
1958	17.1	0.665	654136.8	7629.2	0.000	7629.2	0.012
1959	16.5	0.539	687087.0	6184.7	0.000	6184.7	0.009
1960	15.7	0.768	724284.8	8812.3	0.000	8812.3	0.012
1961	14.7	1.971	764720.4	22616.0	0.000	22616.0	0.029
1962	13.0	9.877	761289.8	113325.9	0.000	113275.5	0.130
1963	12.0	96.872	297415.8	1111528.3	0.435	628154.3	0.679
1964	16.2	321.034	63936.4	3683593.2	0.825	644371.2	0.910
1965	18.0	30.798	322564.0	353376.1	0.176	291146.8	0.474
1966	18.0	4.775	558927.1	54784.4	0.000	54783.6	0.089
1967	17.6	1.176	622270.2	13493.8	0.000	13493.8	0.021
1968	17.1	0.538	655589.5	6176.5	0.000	6176.5	0.009
1969	16.5	0.436	688264.4	5007.3	0.000	5007.3	0.007
1970	15.7	0.622	725960.8	7136.3	0.000	7136.3	0.010
1971	14.7	1.598	769003.1	18333.4	0.000	18333.4	0.023
1972	13.0	8.056	782134.1	92438.3	0.000	92431.1	0.106
1973	12.0	81.924	336722.6	940013.8	0.374	588847.5	0.636
1974	15.5	358.212	63024.6	4110187.9	0.835	678392.8	0.915
1975	18.0	40.957	271083.8	469947.3	0.271	342626.9	0.558
1976	18.0	4.988	556482.0	57230.0	0.000	57228.7	0.093
1977	17.6	1.225	621709.0	14055.0	0.000	14055.0	0.022

TABLE OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.008	75	219	-144	173	42
1950	13.6	0.032	439	1155	-716	915	228
1951	12.0	0.265	5117	12454	-7337	9937	2482
1952	12.0	3.512	115668	260215	-144547	208057	52003
1953	12.0	45.880	5986184	16328781	-10342597	13058826	3264123
1954	13.1	376.713	8656571	50479934	-41823363	40374090	10092038
1955	18.0	147.509	1529026	7679393	-6150367	6139847	1534396
1956	18.0	5.914	84448	156078	-71630	124733	31173
1957	17.6	1.453	13095	24599	-11504	19651	4909
1958	17.1	0.665	6177	11768	-5591	9389	2346
1959	16.5	0.539	6029	11412	-5383	9103	2274
1960	15.7	0.768	11397	21021	-9624	16788	4197
1961	14.7	1.971	47236	83027	-35791	66375	16588
1962	13.0	9.877	704272	1194514	-490242	955290	238779
1963	12.0	96.872	10005760	35426182	-25420422	28332869	7082031
1964	16.2	321.034	3568935	21206198	-17637263	16957928	4238390
1965	18.0	30.798	789927	2330958	-1541031	1863433	465641
1966	18.0	4.775	56806	109524	-52718	87526	21876
1967	17.6	1.176	9717	18807	-9090	15020	3753
1968	17.1	0.538	4762	9258	-4496	7383	1844
1969	16.5	0.436	4720	9033	-4313	7202	1799
1970	15.7	0.622	9021	16536	-7515	13202	3297
1971	14.7	1.598	39356	63622	-24266	50842	12704
1972	13.0	8.056	678432	868206	-189774	694137	173487
1973	12.0	81.924	10798017	32024157	-21226140	25611506	6401736
1974	15.5	358.212	3353377	25136995	-21783618	20102629	5024583
1975	18.0	40.957	766347	3109918	-2343571	2486646	621453
1976	18.0	4.988	59142	117275	-58133	93738	23428
1977	17.6	1.225	10122	19778	-9656	15795	3946

TABLE OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	4218	5968	320845
0	30805	46469	2251761
0	429681	691837	29739286
0	9005899	15638920	381936027
0	565305738	809364274	2801348145
0	1448767465	855524193	1937509148
0	47485177	36952527	75029277
0	964706	2040910	23347428
0	201245	419297	10226450
0	123875	254964	7581727
0	152813	316481	9687203
0	358113	759891	21725579
0	1826195	4061935	89854062
0	35798857	82438685	757004769
0	1226525015	1352752052	3118603368
0	299445653	170586248	412556120
0	14409849	19090628	71314713
0	676850	1373523	19172263
0	153759	311281	8307319
0	97373	196691	6148095
0	120895	248108	7852947
0	281503	603941	17623628
0	1399637	3465380	73140575
0	26020612	80129890	629783137
0	1108454898	1457157503	3109390715
0	420626821	163743505	611764985
0	19233768	18520784	75920353
0	724950	1435583	19964614
0	161700	325703	8646990

AVERAGE CYCLE FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 376.713 321.034 358.212
MEAN OF MAXIMA: 351.986 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.539 0.436
MEAN OF MINIMA: 0.488 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.008
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 376.713
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 376.705
DIFFERENCE BETWEEN MEANS OF EXTREMES: 351.499 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.474	1.278	7.148	74.892	351.986	73.088	5.225	1.285	0.602
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	2624652	6124804	28615717	277243035	1801162926	591199829	42268346	9588406	4114864
1	994106	2679856	14988964	157040756	738075695	153256731	10957223	2693903	1261486
3	994106	2679856	14985453	100676404	128602705	69964171	10956612	2693903	1261486
W	216203	755585	5580730	42008324	33904598	6248522	978538	303067	176412

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21836.784
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 376.713 321.034 358.212
MEAN OF MAXIMA: 351.986 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.539 0.436
MEAN OF MINIMA: 0.488 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.008
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 376.713
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 376.705
DIFFERENCE BETWEEN MEANS OF EXTREMES: 351.499 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	14.9	18.0	18.0	17.6	17.1
A	0.474	1.278	7.148	74.892	351.986	73.088	5.225	1.285	0.602
M	0.587	0.524	0.467	0.434	0.583	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.415	0.797	0.797	0.744	0.682
S	0.000	0.000	0.000	0.327	0.826	0.381	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	26.002	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	13.181	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	81.0	24.2	24.2	32.0	41.3
D	0.007	0.018	0.093	0.595	0.910	0.624	0.098	0.023	0.010

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21836.784
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 376.713 321.034 358.212
MEAN OF MAXIMA: 351.986 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.539 0.436
MEAN OF MINIMA: 0.488 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.008
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 376.713
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 376.705
DIFFERENCE BETWEEN MEANS OF EXTREMES: 351.499 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	14.9	18.0	18.0	17.6	17.1
A	0.474	1.278	7.148	74.892	351.986	73.088	5.225	1.285	0.602
I	6952	30569	499457	8929987	5192961	1028433	66798	10978	5469
O	12904	53034	774311	27926373	32274375	4373423	127625	21061	10513
E	-5951	-22464	-274854	-18996386	-27081414	-3344989	-60827	-10083	-5043
U	223473	1218504	23608456	966761883	722946646	27042931	788835	172234	110624
H	13866989	64244641	589574644	3009780742	987276751	74088114	20828101	9060253	6864911
G	470100	2739717	59402498	1206424609	396617982	24854646	1616672	352093	225827

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21836.784
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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SIMULATED MAXIMAL LARVAL DENSITIES: 376.713 321.034 358.212
MEAN OF MAXIMA: 351.986 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.539 0.436
MEAN OF MINIMA: 0.488 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.008
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 376.713
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 376.705
DIFFERENCE BETWEEN MEANS OF EXTREMES: 351.499 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	14.9	18.0	18.0	17.6	17.1
A	0.474	1.278	7.148	74.892	351.986	73.088	5.225	1.285	0.602
D	0.007	0.018	0.093	0.595	0.910	0.624	0.098	0.023	0.010
F	764342.3	818750.2	809566.5	374668.8	69667.1	230866.8	553756.2	621023.0	654863.1
*	5439.8	14664.2	82019.6	859327.0	4038750.2	838620.8	59957.9	14741.0	6902.9
E	5439.8	14664.2	82000.4	550901.3	703714.0	382843.9	59954.6	14741.0	6902.9

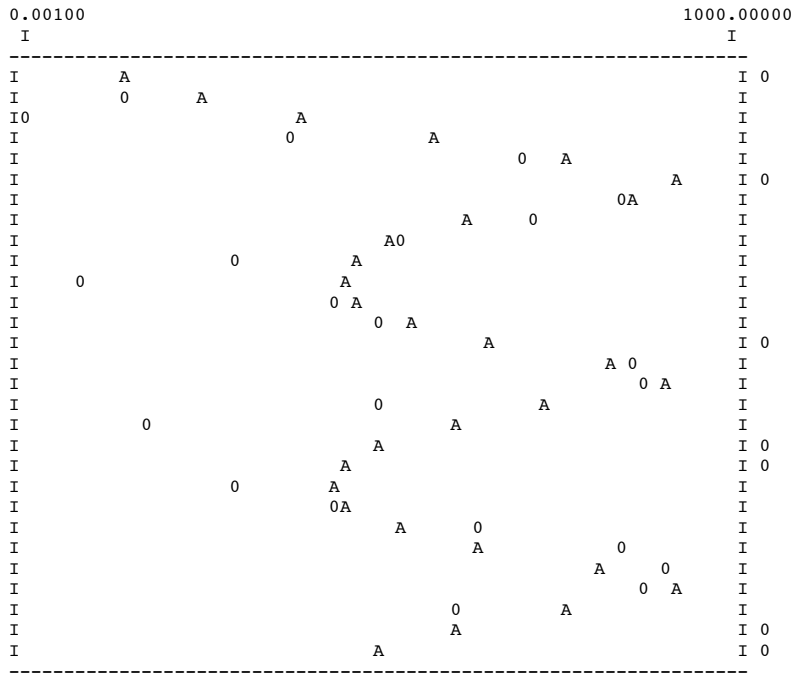
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 21836.784
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

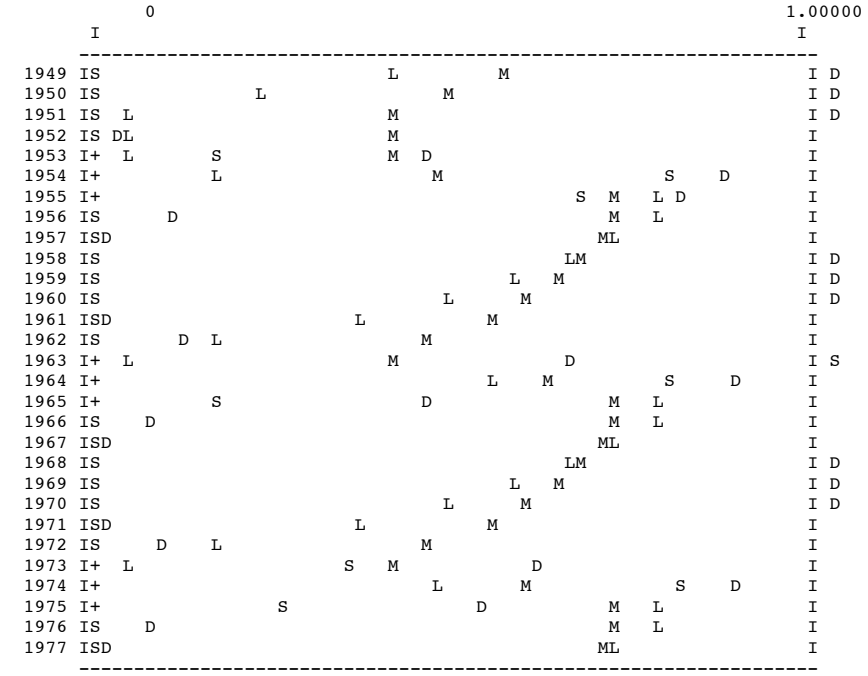


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

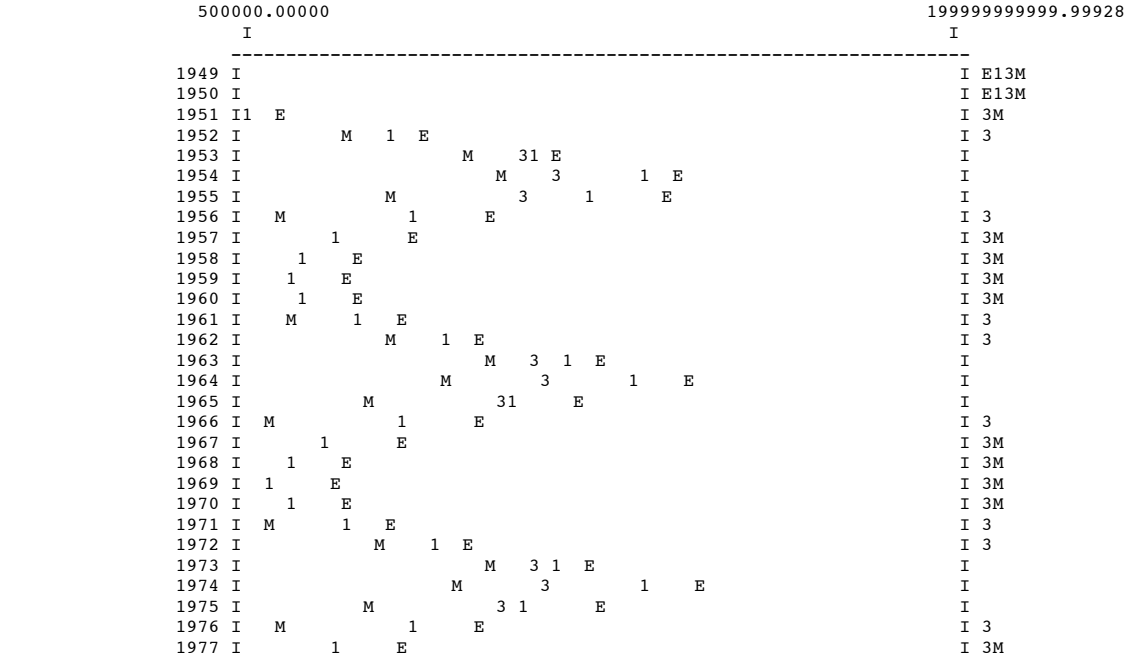


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

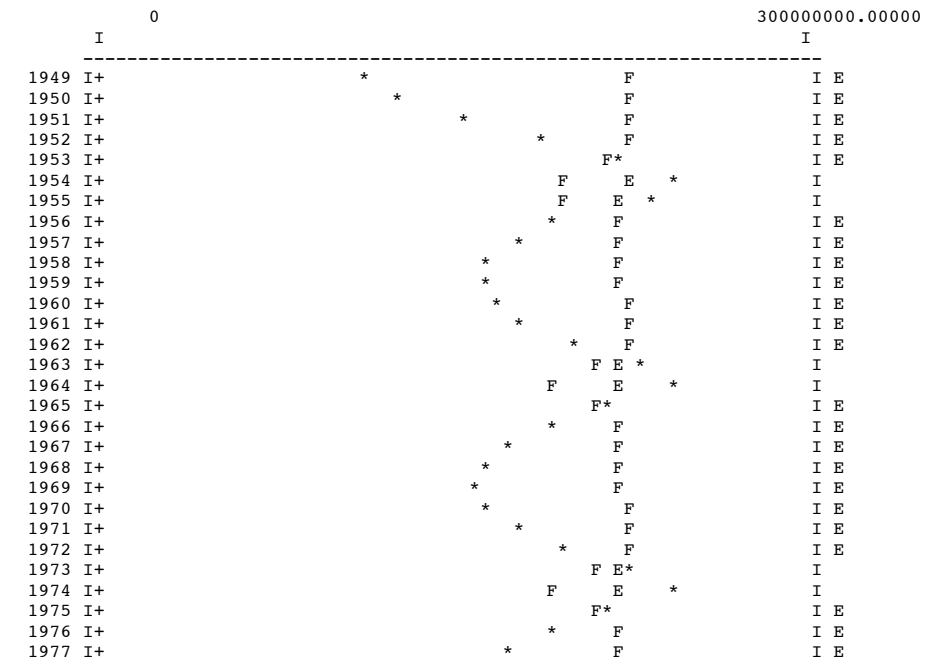


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 91.792800 MAX = 4322469.605472



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 17:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

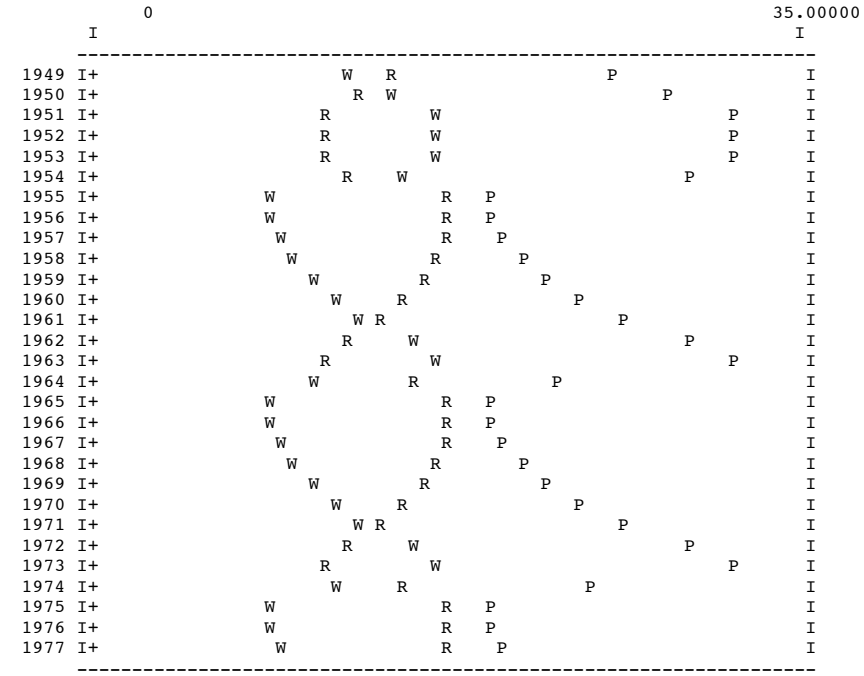


TABLE OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	24245	10002	0.587	0.006	0.006	611678.0	0	10002	0.000	0.425	2530	79.6
1950	13.6	87520	42468	0.515	0.025	0.006	670155.5	0	42468	0.000	0.249	14039	105.9
1951	12.0	647915	367003	0.434	0.220	0.019	733910.1	0.000	367003	0.003	0.052	153135	135.2
1952	12.0	9053266	5128106	0.434	3.076	0.840	707857.3	0.000	5128105	0.038	0.052	2139757	135.2
1953	12.0	129544480	73378807	0.434	44.012	53.560	398620.6	0.160	61640653	0.458	0.052	25720232	135.2
1954	12.9	1665782283	868929130	0.478	521.182	348.824	49055.5	0.863	118914600	0.930	0.160	43930951	119.0
1955	18.0	1430388971	370799732	0.741	222.405	203.968	54241.1	0.786	79261463	0.889	0.797	7078866	24.2
1956	18.0	53771749	13939250	0.741	8.361	11.332	411811.3	0.002	13916027	0.156	0.797	1242844	24.2
1957	17.6	12258619	3444111	0.719	2.066	1.873	486648.1	0.000	3444110	0.037	0.744	387467	32.0
1958	17.1	5216707	1599277	0.693	0.959	0.154	517417.1	0.000	1599277	0.017	0.682	223651	41.3
1959	16.5	3898044	1315995	0.662	0.789	0.037	544017.3	0.000	1315995	0.013	0.607	227636	52.5
1960	15.7	5047875	1902217	0.623	1.141	0.128	572474.6	0.000	1902217	0.018	0.512	408703	66.7
1961	14.7	11494975	4945892	0.570	2.967	0.872	598945.2	0.000	4945891	0.043	0.382	1344761	86.0
1962	13.0	48452838	25011024	0.484	15.002	11.231	559354.7	0.006	24855587	0.196	0.174	9038095	117.0
1963	12.0	424180987	240271873	0.434	144.114	242.540	172358.7	0.571	102989693	0.766	0.052	42973569	135.2
1964	17.5	2043597449	583453479	0.714	349.954	313.770	38526.0	0.853	86008743	0.924	0.733	10093769	33.7
1965	18.0	238994869	61954639	0.741	37.160	1.770	229319.1	0.237	47266208	0.530	0.797	4221360	24.2
1966	18.0	41181064	10675367	0.741	6.403	0.000	429557.9	0.000	10672851	0.120	0.797	953195	24.2
1967	17.6	9577588	2690864	0.719	1.614	0.000	490769.9	0.000	2690864	0.029	0.744	302726	32.0
1968	17.1	4096222	1255772	0.693	0.753	0.000	519296.8	0.000	1255772	0.013	0.682	175613	41.3
1969	16.5	3070628	1036656	0.662	0.622	0.118	545545.9	0.000	1036656	0.010	0.607	179317	52.5
1970	15.7	3989334	1503321	0.623	0.902	0.916	574657.3	0.000	1503321	0.014	0.512	322998	66.7
1971	14.7	9128168	3927536	0.570	2.356	6.671	604517.6	0.000	3927535	0.034	0.382	1067875	86.0
1972	13.0	39067061	20166150	0.484	12.096	64.760	585217.6	0.002	20129174	0.158	0.174	7319456	117.0
1973	12.0	372638067	211076048	0.434	126.603	173.390	191672.8	0.529	99460063	0.740	0.052	41500792	135.2
1974	17.1	2107113655	644059776	0.694	386.305	224.940	37292.3	0.861	89207359	0.929	0.684	12388680	40.9
1975	18.0	277906734	72041762	0.741	43.210	5.156	208076.4	0.290	51148284	0.574	0.797	4568069	24.2
1976	18.0	41990797	10885274	0.741	6.529	0.000	428412.1	0.000	10882260	0.122	0.797	971898	24.2
1977	17.6	9752275	2739943	0.719	1.643	0.000	490501.3	0.000	2739943	0.030	0.744	308247	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.006	0.006	0.000	0.000	0.000	0.000	0
1950	13.6	0.025	0.006	0.000	0.000	0.000	-0.019	0
1951	12.0	0.220	0.019	0.000	0.000	0.041	-0.201	0
1952	12.0	3.076	0.840	0.000	0.000	5.040	-2.236	0
1953	12.0	44.012	53.560	0.000	0.000	96.196	9.548	0
1954	12.9	521.182	348.824	0.000	0.000	29803.317	-172.358	0
1955	18.0	222.405	203.968	0.000	0.000	30143.231	-18.437	0
1956	18.0	8.361	11.332	0.000	0.000	30152.059	2.971	0
1957	17.6	2.066	1.873	0.000	0.000	30152.096	-0.193	0
1958	17.1	0.959	0.154	0.000	0.000	30152.745	-0.805	0
1959	16.5	0.789	0.037	0.000	0.000	30153.311	-0.752	0
1960	15.7	1.141	0.128	0.000	0.000	30154.337	-1.013	0
1961	14.7	2.967	0.872	0.000	0.000	30158.724	-2.095	0
1962	13.0	15.002	11.231	0.000	0.000	30172.941	-3.771	0
1963	12.0	144.114	242.540	0.000	0.000	39860.525	98.426	0
1964	17.5	349.954	313.770	0.000	0.000	41169.803	-36.184	0
1965	18.0	37.160	1.770	0.000	0.000	42422.272	-35.390	0
1966	18.0	6.403	0.000	0.000	0.000	42463.270	-6.403	0
1967	17.6	1.614	0.000	0.000	0.000	42465.875	-1.614	0
1968	17.1	0.753	0.000	0.000	0.000	42466.442	-0.753	0
1969	16.5	0.622	0.118	0.000	0.000	42466.696	-0.504	0
1970	15.7	0.902	0.916	0.000	0.000	42466.696	0.014	0
1971	14.7	2.356	6.671	0.000	0.000	42485.318	4.315	0
1972	13.0	12.096	64.760	0.000	0.000	45258.856	52.664	0
1973	12.0	126.603	173.390	0.000	0.000	47447.890	46.787	0
1974	17.1	386.305	224.940	0.000	0.000	73486.700	-161.365	0
1975	18.0	43.210	5.156	0.000	0.000	74934.843	-38.054	0
1976	18.0	6.529	0.000	0.000	0.000	74977.469	-6.529	0
1977	17.6	1.643	0.000	0.000	0.000	74980.169	-1.643	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.006	24245	10002	0.587	10002	0.425	25.846	2530	79.6	13.075
1950	13.6	0.025	87520	42468	0.515	42468	0.249	28.732	14039	105.9	15.038
1951	12.0	0.220	647915	367003	0.434	367003	0.052	31.957	153135	135.2	17.231
1952	12.0	3.076	9053266	5128106	0.434	5128105	0.052	31.957	2139757	135.2	17.231
1953	12.0	44.012	129544480	73378807	0.434	61640653	0.052	31.957	25720232	135.2	17.231
1954	12.9	521.182	1665782283	868929130	0.478	118914600	0.160	30.177	43930951	119.0	16.020
1955	18.0	222.405	1430388971	370799732	0.741	79261463	0.797	19.755	7078866	24.2	8.933
1956	18.0	8.361	53771749	13939250	0.741	13916027	0.797	19.755	1242844	24.2	8.933
1957	17.6	2.066	12258619	3444111	0.719	3444110	0.744	20.618	387467	32.0	9.520
1958	17.1	0.959	5216707	1599277	0.693	1599277	0.682	21.635	223651	41.3	10.212
1959	16.5	0.789	3898044	1315995	0.662	1315995	0.607	22.868	227636	52.5	11.050
1960	15.7	1.141	5047875	1902217	0.623	1902217	0.512	24.426	408703	66.7	12.110
1961	14.7	2.967	11494975	4945892	0.570	4945891	0.382	26.548	1344761	86.0	13.553
1962	13.0	15.002	48452838	25011024	0.484	24855587	0.174	29.961	9038095	117.0	15.873
1963	12.0	144.114	424180987	240271873	0.434	102989693	0.052	31.957	42973569	135.2	17.231
1964	17.5	349.954	2043597449	583453479	0.714	86008743	0.733	20.798	10093769	33.7	9.643
1965	18.0	37.160	238994869	61954639	0.741	47266208	0.797	19.755	4221360	24.2	8.933
1966	18.0	6.403	41181064	10675367	0.741	10672851	0.797	19.755	953195	24.2	8.933
1967	17.6	1.614	9577588	2690864	0.719	2690864	0.744	20.618	302726	32.0	9.520
1968	17.1	0.753	4096222	1255772	0.693	1255772	0.682	21.635	175613	41.3	10.212
1969	16.5	0.622	3070628	1036656	0.662	1036656	0.607	22.868	179317	52.5	11.050
1970	15.7	0.902	3989334	1503321	0.623	1503321	0.512	24.426	322998	66.7	12.110
1971	14.7	2.356	9128168	3927536	0.570	3927535	0.382	26.548	1067875	86.0	13.553
1972	13.0	12.096	39067061	20166150	0.484	20129174	0.174	29.961	7319456	117.0	15.873
1973	12.0	126.603	372638067	211076048	0.434	99460063	0.052	31.957	41500792	135.2	17.231
1974	17.1	386.305	2107113655	644059776	0.694	89207359	0.684	21.599	12388680	40.9	10.187
1975	18.0	43.210	277906734	72041762	0.741	51148284	0.797	19.755	4568069	24.2	8.933
1976	18.0	6.529	41990797	10885274	0.741	10882260	0.797	19.755	971898	24.2	8.933
1977	17.6	1.643	9752275	2739943	0.719	2739943	0.744	20.618	308247	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.006	611678.0	54.7	0	54.7	0.000
1950	13.6	0.025	670155.5	232.4	0	232.4	0.000
1951	12.0	0.220	733910.1	2008.2	0.000	2008.2	0.003
1952	12.0	3.076	707857.3	28061.0	0.000	28061.0	0.038
1953	12.0	44.012	398620.6	401528.8	0.160	337297.7	0.458
1954	12.9	521.182	49055.5	4754780.2	0.863	650700.7	0.930
1955	18.0	222.405	54241.1	2029016.1	0.786	433718.7	0.889
1956	18.0	8.361	411811.3	76275.6	0.002	76148.5	0.156
1957	17.6	2.066	486648.1	18846.2	0.000	18846.2	0.037
1958	17.1	0.959	517417.1	8751.2	0.000	8751.2	0.017
1959	16.5	0.789	544017.3	7201.1	0.000	7201.1	0.013
1960	15.7	1.141	572474.6	10408.9	0.000	10408.9	0.018
1961	14.7	2.967	598945.2	27063.9	0.000	27063.9	0.043
1962	13.0	15.002	559354.7	136860.3	0.006	136009.8	0.196
1963	12.0	144.114	172358.7	1314767.7	0.571	563559.6	0.766
1964	17.5	349.954	38526.0	3192657.4	0.853	470639.8	0.924
1965	18.0	37.160	229319.1	339015.8	0.237	258640.7	0.530
1966	18.0	6.403	429557.9	58415.6	0.000	58401.8	0.120
1967	17.6	1.614	490769.9	14724.4	0.000	14724.4	0.029
1968	17.1	0.753	519296.8	6871.6	0.000	6871.6	0.013
1969	16.5	0.622	545545.9	5672.6	0.000	5672.6	0.010
1970	15.7	0.902	574657.3	8226.2	0.000	8226.2	0.014
1971	14.7	2.356	604517.6	21491.5	0.000	21491.5	0.034
1972	13.0	12.096	585217.6	110349.2	0.002	110146.8	0.158
1973	12.0	126.603	191672.8	1155008.1	0.529	544245.5	0.740
1974	17.1	386.305	37292.3	3524295.1	0.861	488142.7	0.929
1975	18.0	43.210	208076.4	394212.5	0.290	279883.4	0.574
1976	18.0	6.529	428412.1	59564.2	0.000	59547.7	0.122
1977	17.6	1.643	490501.3	14993.0	0.000	14993.0	0.030

TABLE OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.006	171	142	29	96	31
1950	13.6	0.025	994	779	215	560	187
1951	12.0	0.220	11528	8621	2907	6406	2135
1952	12.0	3.076	267184	187618	79566	140404	46795
1953	12.0	44.012	12532932	15954406	-3421474	11955156	3984852
1954	12.9	521.182	17131048	56397086	-39266038	42274298	14091014
1955	18.0	222.405	2811817	8814452	-6002635	6601757	2200425
1956	18.0	8.361	142822	228996	-86174	171432	57146
1957	17.6	2.066	23419	31736	-8317	23728	7905
1958	17.1	0.959	11175	14630	-3455	10915	3638
1959	16.5	0.789	10891	14243	-3352	10626	3542
1960	15.7	1.141	20373	27080	-6707	20239	6745
1961	14.7	2.967	82329	116320	-33991	87122	29038
1962	13.0	15.002	1136021	1985452	-849431	1488239	496060
1963	12.0	144.114	17203808	44103457	-26899649	33057567	11018795
1964	17.5	349.954	8270569	17852468	-9581899	13372176	4457064
1965	18.0	37.160	1522184	2798882	-1276698	2095704	698492
1966	18.0	6.403	102272	145698	-43426	109042	36344
1967	17.6	1.614	18038	22885	-4847	17092	5696
1968	17.1	0.753	8884	11029	-2145	8217	2741
1969	16.5	0.622	8793	10866	-2073	8093	2698
1970	15.7	0.902	16695	20533	-3838	15328	5110
1971	14.7	2.356	72611	85549	-12938	64005	21331
1972	13.0	12.096	1291877	1428707	-136830	1070344	356755
1973	12.0	126.603	18217697	41865075	-23647378	31379332	10459430
1974	17.1	386.305	8201413	20045432	-11844019	15017425	5005464
1975	18.0	43.210	1538260	3218704	-1680444	2410808	803515
1976	18.0	6.529	101667	150010	-48343	112299	37424
1977	17.6	1.643	20054	23547	-3493	17590	5863

TABLE OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	3740	13606	191265
0	28472	105216	1411440
0	434538	1558627	19633477
0	9570066	36124668	267116158
0	815525537	1694519457	2204783640
0	2402556638	1718389017	1629899775
0	80435277	67953954	57916245
0	2088830	3451645	25243625
0	382503	749862	11461531
0	226560	461258	8663377
0	280570	571701	11244487
0	679942	1358358	25549357
0	3776703	7080148	106339417
0	87905862	132989922	859943102
0	2255526872	2325745387	2457956508
0	306065848	452238886	107206034
0	25527389	36787366	59610258
0	1328088	2473084	19946364
0	275717	577926	9010610
0	170507	367038	6820763
0	213326	462400	8875930
0	514141	1118724	20248712
0	2776794	6426788	85022327
0	63272601	153607719	718672401
0	2140180475	2455667484	2476714668
0	386856391	492136779	158393967
0	29374510	37176005	61117061
0	1371728	2530426	20297935
0	284403	677914	9171224

AVERAGE CYCLE FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 521.182 349.954 386.305
MEAN OF MAXIMA: 419.147 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.789 0.622
MEAN OF MINIMA: 0.706 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.006
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 521.182
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 521.176
DIFFERENCE BETWEEN MEANS OF EXTREMES: 418.441 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.689	1.847	10.058	104.910	419.147	100.925	7.098	1.774	0.856
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	3041576	7090352	32191055	308787844	1938831129	649096858	45647870	10529494	4656464
1	1149335	3080143	16768426	174908909	698814128	168265377	11833297	2958306	1427524
3	1149335	3080143	16704288	88030136	98043567	59225318	11823712	2958305	1427524
W	248580	855257	6165769	36731531	22137800	5289431	1055979	332813	199632

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 48668.839
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 3109.956

AVERAGE CYCLE FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 521.182 349.954 386.305
MEAN OF MAXIMA: 419.147 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.789 0.622
MEAN OF MINIMA: 0.706 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.006
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 521.182
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 521.176
DIFFERENCE BETWEEN MEANS OF EXTREMES: 418.441 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.8	18.0	18.0	17.6	17.1
A	0.689	1.847	10.058	104.910	419.147	100.925	7.098	1.774	0.856
M	0.587	0.524	0.467	0.434	0.629	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.526	0.797	0.797	0.744	0.682
S	0.000	0.000	0.003	0.420	0.859	0.438	0.001	0.000	0.000
P	25.861	28.351	30.626	31.957	24.191	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	11.950	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	64.5	24.2	24.2	32.0	41.3
D	0.011	0.027	0.131	0.655	0.928	0.664	0.133	0.032	0.015

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 48668.839
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 3109.956

AVERAGE CYCLE FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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SIMULATED MAXIMAL LARVAL DENSITIES: 521.182 349.954 386.305
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SIMULATED MINIMAL LARVAL DENSITIES: 0.789 0.622
MEAN OF MINIMA: 0.706 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.006
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 521.182
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DIFFERENCE BETWEEN MEANS OF EXTREMES: 418.441 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.8	18.0	18.0	17.6	17.1
A	0.689	1.847	10.058	104.910	419.147	100.925	7.098	1.774	0.856
I	12687	55489	898360	15984812	11201010	1957420	115587	20503	10029
O	16130	70163	1200592	33974312	31431662	4944012	174901	26056	12829
E	-3443	-14674	-302231	-17989500	-20230652	-2986592	-59314	-5552	-2800
U	407518	2329345	53582843	1737077628	1031826292	45112392	1596215	314207	198533
H	15736503	70331740	615243887	2379818272	631833258	59547854	21829308	9881121	7742070
G	860766	5021854	107574103	2158644109	887588227	47305775	2818385	668567	414148

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 48668.839
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 3109.956

AVERAGE CYCLE FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 521.182 349.954 386.305
MEAN OF MAXIMA: 419.147 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.789 0.622
MEAN OF MINIMA: 0.706 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.006
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 521.182
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 521.176
DIFFERENCE BETWEEN MEANS OF EXTREMES: 418.441 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.8	18.0	18.0	17.6	17.1
A	0.689	1.847	10.058	104.910	419.147	100.925	7.098	1.774	0.856
D	0.011	0.027	0.131	0.655	0.928	0.664	0.133	0.032	0.015
F	605762.4	645791.0	617476.6	254217.4	41624.6	163878.8	423260.4	489306.4	518356.9
*	6289.2	16854.5	91756.8	957101.6	3823910.9	920748.1	64751.8	16187.9	7811.4
E	6289.2	16854.5	91405.9	481700.9	536494.4	324080.9	64699.4	16187.8	7811.4

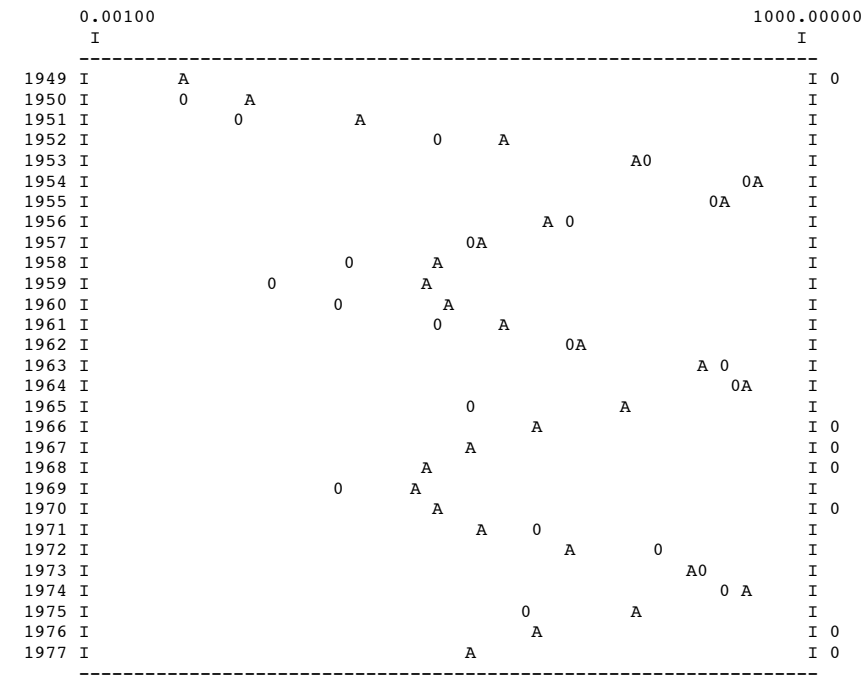
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 48668.839
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 3109.956

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

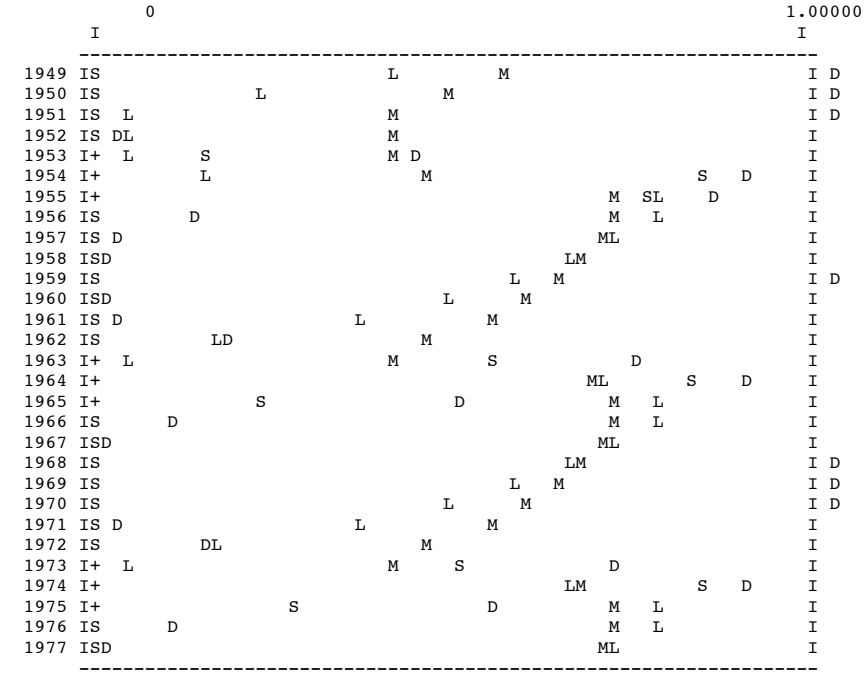


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

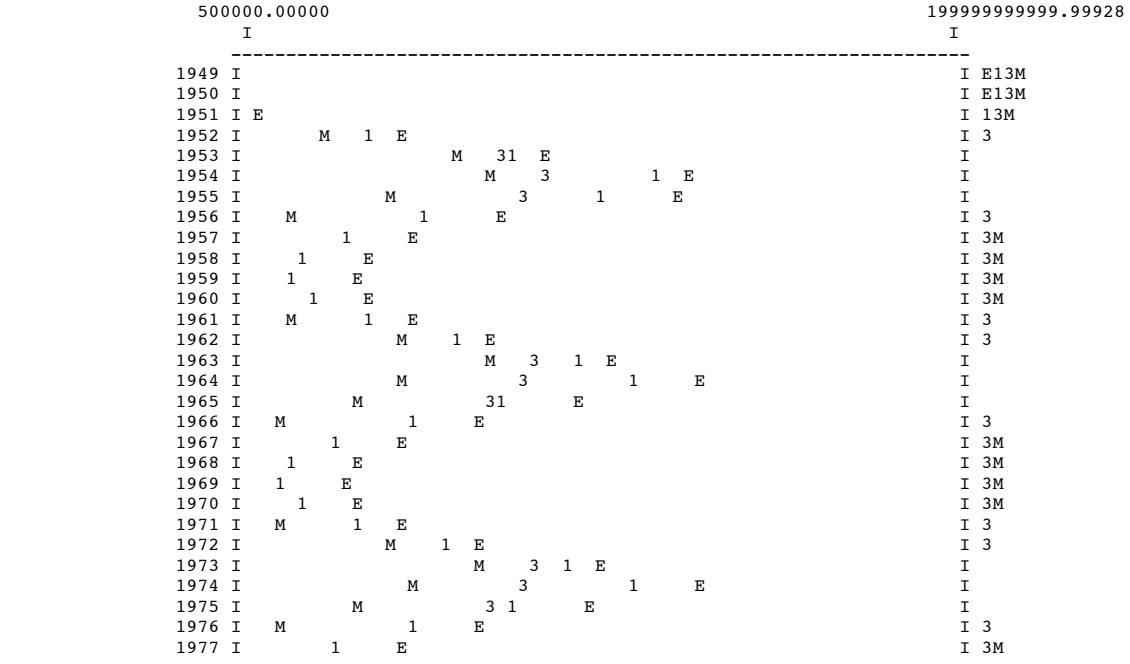


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

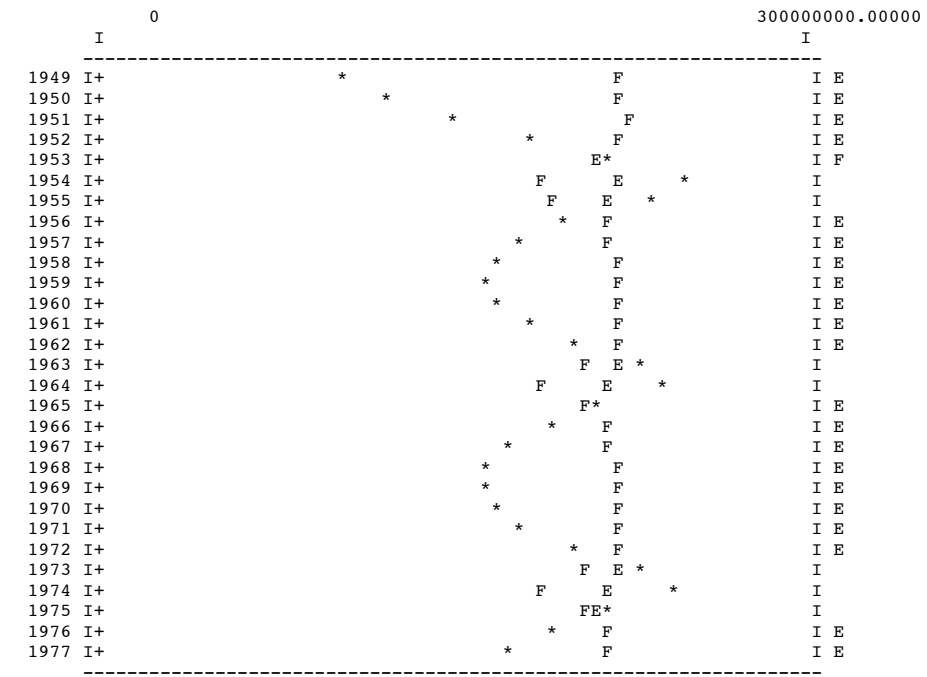


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 54.730944 MAX = 4754780.199360



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 18:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

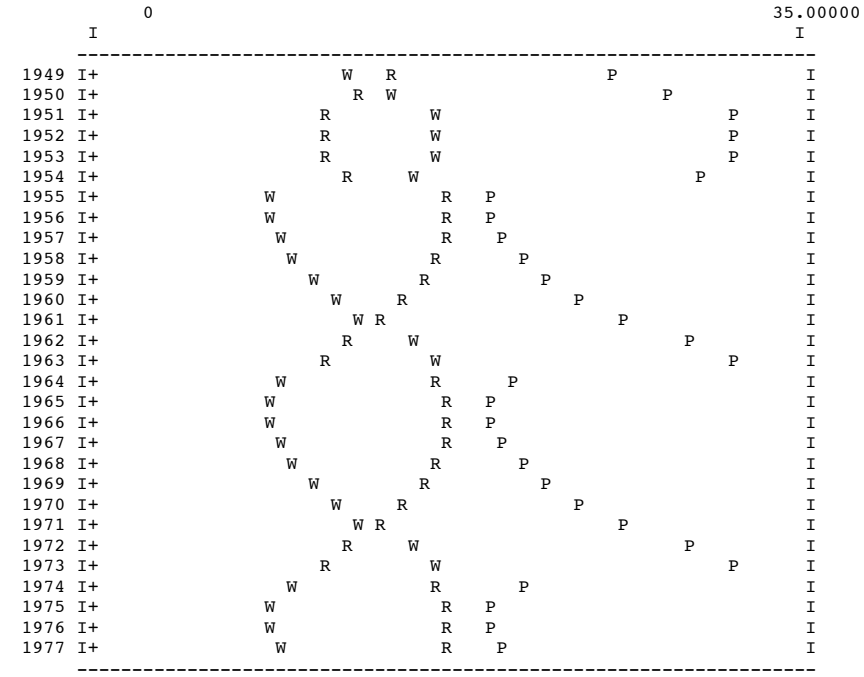


TABLE OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	54984	22685	0.587	0.008	0.008	1040334.1	0	22685	0.000	0.425	5739	79.6
1950	13.6	192045	93189	0.515	0.033	0.029	1139711.1	0	93189	0.000	0.249	30807	105.9
1951	12.0	1371722	776994	0.434	0.274	0.141	1247426.0	0.000	776994	0.003	0.052	324209	135.2
1952	12.0	18470146	10462177	0.434	3.689	2.448	1194428.7	0.000	10462176	0.046	0.052	4365456	135.2
1953	12.0	252676765	143125509	0.434	50.473	68.922	626902.7	0.202	114176720	0.499	0.052	47641478	135.2
1954	13.5	2173184086	1065486364	0.510	375.742	700.436	105800.7	0.821	190303151	0.908	0.236	63936163	107.7
1955	18.0	1262480761	327272887	0.741	115.412	264.376	165750.4	0.629	121379764	0.800	0.797	10840465	24.2
1956	18.0	59037664	15304333	0.741	5.397	13.196	746199.3	0.000	15303572	0.101	0.797	1366766	24.2
1957	17.6	13282646	3731816	0.719	1.316	1.594	839343.3	0.000	3731816	0.024	0.744	419834	32.0
1958	17.1	5542969	1699298	0.693	0.599	0.153	885628.5	0.000	1699298	0.010	0.682	237638	41.3
1959	16.5	4062258	1371434	0.662	0.484	0.067	930028.7	0.000	1371434	0.008	0.607	237225	52.5
1960	15.7	5162433	1945387	0.623	0.686	0.413	980745.1	0.000	1945387	0.011	0.512	417979	66.7
1961	14.7	11548499	4968922	0.570	1.752	0.254	1037550.0	0.000	4968922	0.026	0.382	1351023	86.0
1962	13.0	47964034	24758707	0.484	8.731	12.619	1047244.5	0.000	24754703	0.115	0.174	9001411	117.0
1963	12.0	424663539	240545208	0.434	84.828	280.670	443992.9	0.386	147603222	0.645	0.052	61589049	135.2
1964	15.7	2392832721	904625610	0.622	319.015	308.620	93271.9	0.818	164436152	0.906	0.509	35544539	67.1
1965	18.0	439160129	113843480	0.741	40.147	4.350	371371.7	0.264	83802778	0.553	0.797	7484452	24.2
1966	18.0	53168205	13782793	0.741	4.860	0.000	754522.3	0.000	13782563	0.091	0.797	1230925	24.2
1967	17.6	11887299	3339787	0.719	1.178	0.000	841488.5	0.000	3339787	0.021	0.744	375731	32.0
1968	17.1	4949026	1517214	0.693	0.535	0.000	886624.9	0.000	1517214	0.009	0.682	212174	41.3
1969	16.5	3620172	1222184	0.662	0.431	0.100	930845.4	0.000	1222184	0.007	0.607	211409	52.5
1970	15.7	4592515	1730621	0.623	0.610	0.618	981920.3	0.000	1730621	0.010	0.512	371835	66.7
1971	14.7	10255250	4412481	0.570	1.556	4.993	1040594.9	0.000	4412481	0.023	0.382	1199730	86.0
1972	13.0	42509808	21943272	0.484	7.738	73.360	1062635.0	0.000	21942114	0.102	0.174	7978685	117.0
1973	12.0	375996966	212978653	0.434	75.107	181.200	484405.4	0.342	140217883	0.613	0.052	58507436	135.2
1974	15.2	2354815707	948644891	0.597	334.538	299.360	95230.6	0.820	170299192	0.907	0.449	41319905	76.1
1975	18.0	575217579	149113653	0.741	52.585	8.082	309058.8	0.362	95190364	0.628	0.797	8501481	24.2
1976	18.0	55821517	14470611	0.741	5.103	0.000	750759.5	0.000	14470204	0.095	0.797	1292338	24.2
1977	17.6	12440593	3495238	0.719	1.233	0.000	840637.9	0.000	3495238	0.022	0.744	393219	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.008	0.008	0.000	0.000	0.000	0.000	0
1950	13.6	0.033	0.029	0.000	0.000	0.000	-0.004	0
1951	12.0	0.274	0.141	0.000	0.000	0.018	-0.133	0
1952	12.0	3.689	2.448	0.000	0.000	1.559	-1.241	0
1953	12.0	50.473	68.922	0.000	0.000	341.926	18.449	0
1954	13.5	375.742	700.436	0.000	0.000	105768.172	324.694	0
1955	18.0	115.412	264.376	0.000	0.000	127958.381	148.964	0
1956	18.0	5.397	13.196	0.000	0.000	128019.204	7.799	0
1957	17.6	1.316	1.594	0.000	0.000	128019.282	0.278	0
1958	17.1	0.599	0.153	0.000	0.000	128019.481	-0.446	0
1959	16.5	0.484	0.067	0.000	0.000	128019.654	-0.417	0
1960	15.7	0.686	0.413	0.000	0.000	128019.729	-0.273	0
1961	14.7	1.752	0.254	0.000	0.000	128021.974	-1.498	0
1962	13.0	8.731	12.619	0.000	0.000	128037.089	3.888	0
1963	12.0	84.828	280.670	0.000	0.000	166391.237	195.842	0
1964	15.7	319.015	308.620	0.000	0.000	166499.286	-10.395	0
1965	18.0	40.147	4.350	0.000	0.000	167780.690	-35.797	0
1966	18.0	4.860	0.000	0.000	0.000	167804.313	-4.860	0
1967	17.6	1.178	0.000	0.000	0.000	167805.700	-1.178	0
1968	17.1	0.535	0.000	0.000	0.000	167805.986	-0.535	0
1969	16.5	0.431	0.100	0.000	0.000	167806.096	-0.331	0
1970	15.7	0.610	0.618	0.000	0.000	167806.096	0.008	0
1971	14.7	1.556	4.993	0.000	0.000	167817.908	3.437	0
1972	13.0	7.738	73.360	0.000	0.000	172124.121	65.622	0
1973	12.0	75.107	181.200	0.000	0.000	183379.941	106.093	0
1974	15.2	334.538	299.360	0.000	0.000	184617.431	-35.178	0
1975	18.0	52.585	8.082	0.000	0.000	186597.919	-44.503	0
1976	18.0	5.103	0.000	0.000	0.000	186623.959	-5.103	0
1977	17.6	1.233	0.000	0.000	0.000	186625.478	-1.232	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.008	54984	22685	0.587	22685	0.425	25.846	5739	79.6	13.075
1950	13.6	0.033	192045	93189	0.515	93189	0.249	28.732	30807	105.9	15.038
1951	12.0	0.274	1371722	776994	0.434	776994	0.052	31.957	324209	135.2	17.231
1952	12.0	3.689	18470146	10462177	0.434	10462176	0.052	31.957	4365456	135.2	17.231
1953	12.0	50.473	252676765	143125509	0.434	114176720	0.052	31.957	47641478	135.2	17.231
1954	13.5	375.742	2173184086	1065486364	0.510	190303151	0.236	28.932	63936163	107.7	15.174
1955	18.0	115.412	1262480761	327272887	0.741	121379764	0.797	19.755	10840465	24.2	8.933
1956	18.0	5.397	59037664	15304333	0.741	15303572	0.797	19.755	1366766	24.2	8.933
1957	17.6	1.316	13282646	3731816	0.719	3731816	0.744	20.618	419834	32.0	9.520
1958	17.1	0.599	5542969	1699298	0.693	1699298	0.682	21.635	237638	41.3	10.212
1959	16.5	0.484	4062258	1371434	0.662	1371434	0.607	22.868	237225	52.5	11.050
1960	15.7	0.686	5162433	1945387	0.623	1945387	0.512	24.426	417979	66.7	12.110
1961	14.7	1.752	11548499	4968922	0.570	4968922	0.382	26.548	1351023	86.0	13.553
1962	13.0	8.731	47964034	24758707	0.484	24754703	0.174	29.961	9001411	117.0	15.873
1963	12.0	84.828	424663539	240545208	0.434	147603222	0.052	31.957	61589049	135.2	17.231
1964	15.7	319.015	2392832721	904625610	0.622	164436152	0.509	24.474	35544539	67.1	12.143
1965	18.0	40.147	439160129	113843480	0.741	83802778	0.797	19.755	7484452	24.2	8.933
1966	18.0	4.860	53168205	13782793	0.741	13782563	0.797	19.755	1230925	24.2	8.933
1967	17.6	1.178	11887299	3339787	0.719	3339787	0.744	20.618	375731	32.0	9.520
1968	17.1	0.535	4949026	1517214	0.693	1517214	0.682	21.635	212174	41.3	10.212
1969	16.5	0.431	3620172	1222184	0.662	1222184	0.607	22.868	211409	52.5	11.050
1970	15.7	0.610	4592515	1730621	0.623	1730621	0.512	24.426	371835	66.7	12.110
1971	14.7	1.556	10255250	4412481	0.570	4412481	0.382	26.548	1199730	86.0	13.553
1972	13.0	7.738	42509808	21943272	0.484	21942114	0.174	29.961	7978685	117.0	15.873
1973	12.0	75.107	375996966	212978653	0.434	140217883	0.052	31.957	58507436	135.2	17.231
1974	15.2	334.538	2354815707	948644891	0.597	170299192	0.449	25.459	41319905	76.1	12.812
1975	18.0	52.585	575217579	149113653	0.741	95190364	0.797	19.755	8501481	24.2	8.933
1976	18.0	5.103	55821517	14470611	0.741	14470204	0.797	19.755	1292338	24.2	8.933
1977	17.6	1.233	12440593	3495238	0.719	3495238	0.744	20.618	393219	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.008	1040334.1	124.1	0	124.1	0.000
1950	13.6	0.033	1139711.1	509.9	0	509.9	0.000
1951	12.0	0.274	1247426.0	4251.7	0.000	4251.7	0.003
1952	12.0	3.689	1194428.7	57249.0	0.000	57249.0	0.046
1953	12.0	50.473	626902.7	783182.8	0.202	624775.0	0.499
1954	13.5	375.742	105800.7	5830341.4	0.821	1041338.8	0.908
1955	18.0	115.412	165750.4	1790837.2	0.629	664190.1	0.800
1956	18.0	5.397	746199.3	83745.3	0.000	83741.1	0.101
1957	17.6	1.316	839343.3	20420.5	0.000	20420.5	0.024
1958	17.1	0.599	885628.5	9298.6	0.000	9298.6	0.010
1959	16.5	0.484	930028.7	7504.5	0.000	7504.5	0.008
1960	15.7	0.686	980745.1	10645.2	0.000	10645.2	0.011
1961	14.7	1.752	1037550.0	27189.9	0.000	27189.9	0.026
1962	13.0	8.731	1047244.5	135479.6	0.000	135457.7	0.115
1963	12.0	84.828	443992.9	1316263.4	0.386	807684.8	0.645
1964	15.7	319.015	93271.9	4950111.3	0.818	899794.6	0.906
1965	18.0	40.147	371371.7	622951.5	0.264	458568.8	0.553
1966	18.0	4.860	754522.3	75419.4	0.000	75418.2	0.091
1967	17.6	1.178	841488.5	18275.3	0.000	18275.3	0.021
1968	17.1	0.535	886624.9	8302.2	0.000	8302.2	0.009
1969	16.5	0.431	930845.4	6687.8	0.000	6687.8	0.007
1970	15.7	0.610	981920.3	9470.0	0.000	9470.0	0.010
1971	14.7	1.556	1040594.9	24145.1	0.000	24145.1	0.023
1972	13.0	7.738	1062635.0	120073.6	0.000	120067.2	0.102
1973	12.0	75.107	484405.4	1165419.2	0.342	767272.3	0.613
1974	15.2	334.538	95230.6	5190984.8	0.820	931877.2	0.907
1975	18.0	52.585	309058.8	815949.9	0.362	520881.7	0.628
1976	18.0	5.103	750759.5	79183.2	0.000	79181.0	0.095
1977	17.6	1.233	840637.9	19125.9	0.000	19125.9	0.022

TABLE OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.008	197	302	-105	234	58
1950	13.6	0.033	1076	1617	-541	1280	320
1951	12.0	0.274	12523	17713	-5190	14133	3530
1952	12.0	3.689	369130	394276	-25146	315238	78796
1953	12.0	50.473	9059237	24554875	-15495638	19638917	4909085
1954	13.5	375.742	8124888	54617502	-46492614	43684040	10919757
1955	18.0	115.412	1496264	8321090	-6824826	6652895	1662675
1956	18.0	5.397	85925	179212	-93287	143203	35788
1957	17.6	1.316	13443	29146	-15703	23273	5813
1958	17.1	0.599	6345	14071	-7726	11220	2805
1959	16.5	0.484	6166	13616	-7450	10855	2712
1960	15.7	0.686	11513	24852	-13339	19839	4955
1961	14.7	1.752	46671	95759	-49088	76546	19125
1962	13.0	8.731	671934	1289385	-617451	1031107	257724
1963	12.0	84.828	10713001	39754913	-29041912	31795109	7947658
1964	15.7	319.015	4740960	31187164	-26446204	24942247	6234589
1965	18.0	40.147	948457	3986841	-3038384	3187716	796663
1966	18.0	4.860	61449	149905	-88456	119797	29941
1967	17.6	1.178	10513	25286	-14773	20186	5041
1968	17.1	0.535	5114	12357	-7243	9848	2461
1969	16.5	0.431	5002	11975	-6973	9547	2384
1970	15.7	0.610	9289	21729	-12440	17342	4334
1971	14.7	1.556	36726	82162	-45436	65671	16407
1972	13.0	7.738	513948	1050576	-536628	840039	209963
1973	12.0	75.107	10284640	35856563	-25571923	28676939	7168204
1974	15.2	334.538	5394264	36320824	-30926560	29049065	7261292
1975	18.0	52.585	1080566	5135548	-4054982	4106541	1026347
1976	18.0	5.103	64716	161887	-97171	129382	32334
1977	17.6	1.233	10994	26750	-15756	21359	5335

TABLE OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	8834	15676	433869
0	65628	113901	3097059
0	938992	1693164	41542197
0	20965072	49908391	541563439
0	1306411014	1224858095	3862183306
0	2263979748	780307625	2174937604
0	79061067	36160634	102036146
0	1700719	2076592	29015745
0	366017	430435	12544680
0	227348	261894	9247137
0	279629	323667	11760680
0	649742	767620	26265385
0	3234225	4013090	108262272
0	59367088	78646655	915415938
0	2114994562	1448452046	4152748144
0	807451214	271538827	756457731
0	37883677	22921843	101535568
0	1422867	1485067	26341009
0	317442	336618	11248183
0	199529	211080	8263106
0	245930	262562	10487709
0	568135	619336	23386401
0	2774885	3160056	96347922
0	48364748	60202194	819940518
0	1907544072	1390035756	4122173298
0	1067601477	352133163	994349935
0	48807600	26114658	104553688
0	1536988	1566507	27554733
0	335951	352621	11762875

AVERAGE CYCLE FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 375.742 319.015 334.538
MEAN OF MAXIMA: 343.098 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.484 0.431
MEAN OF MINIMA: 0.457 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.008
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 375.742
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 375.734
DIFFERENCE BETWEEN MEANS OF EXTREMES: 342.641 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.443	1.194	6.720	70.136	343.098	69.381	5.120	1.242	0.567
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	3315664	7725157	36314662	351112423	2306944171	758952823	56009128	12536846	5245997
1	1256399	3386132	19054718	198883123	972918955	196743340	14519245	3522280	1608256
3	1256399	3386132	19052997	133999275	175012831	100124302	14518779	3522280	1608256
W	273540	958320	7115184	55912654	46933535	8942132	1296676	396261	224906

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 19211.312
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
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MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.008
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MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 375.734
DIFFERENCE BETWEEN MEANS OF EXTREMES: 342.641 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	14.8	18.0	18.0	17.6	17.1
A	0.443	1.194	6.720	70.136	343.098	69.381	5.120	1.242	0.567
M	0.587	0.524	0.467	0.434	0.576	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.398	0.797	0.797	0.744	0.682
S	0.000	0.000	0.000	0.310	0.820	0.418	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	26.289	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	13.376	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	83.6	24.2	24.2	32.0	41.3
D	0.007	0.017	0.087	0.586	0.907	0.660	0.096	0.022	0.010

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 19211.312
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
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T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	14.8	18.0	18.0	17.6	17.1
A	0.443	1.194	6.720	70.136	343.098	69.381	5.120	1.242	0.567
I	7292	31973	518337	10018959	6086704	1175095	70696	11650	5729
O	16066	65211	911412	33388783	40708496	5814493	163668	27060	13214
E	-8773	-33238	-393075	-23369824	-34621792	-4639397	-92971	-15410	-7484
U	427835	2316034	42898969	1776316549	1379677479	55250781	1553524	339803	213438
H	17582948	82050797	758973298	4045701582	1308581756	102708467	27637162	11851912	8755121
G	500285	2955436	62919080	1354448632	467993205	28399045	1709388	373224	236487

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 19211.312
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 375.742 319.015 334.538
MEAN OF MAXIMA: 343.098 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.484 0.431
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CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
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MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 375.742
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 375.734
DIFFERENCE BETWEEN MEANS OF EXTREMES: 342.641 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	14.8	18.0	18.0	17.6	17.1
A	0.443	1.194	6.720	70.136	343.098	69.381	5.120	1.242	0.567
D	0.007	0.017	0.087	0.586	0.907	0.660	0.096	0.022	0.010
F	1034125.5	1108523.6	1101436.1	518433.7	98101.1	282060.3	750493.7	840489.9	886126.7
*	6875.0	18528.9	104267.4	1088288.5	5323812.5	1076579.6	79449.3	19273.9	8800.4
E	6875.0	18528.9	104258.0	733244.0	957670.2	547880.2	79446.8	19273.9	8800.4

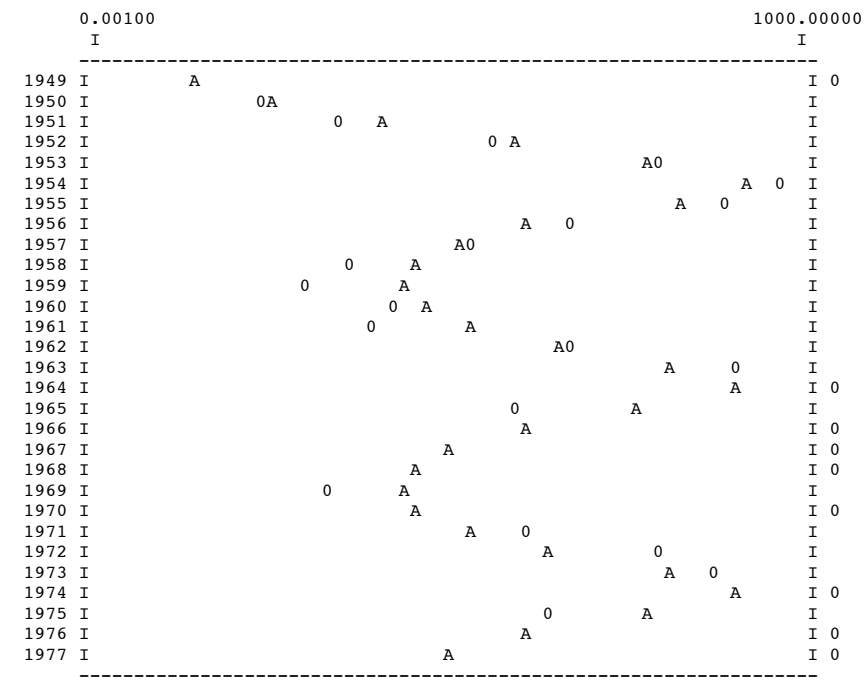
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 19211.312
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

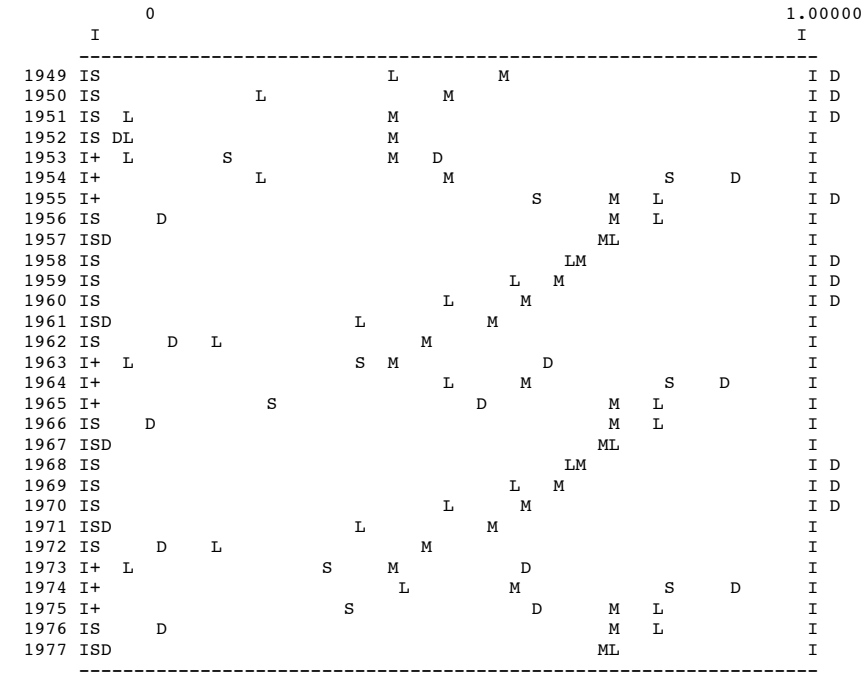


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

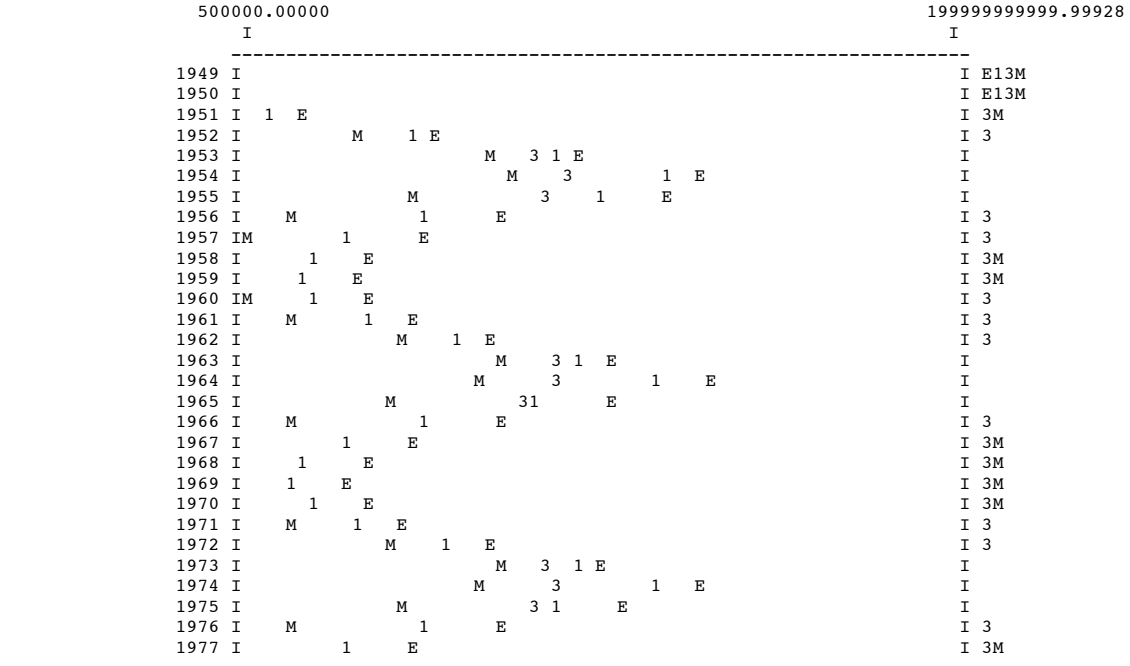


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

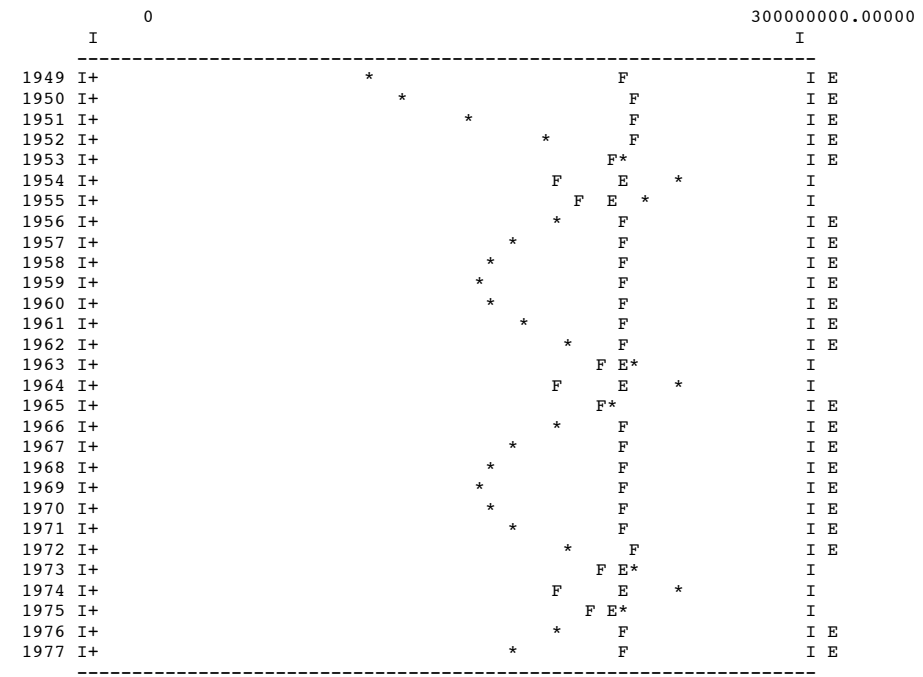


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 124.132320 MAX = 5830341.383808



PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 19:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE

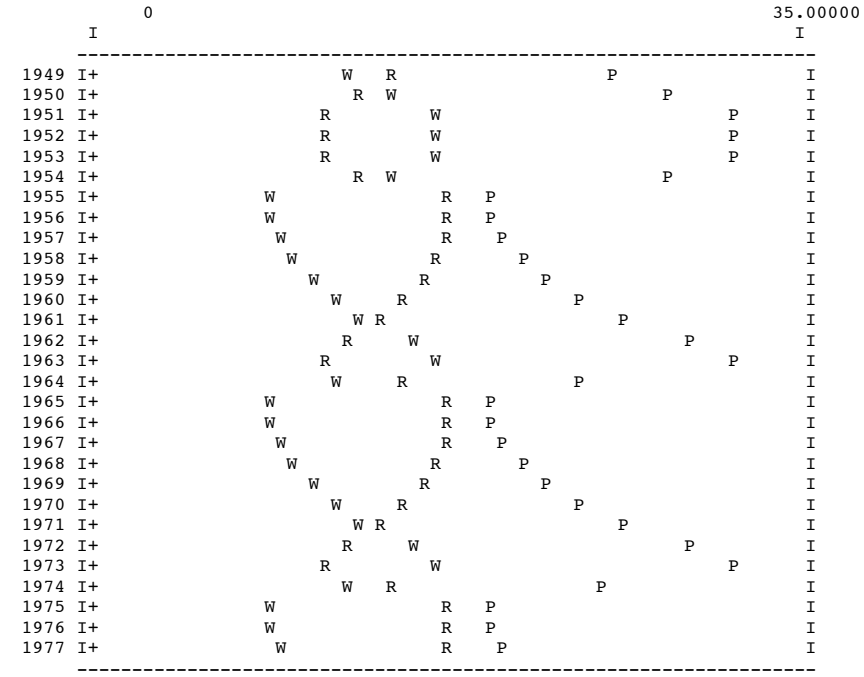


TABLE OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
E: ZAHL DER EIER IM FRUEHLING
S: KLEINE RAUPEN (L1,L2)
.: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
Y: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
;: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
L: GROSSE RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN
,: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
F: WEIBCHEN
4: FEKUNDITAET

T	R	E	S	.	Y	O	F	;	L	D	,	F	4
1949	15.0	138811	57270	0.587	0.023	0.023	913316.1	0	57270	0.000	0.425	14490	79.6
1950	13.6	471855	228966	0.515	0.092	0.111	999978.6	0	228966	0.001	0.249	75693	105.9
1951	12.0	3278217	1856903	0.434	0.746	0.473	1088940.9	0.000	1856903	0.009	0.052	774812	135.2
1952	12.0	42654600	24161150	0.434	9.703	4.113	966924.5	0.000	24155224	0.120	0.052	10079029	135.2
1953	12.0	514426664	291390378	0.434	117.023	51.596	304920.2	0.502	145135540	0.723	0.052	60559382	135.2
1954	16.8	1781195201	567658182	0.681	227.973	292.784	94819.8	0.773	128954070	0.882	0.653	19702976	45.7
1955	18.0	371058124	96189397	0.741	38.630	79.264	334237.2	0.250	72100866	0.541	0.797	6439351	24.2
1956	18.0	51366964	13315858	0.741	5.348	10.692	655912.1	0.000	13315254	0.100	0.797	1189189	24.2
1957	17.6	11311179	3177924	0.719	1.276	1.402	737571.6	0.000	3177924	0.023	0.744	357521	32.0
1958	17.1	4678813	1434376	0.693	0.576	0.052	777989.2	0.000	1434376	0.010	0.682	200590	41.3
1959	16.5	3404880	1149501	0.662	0.462	0.046	816960.6	0.000	1149501	0.008	0.607	198836	52.5
1960	15.7	4297998	1619637	0.623	0.650	0.219	861680.1	0.000	1619637	0.010	0.512	347989	66.7
1961	14.7	9547227	4107843	0.570	1.650	0.521	912473.2	0.000	4107843	0.024	0.382	1116900	86.0
1962	13.0	39305130	20289039	0.484	8.148	8.562	927522.3	0.000	20287282	0.107	0.174	7376948	117.0
1963	12.0	341403698	193383741	0.434	77.663	364.910	415433.2	0.354	124939454	0.622	0.052	52132345	135.2
1964	15.3	1928844967	763664639	0.604	306.690	164.590	89073.1	0.807	147016323	0.900	0.465	34582347	73.6
1965	18.0	427240750	110753619	0.741	44.479	1.530	304808.8	0.300	77478864	0.582	0.797	6919662	24.2
1966	18.0	44794476	11612072	0.741	4.663	0.125	665232.6	0.000	11611950	0.087	0.797	1037066	24.2
1967	17.6	9917195	2786278	0.719	1.119	0.000	739714.6	0.000	2786278	0.020	0.744	313460	32.0
1968	17.1	4105730	1258686	0.693	0.505	0.062	778950.6	0.000	1258686	0.009	0.682	176021	41.3
1969	16.5	2988366	1008884	0.662	0.405	0.069	817730.1	0.000	1008884	0.007	0.607	174513	52.5
1970	15.7	3772461	1421596	0.623	0.571	0.409	862763.8	0.000	1421596	0.009	0.512	305439	66.7
1971	14.7	8381072	3606087	0.570	1.448	5.053	915218.8	0.000	3606087	0.021	0.382	980475	86.0
1972	13.0	34528183	17823212	0.484	7.158	64.390	941008.0	0.000	17822788	0.094	0.174	6480798	117.0
1973	12.0	301191482	170606047	0.434	68.516	125.100	453175.2	0.308	118042169	0.588	0.052	49254378	135.2
1974	14.8	1884902397	795977294	0.578	319.666	343.610	91687.1	0.809	152348505	0.901	0.401	40125791	83.1
1975	18.0	563450028	146063150	0.741	58.659	4.245	250653.5	0.402	87375672	0.656	0.797	7803549	24.2
1976	18.0	46914474	12161639	0.741	4.884	0.057	662225.9	0.000	12161425	0.091	0.797	1086140	24.2
1977	17.6	10370964	2913766	0.719	1.170	0.000	739017.0	0.000	2913766	0.021	0.744	327803	32.0

TABLE OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
N: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
Q: SQ DER ABWEICHUNG ZWISCHEN BEOBACHTETER UND SIMULIERTER DICHTE
W: SQ GEWICHTET DER ABWEICHUNG ZWISCHEN BEOBACHTETER U. SIM. DICHTE
U: SQ DER ABWEICHUNGEN AUSSERHALB DEM BEOBACHTETEN WERTEBEREICH

T	R	A	O	N	X	Q	W	U
1949	15.0	0.023	0.023	0.000	0.000	0.000	0.000	0
1950	13.6	0.092	0.111	0.000	0.000	0.000	0.019	0
1951	12.0	0.746	0.473	0.000	0.000	0.075	-0.273	0
1952	12.0	9.703	4.113	0.000	0.000	31.325	-5.590	0
1953	12.0	117.023	51.596	0.000	0.000	4312.027	-65.427	0
1954	16.8	227.973	292.784	0.000	0.000	8512.507	64.811	0
1955	18.0	38.630	79.264	0.000	0.000	10163.637	40.634	0
1956	18.0	5.348	10.692	0.000	0.000	10192.199	5.344	0
1957	17.6	1.276	1.402	0.000	0.000	10192.215	0.126	0
1958	17.1	0.576	0.052	0.000	0.000	10192.490	-0.524	0
1959	16.5	0.462	0.046	0.000	0.000	10192.662	-0.416	0
1960	15.7	0.650	0.219	0.000	0.000	10192.849	-0.431	0
1961	14.7	1.650	0.521	0.000	0.000	10194.123	-1.129	0
1962	13.0	8.148	8.562	0.000	0.000	10194.294	0.414	0
1963	12.0	77.663	364.910	0.000	0.000	92704.917	287.247	0
1964	15.3	306.690	164.590	0.000	0.000	112897.201	-142.100	0
1965	18.0	44.479	1.530	0.000	0.000	114741.811	-42.949	0
1966	18.0	4.663	0.125	0.000	0.000	114762.408	-4.538	0
1967	17.6	1.119	0.000	0.000	0.000	114763.660	-1.119	0
1968	17.1	0.505	0.062	0.000	0.000	114763.857	-0.443	0
1969	16.5	0.405	0.069	0.000	0.000	114763.970	-0.336	0
1970	15.7	0.571	0.409	0.000	0.000	114763.996	-0.162	0
1971	14.7	1.448	5.053	0.000	0.000	114776.991	3.605	0
1972	13.0	7.158	64.390	0.000	0.000	118052.510	57.232	0
1973	12.0	68.516	125.100	0.000	0.000	121254.282	56.584	0
1974	14.8	319.666	343.610	0.000	0.000	121827.578	23.944	0
1975	18.0	58.659	4.245	0.000	0.000	124788.496	-54.414	0
1976	18.0	4.884	0.057	0.000	0.000	124811.797	-4.827	0
1977	17.6	1.170	0.000	0.000	0.000	124813.166	-1.170	0

TABLE OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
P: GEWICHT DER WEIBLICHEN PUPPEN
M: WEIBCHEN
4: FEKUNDITAET
W: GEWICHT DER WEIBCHEN

T	R	A	E	1	M	3	L	P	M	4	W
1949	15.0	0.023	138811	57270	0.587	57270	0.425	25.846	14490	79.6	13.075
1950	13.6	0.092	471855	228966	0.515	228966	0.249	28.732	75693	105.9	15.038
1951	12.0	0.746	3278217	1856903	0.434	1856903	0.052	31.957	774812	135.2	17.231
1952	12.0	9.703	42654600	24161150	0.434	24155224	0.052	31.957	10079029	135.2	17.231
1953	12.0	117.023	514426664	291390378	0.434	145135540	0.052	31.957	60559382	135.2	17.231
1954	16.8	227.973	1781195201	567658182	0.681	128954070	0.653	22.117	19702976	45.7	10.539
1955	18.0	38.630	371058124	96189397	0.741	72100866	0.797	19.755	6439351	24.2	8.933
1956	18.0	5.348	51366964	13315858	0.741	13315254	0.797	19.755	1189189	24.2	8.933
1957	17.6	1.276	11311179	3177924	0.719	3177924	0.744	20.618	357521	32.0	9.520
1958	17.1	0.576	4678813	1434376	0.693	1434376	0.682	21.635	200590	41.3	10.212
1959	16.5	0.462	3404880	1149501	0.662	1149501	0.607	22.868	198836	52.5	11.050
1960	15.7	0.650	4297998	1619637	0.623	1619637	0.512	24.426	347989	66.7	12.110
1961	14.7	1.650	9547227	4107843	0.570	4107843	0.382	26.548	1116900	86.0	13.553
1962	13.0	8.148	39305130	20289039	0.484	20287282	0.174	29.961	7376948	117.0	15.873
1963	12.0	77.663	341403698	193383741	0.434	124939454	0.052	31.957	52132345	135.2	17.231
1964	15.3	306.690	1928844967	763664639	0.604	147016323	0.465	25.184	34582347	73.6	12.625
1965	18.0	44.479	427240750	110753619	0.741	77478864	0.797	19.755	6919662	24.2	8.933
1966	18.0	4.663	44794476	11612072	0.741	11611950	0.797	19.755	1037066	24.2	8.933
1967	17.6	1.119	9917195	2786278	0.719	2786278	0.744	20.618	313460	32.0	9.520
1968	17.1	0.505	4105730	1258686	0.693	1258686	0.682	21.635	176021	41.3	10.212
1969	16.5	0.405	2988366	1008884	0.662	1008884	0.607	22.868	174513	52.5	11.050
1970	15.7	0.571	3772461	1421596	0.623	1421596	0.512	24.426	305439	66.7	12.110
1971	14.7	1.448	8381072	3606087	0.570	3606087	0.382	26.548	980475	86.0	13.553
1972	13.0	7.158	34528183	17823212	0.484	17822788	0.174	29.961	6480798	117.0	15.873
1973	12.0	68.516	301191482	170606047	0.434	118042169	0.052	31.957	49254378	135.2	17.231
1974	14.8	319.666	1884902397	795977294	0.578	152348505	0.401	26.231	40125791	83.1	13.337
1975	18.0	58.659	563450028	146063150	0.741	87375672	0.797	19.755	7803549	24.2	8.933
1976	18.0	4.884	46914474	12161639	0.741	12161425	0.797	19.755	1086140	24.2	8.933
1977	17.6	1.170	10370964	2913766	0.719	2913766	0.744	20.618	327803	32.0	9.520

TABLE OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
E: VERZEHRTE NADELMASSE IN KG
D: SIMULIERTER FRASSSCHADEN

T	R	A	F	*	S	E	D
1949	15.0	0.023	913316.1	313.4	0	313.4	0.000
1950	13.6	0.092	999978.6	1252.9	0	1252.9	0.001
1951	12.0	0.746	1088940.9	10161.0	0.000	10161.0	0.009
1952	12.0	9.703	966924.5	132209.8	0.000	132177.4	0.120
1953	12.0	117.023	304920.2	1594488.1	0.502	794181.7	0.723
1954	16.8	227.973	94819.8	3106225.6	0.773	705636.7	0.882
1955	18.0	38.630	334237.2	526348.4	0.250	394535.9	0.541
1956	18.0	5.348	655912.1	72864.4	0.000	72861.1	0.100
1957	17.6	1.276	737571.6	17389.6	0.000	17389.6	0.023
1958	17.1	0.576	777989.2	7848.9	0.000	7848.9	0.010
1959	16.5	0.462	816960.6	6290.1	0.000	6290.1	0.008
1960	15.7	0.650	861680.1	8862.7	0.000	8862.7	0.010
1961	14.7	1.650	912473.2	22478.1	0.000	22478.1	0.024
1962	13.0	8.148	927522.3	111021.6	0.000	111012.0	0.107
1963	12.0	77.663	415433.2	1058195.8	0.354	683668.7	0.622
1964	15.3	306.690	89073.1	4178772.9	0.807	804473.3	0.900
1965	18.0	44.479	304808.8	606043.8	0.300	423964.3	0.582
1966	18.0	4.663	665232.6	63541.3	0.000	63540.6	0.087
1967	17.6	1.119	739714.6	15246.5	0.000	15246.5	0.020
1968	17.1	0.505	778950.6	6887.5	0.000	6887.5	0.009
1969	16.5	0.405	817730.1	5520.6	0.000	5520.6	0.007
1970	15.7	0.571	862763.8	7779.0	0.000	7779.0	0.009
1971	14.7	1.448	915218.8	19732.5	0.000	19732.5	0.021
1972	13.0	7.158	941008.0	97528.6	0.000	97526.3	0.094
1973	12.0	68.516	453175.2	933556.3	0.308	645926.7	0.588
1974	14.8	319.666	91687.1	4355587.8	0.809	833651.0	0.901
1975	18.0	58.659	250653.5	799257.6	0.402	478119.7	0.656
1976	18.0	4.884	662225.9	66548.5	0.000	66547.3	0.091
1977	17.6	1.170	739017.0	15944.1	0.000	15944.1	0.021

TABLE OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

T: ZEIT IN JAHREN
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
N: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
C: AKTIV FLIEGENDE WEIBCHEN
P: MIT DEM WIND FLIEGENDE WEIBCHEN

T	R	A	I	O	N	C	P
1949	15.0	0.023	116	738	-622	622	109
1950	13.6	0.092	649	3897	-3248	3302	580
1951	12.0	0.746	7478	44368	-36890	37681	6647
1952	12.0	9.703	197795	1407793	-1209998	1196502	211132
1953	12.0	117.023	4365067	39138976	-34773909	33265326	5869747
1954	16.8	227.973	5902023	19593501	-13691478	16649591	2937231
1955	18.0	38.630	1318574	3541670	-2223096	3008439	530551
1956	18.0	5.348	50692	151869	-101177	128998	22750
1957	17.6	1.276	8270	24406	-16136	20716	3650
1958	17.1	0.576	3953	11733	-7780	9943	1752
1959	16.5	0.462	3838	11281	-7443	9560	1684
1960	15.7	0.650	7106	20395	-13289	17305	3052
1961	14.7	1.650	28069	77178	-49109	65561	11559
1962	13.0	8.148	382189	989432	-607243	840790	148336
1963	12.0	77.663	6815672	30862764	-24047092	26228950	4627809
1964	15.3	306.690	3387624	28484246	-25096622	24207885	4271204
1965	18.0	44.479	621270	3686957	-3065687	3132914	552618
1966	18.0	4.663	39884	121889	-82005	103529	18254
1967	17.6	1.119	6873	20712	-13839	17575	3100
1968	17.1	0.505	3347	10132	-6785	8585	1512
1969	16.5	0.405	3263	9776	-6513	8285	1460
1970	15.7	0.571	6008	17612	-11604	14941	2633
1971	14.7	1.448	23233	65527	-42294	55665	9814
1972	13.0	7.158	301094	800601	-499507	680316	120026
1973	12.0	68.516	6332579	27531315	-21198736	23397594	4128220
1974	14.8	319.666	4000299	33183184	-29182885	28201721	4975969
1975	18.0	58.659	759694	4712307	-3952613	4004308	706360
1976	18.0	4.884	43464	131234	-87770	111474	19656
1977	17.6	1.170	7324	21895	-14571	18581	3274

TABLE OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

V: DURCH INVADIERENDE WEIBCHEN ABGELEGTE EIER
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
G: FREMDE EIER
H: AUTOCHTHONE EIER

V	U	G	H
0	34542	9231	1095299
0	244743	68701	7605029
0	3593619	1011059	98835852
0	114173800	26742965	1177439302
0	3174301716	590180714	3579283709
0	704762017	574422821	294158932
0	51271669	31866796	88374226
0	2197937	1225101	25252380
0	467392	264801	10687478
0	289058	163161	7807065
0	353174	201467	9859391
0	812697	473782	21874598
0	3975269	2413566	89592825
0	69438151	44733385	754432576
0	2502593227	921515659	3593570875
0	1226324210	202243846	797851543
0	53412928	15014612	89841373
0	1764030	963902	22250507
0	396659	220068	9390724
0	249144	138151	6857090
0	305928	171281	8659388
0	702150	400575	19218040
0	3374648	1997731	78826669
0	56186277	35241853	669794388
0	2232434111	856186095	3556038618
0	1616856574	274597799	1044339534
0	68273093	18360005	91458521
0	1899197	1050477	23226125
0	419232	234510	9813422

AVERAGE CYCLE FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 227.973 306.690 319.666
MEAN OF MAXIMA: 284.776 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.462 0.405
MEAN OF MINIMA: 0.433 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.023
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 319.666
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 319.643
DIFFERENCE BETWEEN MEANS OF EXTREMES: 284.343 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
A: SIMULIERTE RAUPENDICHTEN
O: BEOBACHTETE RAUPENDICHTEN
M: MIN. RAUPENDICHTE INNERHALB DEM TAL
X: MAX. RAUPENDICHTE INNERHALB DEM TAL
E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
W: WEIBCHEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
A	0.438	1.281	8.336	87.734	284.776	47.256	4.965	1.188	0.541
O	0.230	1.220	8.830	69.120	204.693	63.650	9.190	0.730	0.230
M	0.030	0.140	0.760	3.450	7.550	1.380	0.010	0.010	0.002
X	0.710	3.910	29.520	173.930	363.380	184.270	71.350	4.260	1.090
E	2847438	7068838	38829304	385673948	1864980855	453916300	47691971	10533112	4392271
1	1090066	3190277	20757800	218460055	709100038	117668722	12363189	2959322	1346531
3	1090066	3190277	20755098	129372387	142772966	78985134	12362876	2959322	1346531
W	243040	957395	7978925	53982035	31470371	7054187	1104131	332928	188305

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 7047.026
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD: 3
SIMULATED CULMINATION YEARS: 1954 1964 1974
SIMULATED MAXIMAL LARVAL DENSITIES: 227.973 306.690 319.666
MEAN OF MAXIMA: 284.776 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.462 0.405
MEAN OF MINIMA: 0.433 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.023
MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 319.666
MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 319.643
DIFFERENCE BETWEEN MEANS OF EXTREMES: 284.343 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN
4: FEKUNDITAET
D: SIMULIERTER FRASSSCHADEN

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.7	18.0	18.0	17.6	17.1
A	0.438	1.281	8.336	87.734	284.776	47.256	4.965	1.188	0.541
M	0.587	0.524	0.467	0.434	0.621	0.741	0.741	0.719	0.693
L	0.424	0.272	0.133	0.052	0.507	0.797	0.797	0.744	0.682
S	0.000	0.000	0.000	0.388	0.796	0.318	0.000	0.000	0.000
P	25.861	28.351	30.626	31.957	24.511	19.755	19.755	20.618	21.635
W	13.086	14.779	16.326	17.231	12.167	8.933	8.933	9.520	10.212
4	79.7	102.4	123.1	135.2	67.4	24.2	24.2	32.0	41.3
D	0.007	0.018	0.107	0.644	0.894	0.593	0.093	0.021	0.009

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 7047.026
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

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MEAN OF MAXIMA: 284.776 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.462 0.405
MEAN OF MINIMA: 0.433 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
CYCLELENGTH: 11.000 (SIMULATED), 9.200 (OBSERVED)
MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.023
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MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 319.643
DIFFERENCE BETWEEN MEANS OF EXTREMES: 284.343 (SIMULATED), 204.594 (OBSERVED)

T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
I: IMMIGRIERENDE WEIBCHEN
O: EMIGRIERENDE WEIBCHEN
E: DIFFERENZ ZWISCHEN IMMIGRIERENDEN UND EMIGRIERENDEN WEIBCHEN
U: DURCH AUSFLIEGENDE WEIBCHEN DEM SYSTEM VERLORENE EIER
H: AUTOCHTHONE EIER
G: FREMDE EIER

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.7	18.0	18.0	17.6	17.1
A	0.438	1.281	8.336	87.734	284.776	47.256	4.965	1.188	0.541
I	4587	19593	293692	5837772	4429982	899846	44680	7489	3650
O	13968	62357	1065942	32511018	27086977	3980311	134997	22337	10932
E	-9380	-42764	-772249	-26673245	-22656995	-3080465	-90317	-14848	-7282
U	586530	3647845	79932742	2636443018	1182647600	57652563	1953721	427761	269101
H	16232555	89085115	867222088	3576297734	712116669	89891373	23576337	9963874	7332077
G	314352	1807452	35572734	789294156	350421488	21747137	1079826	239793	150656

SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 7047.026
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

AVERAGE CYCLE FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

PERIOD ANALYSED LASTS FROM 1949 UNTIL 1977
LENGTH OF THIS PERIOD IN YEARS: 28
TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY UNTIL YEAR 1977
PERIODICITY FALSE

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MEAN OF MAXIMA: 284.776 (SIMULATED), 204.693 (OBSERVED)

NUMBER OF SIMULATED NADIRS WITHIN PERIOD: 2
SIMULATED NADIR YEARS: 1959 1969
SIMULATED MINIMAL LARVAL DENSITIES: 0.462 0.405
MEAN OF MINIMA: 0.433 (SIMULATED), 0.099 (OBSERVED)

NUMBER OF SIMULATED CYCLES WITHIN PERIOD: 3
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MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD: 0.023
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MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY WITHIN PERIOD: 319.643
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T: GRADATIONSJAHRE (ZEIT DES DURCHSCHNITTSZYKLUS)
N: SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES
R: ROHFASERGEHALT IN PROZENT
A: SIMULIERTE RAUPENDICHTEN
D: SIMULIERTER FRASSSCHADEN
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
E: VERZEHRTE NADELMASSE IN KG

AVERAGE CYCLE:

T	-4	-3	-2	-1	0	1	2	3	4
N	3	3	3	3	3	3	3	3	2
R	15.0	13.8	12.6	12.0	15.7	18.0	18.0	17.6	17.1
A	0.438	1.281	8.336	87.734	284.776	47.256	4.965	1.188	0.541
D	0.007	0.018	0.107	0.644	0.894	0.593	0.093	0.021	0.009
F	908140.8	972211.0	945151.6	391176.2	91860.0	296566.5	661123.5	738767.7	778469.9
*	5964.8	17457.2	113586.7	1195413.4	3880195.4	643883.2	67651.4	16193.4	7368.2
E	5964.8	17457.2	113571.9	707925.7	781253.7	432206.7	67649.7	16193.4	7368.2

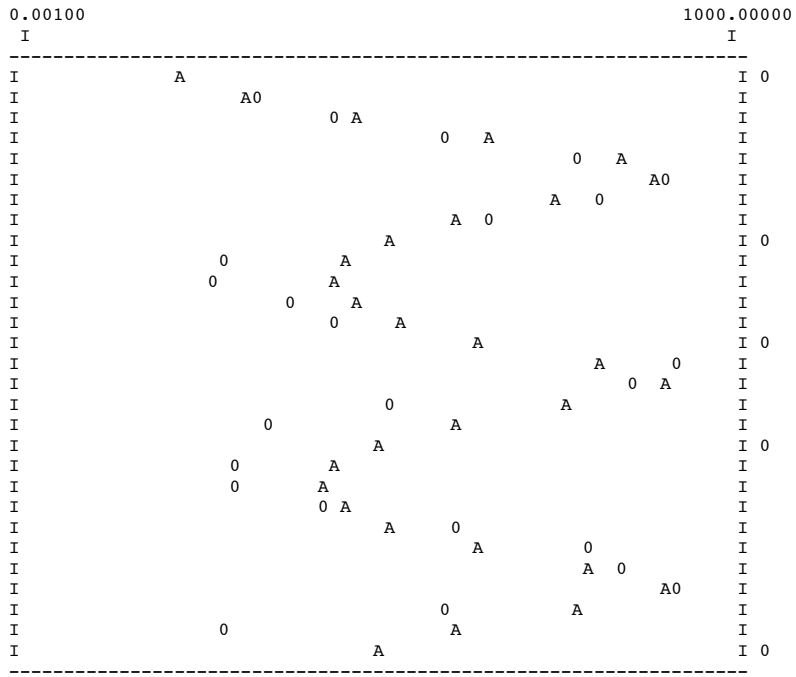
SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND SIMULATED DENSITY: 7047.026
SQ OF PART OF SIMULATED DENSITY OUTSIDE OF OBSERVED RANGE: 0

PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

A: SIMULIERTE RAUPENDICHTEN
0: BEOBACHTETE RAUPENDICHTEN

LOGARITHMIC SCALE

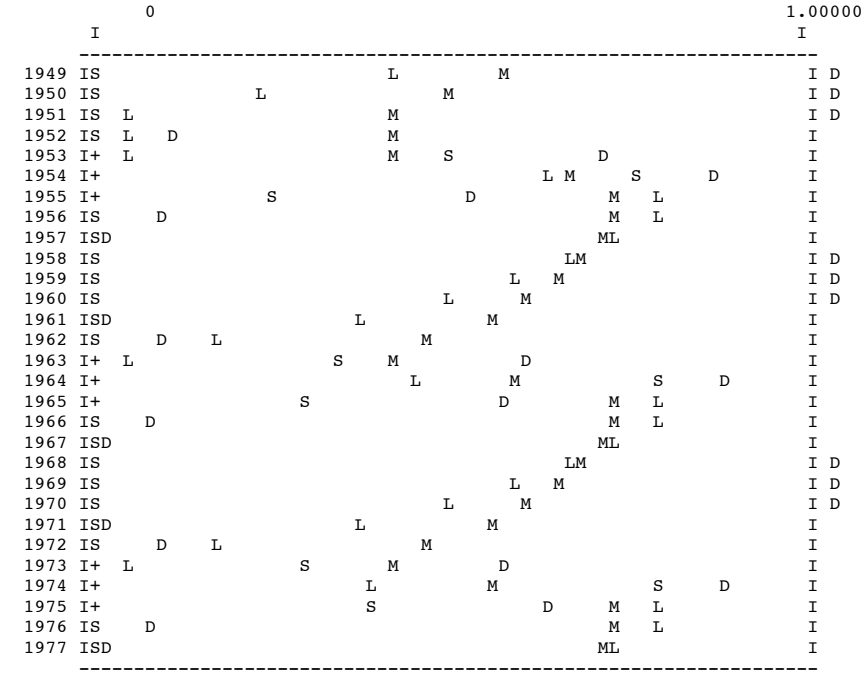


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

M: MORTALITAET DER KLEINEN RAUPEN (L1,L2)
L: GESAMTMORTALITAET DER GROSSEN RAUPEN, PUPPEN UND EMERGENZ
S: HUNGERMORTALITAET DER GROSSEN RAUPEN (L3,L4,L5)
D: SIMULIERTER FRASSSCHADEN

LINEAR SCALE

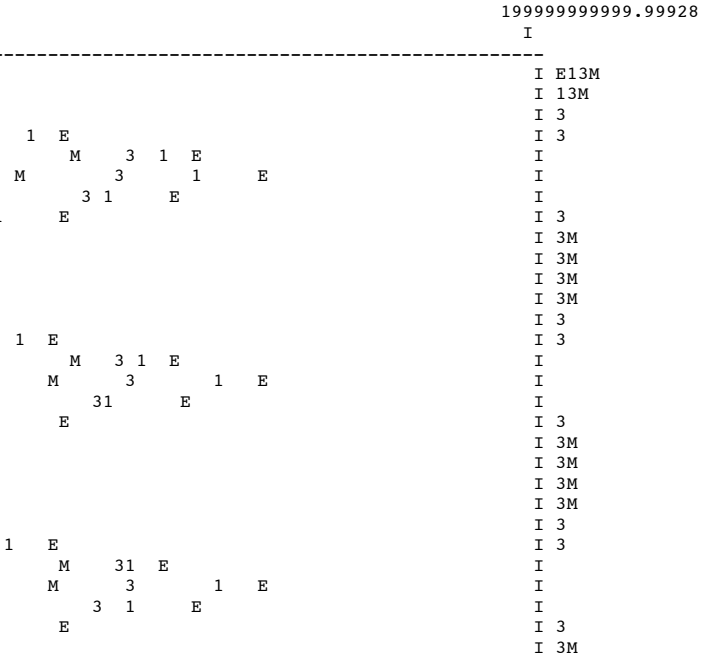


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

E: ZAHL DER EIER IM FRUEHLING
1: KLEINE RAUPEN (L1,L2)
3: GROSSE RAUPEN (L3,L4,L5)
M: WEIBCHEN

LOGARITHMIC SCALE

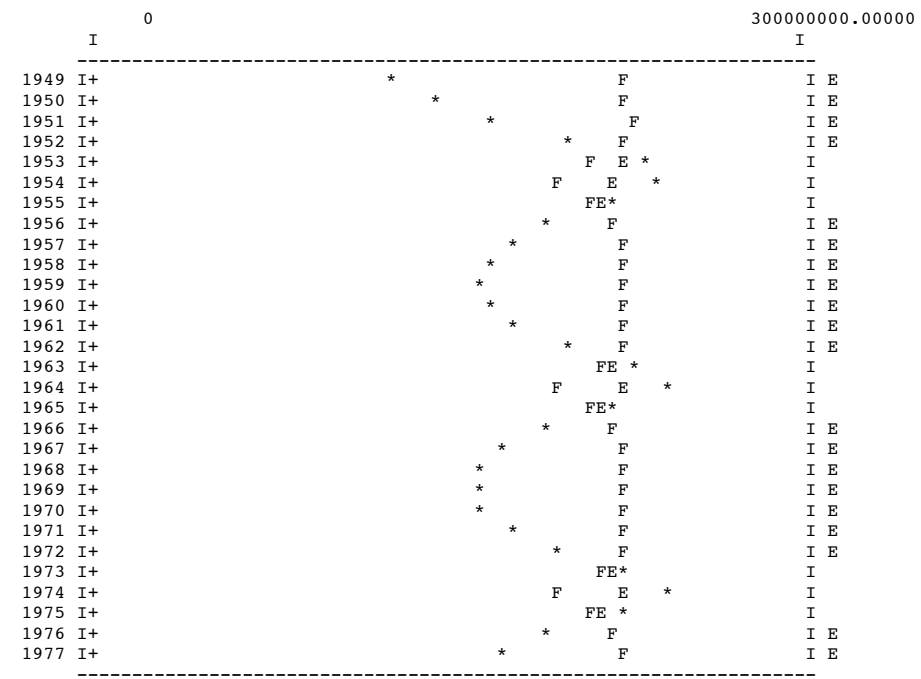


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

*: NAHRUNGSNACHFRAGE IN KG DER NADELMASSE
F: NAHRUNGSANGEBOT ODER NADELMASSE IN KG
E: VERZEHRTE NADELMASSE IN KG

LOGARITHMIC SCALE HAS BEEN DEFINED, HOWEVER SOME VALUE(S) <= 0
TRANSFORMATION PROVIDED SO THAT NEW MINIMUM AT C = 0.01000
EXTREMES FOUND IN DATA: MIN = 313.381440 MAX = 4355587.752768

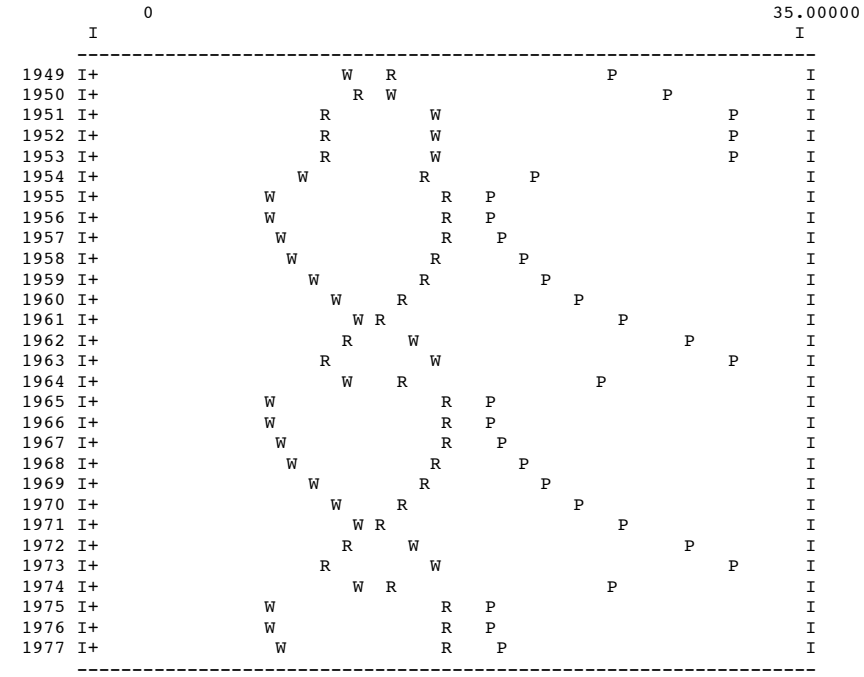


PRINTPLOT OF SIMULATION RESULTS FOR SITE NR. 20:

DAS LAERCHENWICKLERSYSTEM IM OBERENGADIN
ABUNDANZ- U. DISPERSIONSDYNAMIK
(SIMULATION FROM 25/01/82 AT 20.36.04. S=SV)
* MODELL B

R: ROHFASERGEHALT IN PROZENT
P: GEWICHT DER WEIBLICHEN PUPPEN
W: GEWICHT DER WEIBCHEN

LINEAR SCALE



4 SOURCE CODE OF EXTERNAL ROUTINES

This section lists the source code of all external Pascal routines, which could be salvaged from the original digital tapes. Missing is the source code of the following external Pascal routines, since it could no longer be retrieved:

Auxiliary routines for the management of dynamic data structures in the heap (used to dynamically define tables, print plots, and graphs):

- TREESTART
- FINDEND
- FIND
- INSERT
- SCALEAX

Auxiliary routines for the definition and printing of tables tabulating simulation results:

- TABLE
- COLUMN
- PRTABLE
- PRATABLES

Auxiliary routines for the definition and calculation of means for an average cycle[2]:

- AVERAGECYCLE
- ROW

Auxiliary routines for the definition and printing of print plots depicting simulation results:

- PRINTPLOT
- VARIABLE
- PRPRINTPLOT
- PRAPRINTPLOTS

Auxiliary routines for the definition and plotting of 2-dimensional graphs from simulation results:

- GRAPH
- CURVE
- PLAGRAPHS

Auxiliary routines for the definition and plotting of 3-dimensional graphs from simulation results:

- IRAMASS
- RAMASS

For the context in which these routines were used see Fischlin (1982) p. 53-60, notably Fig. 5.

[2] The corresponding printing routines, PRAVERAGECYCLE and PRAAVERAGECYCLES, are listed here

4.1 Procedure NEWCARD

```
(*
HINTSHINTSHINTSHINTSHINTSINTSHINTSHINTSHINTSHINTSHINTSHINTSHINI
I                                                               I
I FORMAL PARAMETERS:                                            I
I ------------------                                            I
I                                                               I
I         CBI       CARD IMAGE BUFFER                         I
I         BC        BEGINNING COLUMN IN CBI                   I
I         NOC       NUMBER OF COLUMNS IN CBI                  I
I         DEC       NUMBER OF DECIMAL DIGITS                  I
I                                                               I
I RESULTS:                                                      I
I --------                                                      I
I                                                               I
I         CASE IREAD OF                           INUM        I
I              -----                              ----        I
I              -2: NO INTEGER FOUND               U           I
I              -1: ILLEGAL BC OR NOC              U           I
I               0: BLANCS ONLY FOUND              -0          I
I               1: INTEGER FOUND                  INTEGER     I
I                                                               I
I         REMARK: ALL BLANCS TO THE RIGHT OF THE RIGHTMOST      I
I         DIGIT ARE ASSUMED TO BE ZEROES.                       I
I                                                               I
I                                                               I
I                                                               I
I         CASE RREAD OF                           RNUM        I
I              -----                              ----        I
I              -2: NO REAL FOUND                  U           I
I              -1: ILLEGAL BC OR NOC              U           I
I               0: BLANCS ONLY FOUND              -0.0        I
I               1: INTEGER FOUND                  REAL        I
I               2: REAL FOUND                     REAL        I
I                                                               I
I         REMARKS   AS IN FORTRAN, THE POSITION OF THE DECIMALI
I         POINT IMPLIED BY DEC WILL BE OVERRULED IF A DECIMAL I
I         POINT IS ACTUALLY FOUND WITHIN THE NOC COLUMNS        I
I                                                               I
I                                                               I
I         EXTERNALS REQUIRED:  IPOWER                           I
I                                                               I
I                                                               I
I         TREAD:                                                I
I         ------                                                I
I                                                               I
I         NOC CHARACTERS WILL BE PACKED LEFT JUSTIFIED INTO S I
I         (IF NECESSARY WITH BLANC FILL TO THE RIGHT)           I
I                                                               I
I                                                               I
I                                                               I
I AUTHORS  E. STRAESSLER, J.RUCHTI, A.FISCHLIN OCTOBER 1977/79I
I                                                               I
IHINTSHINTHINTSHINTSHINTSHINTSHINTSHINTSHINTSHINTSHINTSHINTSHII
*)


PROCEDURE NEWCARD(VAR LFN: TEXT; VAR CBI: ARRAY[INTEGER] OF CHAR);
  VAR PCOL, LCOL: INTEGER;
BEGIN
  PCOL:=LOW(CBI); LCOL:=HIGH(CBI);
  READ(LFN,CBI[PCOL]);
  REPEAT
    PCOL:=PCOL+1;
    CASE EOLN(LFN) OF
      FALSE: READ(LFN,CBI[PCOL]);
```

```
        TRUE:  CBI[PCOL]:=' ';
      END;
    UNTIL PCOL = LCOL;
    READLN(LFN);
  END; (* OF NEWCARD*)
```

4.2 Procedure TREAD

```
PROCEDURE TREAD(VAR S:PACKED ARRAY[INTEGER]OF CHAR;
                    BC,NOC:INTEGER;VAR CBI:ARRAY[INTEGER]OF CHAR);
VAR I,L,H : INTEGER;
BEGIN
IF (BC<LOW(CBI)) OR (NOC<1) OR (HIGH(CBI)<BC+NOC-1) THEN
                    BEGIN MESSAGE('*** WRONG DATA DIMENSION');
                          HALT
                    END;
L:=LOW(S); H:=HIGH(S)-L+1;
FOR I:=1 TO H DO
    BEGIN IF (I>NOC) OR (HIGH(CBI)<BC+I-1) THEN S[L]:=' '
                                       ELSE S[L]:=CBI[BC+I-1];
          L:=L+1;
    END
END; {TREAD}
```

4.3 Function IREAD

```
FUNCTION IREAD (VAR INUM : INTEGER;BC,NOC : INTEGER;
                VAR CBI:ARRAY[INTEGER]OF CHAR):INTEGER;
TYPE INTDEF         = RECORD
                      SIG : CHAR;
                      NUM : INTEGER
                      END;
     IMINZERO       = RECORD CASE MINULL:BOOLEAN OF
                             TRUE: (A:ALFA);
                             FALSE:(Z:INTEGER)
                      END;
VAR I,L,H,K:INTEGER;
    INP   : INTEGER;
    IMZ   : IMINZERO;
    INT   : INTDEF;
BEGIN
IF (BC<LOW(CBI)) OR (NOC<1) OR (HIGH(CBI)<BC+NOC-1) THEN
                    IREAD:=-1
ELSE
BEGIN I:=BC-1; INP:=1;
      REPEAT I:=I+1
      UNTIL (I=BC+NOC-1) OR (CBI[I]<>' ');
WITH IMZ DO
  BEGIN IF CBI[I]<>' ' THEN
                      BEGIN L:=I; I:=BC+NOC; K:=-1;
                            REPEAT I:=I-1; K:=K+1
                            UNTIL CBI[I]<>' ';
```

```
                          H:=I;
      WITH INT DO
      BEGIN IF CBI[L] IN ['+','-'] THEN
                           BEGIN SIG:=CBI[L]; L:=L+1
                           END
                           ELSE SIG:='+';
            NUM:=0; I:=L-1;
            REPEAT I:=I+1;
                   IF CBI[I] IN ['0'..'9'] THEN
                             NUM:=NUM*10+ORD(CBI[I])-27
                                    ELSE INP:=-1
            UNTIL (INP<0) OR (I=H);
            FOR H:=1 TO K DO NUM:=NUM*10;
            IF SIG='-' THEN NUM:=-NUM;
            Z:=NUM;
      END {WITH}
                     END
                     ELSE
                     BEGIN A:=';;;;;;;;;;'; INP:=0 END;
      INUM:=Z;
END; {WITH} IREAD:=INP;
END;
END; {IREAD}
```

4.4 Function RREAD

```
FUNCTION RREAD (VAR RNUM : REAL; BC,NOC,DEC : INTEGER;
                VAR CBI:ARRAY[INTEGER]OF CHAR):INTEGER;
TYPE REALDEF         = RECORD
                       SIG,ES : CHAR;
                       PT     : BOOLEAN;
                       EX     : INTEGER;
                       NUM    : REAL
                       END;
     RMINZERO        = RECORD CASE MINULL:BOOLEAN OF
                              TRUE :(A:ALFA);
                              FALSE:(R:REAL)
                       END;
VAR I,K,L,H,E,S,P    : INTEGER;
    INP              : INTEGER;
    RMZ              : RMINZERO;
    RE               : REALDEF;
BEGIN
IF (BC<LOW(CBI)) OR (NOC<1) OR (HIGH(CBI)<BC+NOC-1) THEN
                     RREAD:=-1
ELSE
BEGIN INP:=2;
IF IREAD(I,BC,NOC,CBI) >= 0 THEN
   BEGIN L:=NOC+BC; INP:=1;
         REPEAT L:=L-1
         UNTIL (CBI[L]<>' ') OR (L=BC);
   WITH RMZ DO
      BEGIN IF CBI[L]=' ' THEN
                          BEGIN A:=';;;;;;;;;;'; INP:=0 END
                          ELSE R:=I*IPOWER(10,-DEC);
            RNUM:=R;
      END;
    RREAD:=INP;
   END
                     ELSE
   BEGIN L:=BC-1;
         REPEAT L:=L+1
```

```
      UNTIL CBI[L]<>' ';
      H:=BC+NOC;
      REPEAT H:=H-1
      UNTIL CBI[H]<>' ';

      WITH RE DO
      BEGIN IF CBI[L] IN ['+','-'] THEN BEGIN SIG:=CBI[L];
                                        L:=L+1
                                END
                           ELSE SIG:='+';
            IF L>=H THEN INP:=-1;
            IF INP=2 THEN
            BEGIN
            E:=L-1; S:=L-1; P:=L-1;
            FOR I:=L TO H DO
            BEGIN IF CBI[I] IN ['E','.','0'..'-'] THEN
                 BEGIN IF CBI[I] IN ['+','-'] THEN
                           BEGIN IF S=L-1 THEN S:=I
                                         ELSE INP:=-1
                           END;
                       IF CBI[I]='E' THEN
                           BEGIN IF E=L-1 THEN E:=I
                                         ELSE INP:=-1
                           END;
                       IF CBI[I]='.' THEN
                           BEGIN IF P=L-1 THEN P:=I
                                         ELSE INP:=-1
                           END
                 END
                 ELSE INP:=-1
            END;
            IF (S=L) OR (S=H) OR (E=H) THEN INP:=-1;
            IF (S>L-1) AND (E>L-1) AND (E<>S-1) THEN INP:=-1;
            IF (S+E>L+L-2) AND (P>S) AND (P>E) THEN INP:=-1;
            IF (P=L) AND ((S-P=1) OR (E-P=1)) THEN INP:=-1;
            IF INP=2 THEN
            BEGIN
            IF P=H THEN H:=H-1;
            I:=L-1; K:=0;
            NUM:=0; EX:=0; PT:=FALSE;
            IF (E=L) THEN NUM:=NUM+1;
            REPEAT I:=I+1;
                   IF CBI[I]='.' THEN BEGIN I:=I+1;
                                      PT:=TRUE
                                      END;
                   IF CBI[I] IN ['0'..'9'] THEN
                           BEGIN IF PT THEN K:=K+1;
                           NUM:=NUM*10+ORD(CBI[I])-27;
                           END
            UNTIL (I=H) OR (NOT(CBI[I] IN ['0'..'9']));
            IF I<H THEN BEGIN

                        IF CBI[I]='E' THEN I:=I+1;
                        IF CBI[I] IN ['+','-'] THEN
                                       BEGIN ES:=CBI[I];I:=I+1
                                       END
                                       ELSE ES:='+';
                        REPEAT
                        EX:=EX*10+ORD(CBI[I])-27;
                        I:=I+1
                        UNTIL I>H
                        END
            END;
IF INP=2 THEN
   BEGIN
   IF ES='-' THEN EX:=-EX;
   IF SIG='-' THEN NUM:=-NUM;
   EX:=EX-K;
   RNUM:=NUM*IPOWER(10,EX);
   END;
```

```
         END;
     RREAD:=INP;
         END {WITH}
   END
END
END; {RREAD}
```

4.5 Procedure MOVE

```
PROCEDURE MOVE(    A: PACKED ARRAY[INTEGER] OF CHAR;
               VAR B: PACKED ARRAY[INTEGER] OF CHAR;
                FLAG: CHAR);
{ MOVES STRINGS FROM A TO B;
  IF FLAG = 'L' THEN LEADING BLANCS IN A WILL BE DROPPED,
                     SO THAT SIGNIFICANT CHARS WILL BE
                     LEFT JUSTIFIED IN B
  IF FLAG = 'R' THEN TRAILING BLANCS IN A WILL BE DROPPED,
                     SO THAT SIGNIFICANT CHARS WILL BE
                     RIGHT JUSITIFIED IN B
  IF FLAG = 'E' THEN THE RIGHTMOST CHARACTERS IN A WILL
                     ALSO BE THE RIGHTMOST CHARACTERS IN B
  IF FLAG NOT IN ['L','R','E']
                THEN THE LEFTMOST CHATACTERS IN A WILL
                     ALSO BE THE LEFTMOST CHARACTERS IN B

  IF A SHORTER THAN B THEN THE UNDEFINED CHARACTERS IN B
                           WILL BE DEFINED AS BLANCS
  IF A LONGER  THAN B THEN THE EXCESS CHARACTERS IN A WILL
                           WILL BE IGNORED
}
VAR LA, HA, DA, EA,
    LB, HB, DB, FB, I, S: INTEGER;
BEGIN LA:=LOW(A,1); HA:=HIGH(A,1); LB:=LOW(B,1); HB:=HIGH(B,1);
      IF FLAG = 'R'
         THEN WHILE (LA<HA) AND (A[HA]=' ') DO HA:=HA-1
         ELSE
      IF FLAG = 'L'
         THEN WHILE (LA<HA) AND (A[LA]=' ') DO LA:=LA+1;
      DA:=HA-LA+1; DB:=HB-LB+1; IF DA<=DB THEN EA:=DA ELSE EA:=DB;
      FB:=DB-EA;
      IF FLAG IN ['R','E'] THEN BEGIN S:=-1; LA:=HA; LB:=HB;
                                 END
                    ELSE S:=1;
      FOR I:=1 TO EA DO BEGIN B[LB]:=A[LA]; LB:=LB+S; LA:=LA+S;
                        END;
      FOR I:=1 TO FB DO BEGIN B[LB]:=' '; LB:=LB+S;
                        END;
END;
```

4.6 Function YLININT

```
FUNCTION YLININT(X: REAL;XVALS,YVALS: ARRAY[INTEGER] OF REAL): REAL;
      (*
        PURPOSE     LINEAR INTERPOLATION OR EXTRAPOLATION OF A
```

```
                FUNCTION GIVEN BY A DATA TABLE
      *)

      VAR   CASES: 1..3;
            M,C: REAL;
            I,LO,HI: INTEGER;

      BEGIN(*YLININT*)
        LO:=LOW(XVALS); HI:=HIGH(XVALS);
        CASES:=2;
        IF X <= XVALS[LO] THEN CASES:=1;
        IF X >= XVALS[HI] THEN CASES:=3;

        CASE CASES OF
        1: BEGIN
             M:=(YVALS[LO+1] - YVALS[LO])/
                (XVALS[LO+1] - XVALS[LO]);
             C:=YVALS[LO] - M*XVALS[LO];
           END;
        2: BEGIN
             I:=LO;
             WHILE NOT((XVALS[I] <= X) AND (XVALS[I+1] > X))
             DO I:=I+1;
             M:=(YVALS[I+1] - YVALS[I])/
                (XVALS[I+1] - XVALS[I]);
             C:=YVALS[I] - M*XVALS[I];
           END;

        3: BEGIN
             M:=(YVALS[HI] - YVALS[HI-1])/
                (XVALS[HI] - XVALS[HI-1]);
             C:=YVALS[HI] - M*XVALS[HI];
           END;
        END(*CASE*);

        YLININT:=X*M+C;
      END(*YLININT*);
```

4.7 Function IPOWER

```
FUNCTION IPOWER(BASE,EXPO : INTEGER) : REAL;
VAR W,Z : REAL;
    I   : INTEGER;
BEGIN W:=BASE;
      Z:=1;
      I:=ABS(EXPO);
      WHILE I>0 DO
      BEGIN IF ODD(I) THEN Z:=Z*W;
            I:=I DIV 2;
            W:=SQR(W);
      END;
      IF EXPO<0 THEN IPOWER:=1/Z
                ELSE IPOWER:=Z;
END; {IPOWER}
```

4.8 Procedure PRAVERAGECYCLE

```
PROCEDURE PRAVERAGECYCLE(VAR RESULTS: SAVEFILET; VAR RR: SAVETYPE;
                         SNR: INTEGER; VAR SIMSPEC: STYPE;
                         X,Y: ARRAY[INTEGER] OF REAL;
                         AAVCY,SENTINEL: NODEP;
                         VAR O: TEXT);
  (*
   PURPOSE     FROM THE SIMULATION RESULTS STORED ON FILE RESULTS
               ONE AVERAGE CYCLE IS WRITTEN ONTO FILE O

   REMARK      THE VARIABLES PRINTED WERE SELECTED BY ANY PREVIOUS
               CALL(S) OF THE PROCEDURE ROW SINCE THE LAST
               CALL OF PROCEDURE AVERAGECYCLE.
               IT IS POSSIBLE TO SPECIFY MANY AVERAGE CYCLES BY
               CALLING PROCEDURE AVERAGECYCLE (PLUS PROCEDURE ROW)
               SEVERAL TIMES. THE ACTUALLY PRINTED AVERAGE CYCLE
               WILL BE SELECTED BY THE POINTER AAVCY (ACTUAL AVERAGE
               CYCLE).
               IF A ROW SHOULD BE PRINTED WITH VALUES MORE THAN
               14 COLUMNS (COL>14) AN ERROR MESSAGE WILL BE PRINTED
               AND THE TABLE FOR THE AVERAGE CYCLE WILL BE PRINTED
               ONLY WITH A COLUMN LENGTH OF 14 CHARACTERS.*)

  CONST
    CYCLEMAX = 30;
    COLMAX = 14; (*MAXIMAL WIDTH OF A COLUMN IN CHARACTERS*)

  TYPE
    AVCYTYPE = ARRAY[-4..4] OF REAL;

  VAR
    COL,COLX,DIG: INTEGER;
    W,W0,WOLD: NODEP;
    ALREADY: BOOLEAN;
    XMAX,XMIN: REAL;
    YEAR,K,I,J,MYEAR,CYEAR,TRYEARLADE: INTEGER;
    PERBEG,PEREND: INTEGER;
    CULMYEAR: ARRAY[1..CYCLEMAX] OF INTEGER;
    MINYEAR:  ARRAY[1..CYCLEMAX] OF INTEGER;
    MINX,MAXX,OMINX: REAL;
    CULMINATIONS: 0..CYCLEMAX;
    MINIMA: 0..CYCLEMAX;
    CYCLES: 0..CYCLEMAX;
    PERIODLENGTH: INTEGER;
    CYCLELENGTH: REAL;
    PERIODICITY: BOOLEAN;
    A: RECORD
         ON,O,OX: AVCYTYPE; (*FOR OBSERVATIONS*)
         X,Y: AVCYTYPE;  (*X FOR LADE, Y FOR ANY OTHER VARIABLE*)
         N: ARRAY[-4..4] OF INTEGER;
       END(*RECORD*);
    SQ,SQOUT: REAL;

  FUNCTION CLIMAX(Y1,Y2: INTEGER): INTEGER;
    (*SEARCHES THE NEXT CULMINATION YEAR BETWEEN THE YEARS Y1 AND Y2*)

    VAR
      I,J,K: INTEGER;
      PREV: REAL;
      PROGR: BOOLEAN;

    BEGIN(*CLIMAX*)
      IF Y1<Y2 THEN
      BEGIN
        K:= Y1;
        REPEAT
```

```
        IF K>Y1 THEN I:=K-1 ELSE I:=Y1;
        PROGR:=X[K]>X[I];
        PREV:=X[K];
        K:=K+1;
      UNTIL (PROGR AND (X[K]<PREV)) OR (K=Y2);
      IF PROGR AND (X[K]<PREV)
      THEN CLIMAX:=K-1
      ELSE CLIMAX:=Y2;
    END
    ELSE
    IF Y1=Y2 THEN CLIMAX:=Y1
    ELSE CLIMAX:=0;
  END(*CLIMAX*);

FUNCTION NADIR(Y1,Y2: INTEGER): INTEGER;
  (*SEARCHES THE NEXT MINIMUM YEAR BETWEEN THE YEARS Y1 AND Y2*)

  VAR
    I,J,K: INTEGER;
    PREV: REAL;
    REGR: BOOLEAN;

  BEGIN(*NADIR*)
    IF Y1<Y2 THEN
    BEGIN
      K:= Y1;
      REPEAT
        IF K>Y1 THEN I:=K-1 ELSE I:=Y1;
        REGR:=X[K]<X[I];
        PREV:=X[K];
        K:=K+1;
      UNTIL (REGR AND (X[K]>PREV)) OR (K=Y2);
      IF REGR AND (X[K]>PREV)
      THEN NADIR:=K-1
      ELSE NADIR:=Y2;
    END
    ELSE
    IF Y1=Y2 THEN NADIR:=Y1
    ELSE NADIR:=0;
  END(*NADIR*);

PROCEDURE INTERNODE(WHICH: VARTYPE; CYEAR,MYEAR: INTEGER;
                    VAR Z: ARRAY [INTEGER] OF REAL;
                    VAR X: AVCYTYPE);
  (*GETS THE DATA IN THE INTERNODE BETWEEN CYEAR AND MYEAR*)

  VAR
    K: INTEGER;
    PROGR,REGR: BOOLEAN;

  BEGIN(*INTERNODE*)
    PROGR:=MYEAR<CYEAR;
    REGR:=MYEAR>CYEAR;
    IF REGR THEN
    BEGIN
      K:=CYEAR+1;
      WHILE (K<=MYEAR)AND(K-CYEAR<=4) DO
      BEGIN
        X[K-CYEAR]:=X[K-CYEAR]+Z[K];
        IF WHICH=LADE THEN
        A.N[K-CYEAR]:=A.N[K-CYEAR]+1;
        K:=K+1;
      END;
      IF (K-CYEAR<4) AND PERIODICITY AND (CYCLES=1)
      THEN
      BEGIN
        K:=PERBEG+1;
        WHILE (K<=PEREND)AND(K-PERBEG<=4) DO
        BEGIN
          X[K-PERBEG]:=X[K-PERBEG]+Z[K];
```

```
          IF WHICH=LADE THEN
          A.N[K-PERBEG]:=A.N[K-PERBEG]+1;
          K:=K+1;
        END;
      END;
    END(*IF REGR*);
    IF PROGR THEN
    BEGIN
      K:=CYEAR-1;
      WHILE (K>=MYEAR)AND(K-CYEAR>=-4) DO
      BEGIN
        X[K-CYEAR]:=X[K-CYEAR]+Z[K];
        IF WHICH=LADE THEN
        A.N[K-CYEAR]:=A.N[K-CYEAR]+1;
        K:=K-1;
      END;
      IF (K-CYEAR>-4) AND PERIODICITY AND (CYCLES=1)
      THEN
      BEGIN
        K:=PEREND-1;
        WHILE (K>=PERBEG)AND(K-PEREND>=-4) DO
        BEGIN
          X[K-PEREND]:=X[K-PEREND]+Z[K];
          IF WHICH=LADE THEN
          A.N[K-PEREND]:=A.N[K-PEREND]+1;
          K:=K-1;
        END;
      END;
    END(*IF PROGR*);
  END(*INTERNODE*);

BEGIN(*PRAVERAGECYCLE*)

  (*ASSIGN OBSERVATIONS*)
  WITH A DO
  BEGIN
    ON[-4]:=  0.03; ON[-3]:= 0.14; ON[-2]:= 0.76; ON[-1]:=  3.45;
     O[-4]:=  0.23;  O[-3]:= 1.22;  O[-2]:= 8.83;  O[-1]:= 69.12;
    OX[-4]:=  0.71; OX[-3]:= 3.91; OX[-2]:=29.52; OX[-1]:=173.93;
    ON[0] :=  7.55;
     O[0] :=204.693;
    OX[0] :=363.38;
    ON[1 ]:=  1.38; ON[2 ]:= 0.01; ON[3 ]:=0.01; ON[4 ]:= 0.002;
     O[1 ]:= 63.65;  O[2 ]:= 9.19;  O[3 ]:=0.73;  O[4 ]:= 0.230;
    OX[1 ]:=184.27; OX[2 ]:=71.35; OX[3 ]:=4.26; OX[4 ]:= 1.090;

    FOR I:=-4 TO 4 DO BEGIN X[I]:=0; Y[I]:=0; N[I]:=0; END;
  END;
  OMINX:=0.099;

  (*HEAD OF AVERAGE CYCLE OUTPUT*)
  PAGE(O);
  WRITE  (O,' ','AVERAGE CYCLE FOR SITE NR. ');
  WRITELN(O,SNR:2,':');
  WRITE  (O,' ','----------------------------');
  WRITELN(O,'--','-');
  WRITELN(O);
  WRITELN(O,' ',SIMSPEC.MAINTITLE);
  WRITELN(O,' ',SIMSPEC.SUBTITLE);
  WITH SIMSPEC DO
  WRITELN(O,' ','(SIMULATION FROM',DATE,'AT',TIME,' S=',SIMID,')');
  WRITELN(O,' ',SIMSPEC.MODEL);
  WRITELN(O); WRITELN(O);

  (*READ SIMULATED LARVAL DENSITIES FROM FILE RESULTS*)
  RESET(RESULTS);
  WHILE NOT EOF(RESULTS) DO
  BEGIN
    REPEAT READ(RESULTS,RR);
    UNTIL (RR.SITENR=SNR) OR EOF(RESULTS);
```

```
  IF RR.SITENR=SNR THEN
  X[TRUNC(RR.Z[T])]:=RR.Z[LADE];
END;

(*CHECK TRANSIENT BEHAVIOUR, DETERMINATION OF PERIOD TO
ANALYSE*)
YEAR:=LOW(X);
REPEAT
  YEAR:=YEAR+1;
  K:=LOW(X)-1;
  REPEAT
    K:=K+1
  UNTIL X[K]=X[YEAR];
UNTIL (YEAR=HIGH(X)) OR ((X[K]=X[YEAR])AND(K<>YEAR));
PERBEG:=K;
PEREND:=YEAR;
PERIODICITY:= (PERBEG<>PEREND);
IF NOT PERIODICITY THEN
BEGIN
  PERBEG:=LOW(X);
  PEREND:=HIGH(X);
  TRYEARLADE:=PEREND;
END ELSE TRYEARLADE:=PERBEG-1;
PERIODLENGTH:=PEREND-PERBEG;

(*DETERMINATION OF CULMINATIONS, NADIRS, NUMBER OF CYCLES
AND CYCLELENGTH*)
CULMYEAR[1]:=PERBEG;
I:=2;
CULMYEAR[I]:=CLIMAX(PERBEG,PEREND);
REPEAT
  IF (CULMYEAR[I]<PEREND) AND (I<CYCLEMAX) THEN
  BEGIN
    CULMYEAR[I+1]:=CLIMAX(CULMYEAR[I]+1,PEREND);
    I:=I+1;
  END;
UNTIL CULMYEAR[I]=PEREND;
MINYEAR[1]:=PERBEG;
J:=2;
MINYEAR[J]:=NADIR(PERBEG,PEREND);
REPEAT
  IF (MINYEAR[J]<PEREND) AND (J<CYCLEMAX) THEN
  BEGIN
    MINYEAR[J+1]:=NADIR(MINYEAR[J]+1,PEREND);
    J:=J+1;
  END;
UNTIL MINYEAR[J]=PEREND;
CULMINATIONS:=I-2;
MINIMA:=J-2;
IF I=J THEN CYCLES:=CULMINATIONS
ELSE
IF I>J THEN CYCLES:=CULMINATIONS ELSE CYCLES:=MINIMA;
IF CYCLES>1 THEN
BEGIN
  CYCLELENGTH:=0;
  FOR I:=2 TO CULMINATIONS DO
  CYCLELENGTH:=CYCLELENGTH+CULMYEAR[I+1]-CULMYEAR[I]+1;
  FOR I:=2 TO MINIMA DO
  CYCLELENGTH:=CYCLELENGTH+MINYEAR[I+1]-MINYEAR[I]+1;
  CYCLELENGTH:=CYCLELENGTH/(CULMINATIONS+MINIMA-2);
END
ELSE
IF CYCLES=1 THEN
CYCLELENGTH:=PERIODLENGTH
ELSE
CYCLELENGTH:=0;
IF PERIODICITY AND (CYCLES=1) THEN
BEGIN
  IF CULMINATIONS=0 THEN
  BEGIN
```

```
    CULMINATIONS:=2;
    CULMYEAR[2]:=PERBEG;
    CULMYEAR[3]:=PEREND;
    CULMYEAR[4]:=PEREND;
  END;
  IF MINIMA=0 THEN
  BEGIN
    MINIMA:=2;
    MINYEAR[2]:=PERBEG;
    MINYEAR[3]:=PEREND;
    MINYEAR[4]:=PEREND;
  END;
END;

(*COMPUTE EXTREMES*)
XMAX:=X[PERBEG];
XMIN:=XMAX;
FOR YEAR:=PERBEG TO PEREND DO
BEGIN
  IF X[YEAR]>XMAX THEN XMAX:=X[YEAR];
  IF X[YEAR]<XMIN THEN XMIN:=X[YEAR];
END;

(*OUTPUT OF SO FAR COMPUTED RESULTS*)
WRITE  (O,' ','PERIOD ANALYSED LASTS FROM ',PERBEG:4,' UNTIL ');
WRITELN(O,PEREND:4);
WRITELN(O,' ','LENGTH OF THIS PERIOD IN YEARS:',PERIODLENGTH:3);
WRITE  (O,' ','TRANSIENT BEHAVIOUR OF SIMULATED LARVAL DENSITY ');
WRITELN(O,'UNTIL YEAR ',TRYEARLADE:4);
WRITELN(O,' ','PERIODICITY',PERIODICITY);
WRITELN(O);
COL:=10; DIG:=3;
WRITE  (O,' ','NUMBER OF SIMULATED CULMINATIONS WITHIN PERIOD:');
WRITELN(O,CULMINATIONS:3);
IF CULMINATIONS>0 THEN
BEGIN
  WRITE  (O,' ','SIMULATED CULMINATION YEARS:        ');
  FOR I:=2 TO CULMINATIONS+1 DO
  WRITE  (O,CULMYEAR[I]:COL);
  WRITELN(O);
  MAXX:=0;
  WRITE  (O,' ','SIMULATED MAXIMAL LARVAL DENSITIES: ');
  FOR I:=2 TO CULMINATIONS+1 DO
  BEGIN
    WRITE(O,X[CULMYEAR[I]]:COL:DIG);
    MAXX:=MAXX+X[CULMYEAR[I]];
  END;
  WRITELN(O);
  MAXX:=MAXX/CULMINATIONS;
  WRITE  (O,' ','MEAN OF MAXIMA:  ',MAXX:COL:DIG);
  WRITELN(O,'  (SIMULATED),',A.O[0]:COL:DIG,'  (OBSERVED)');
END ELSE MAXX:=XMAX;
WRITELN(O);

WRITE  (O,' ','NUMBER OF SIMULATED NADIRS WITHIN PERIOD:');
WRITELN(O,MINIMA:3);
IF MINIMA>0 THEN
BEGIN
  WRITE  (O,' ','SIMULATED NADIR YEARS:              ');
  FOR I:=2 TO MINIMA+1 DO
  WRITE  (O,MINYEAR[I]:COL);
  WRITELN(O);
  MINX:=0;
  WRITE  (O,' ','SIMULATED MINIMAL LARVAL DENSITIES: ');
  FOR I:=2 TO MINIMA+1 DO
  BEGIN
    WRITE(O,X[MINYEAR[I]]:COL:DIG);
    MINX:=MINX+X[MINYEAR[I]];
  END;
  WRITELN(O);
```

```
  MINX:=MINX/MINIMA;
  WRITE  (O,' ','MEAN OF MINIMA:  ',MINX:COL:DIG);
  WRITELN(O,'  (SIMULATED),',OMINX:COL:DIG,'  (OBSERVED)');
END ELSE MINX:=XMIN;
WRITELN(O);

WRITE  (O,' ','NUMBER OF SIMULATED CYCLES WITHIN PERIOD:');
WRITELN(O,CYCLES:3);
WRITE  (O,' ','CYCLELENGTH:',CYCLELENGTH:6:3,'  (SIMULATED),');
WRITELN(O,9.2:6:3,'  (OBSERVED)');
WRITE  (O,' ','MINIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD:');
WRITELN(O,XMIN:COL:DIG);
WRITE  (O,' ','MAXIMAL SIMULATED LARVAL DENSITY WITHIN PERIOD:');
WRITELN(O,XMAX:COL:DIG);
WRITE  (O,' ','MAXIMAL SIMULATED AMPLITUDE IN LARVAL DENSITY ');
WRITELN(O,'WITHIN PERIOD:',XMAX-XMIN:COL:DIG);
WRITE  (O,' ','DIFFERENCE BETWEEN MEANS OF ');
WRITE  (O,'EXTREMES:',MAXX-MINX:COL:DIG,'  (SIMULATED),');
WRITELN(O,A.O[0]-OMINX:COL:DIG,'  (OBSERVED)');

(*INITIALIZE VALUES FOR AVERAGE CYCLE*)
FOR K:=-4 TO 4 DO WITH A DO
BEGIN
  X[K]:=0;
  Y[K]:=0;
END;

IF CYCLES>=1 THEN
BEGIN
  (*PRINT LEGEND OF VARIABLES*)
  WRITELN(O);
  WRITELN(O);
  W:=AAVCY^.C.BRANCH;
  COLX:=0;
  SENTINEL^.V.KEY:=UNDEF;
  WHILE (W^.V.BRANCH<>SENTINEL) DO
  BEGIN
    W:=W^.V.BRANCH;
    ALREADY:=FALSE;
    FIND(AAVCY^.C.BRANCH,W,W^.V.KEY,W0,WOLD);
    WHILE (WOLD<>W) AND NOT ALREADY DO
    BEGIN
      ALREADY:=WOLD^.V.ABBR=W^.V.ABBR;
      FIND(WOLD,W,W^.V.KEY,W0,WOLD);
    END;
    IF NOT ALREADY THEN WRITELN(O,' ',W^.V.ABBR,': ',W^.V.DES);
    IF W^.V.LE>COLMAX THEN
    BEGIN
      WRITE  (O,' ','   ^ THIS ROW CAN''T BE PRINTED ');
      WRITE  (O,'SUCCESSFULLY. MORE THAN ',COLMAX:1,' COLUMNS');
      WRITELN(O,' REQUIRED***');
    END
    ELSE
    IF W^.V.LE>COLX THEN COLX:=W^.V.LE;
    IF (NOT ALREADY) AND (W^.V.KEY=AVCYT) THEN
    WRITELN(O,' ','N',': ',
    'SAMPLE SIZE USED TO COMPUTE AVERAGE CYCLE VALUES');
  END;

  (*OUTPUT OF AVERAGE CYCLE TABLE*)
  WRITELN(O);
  WRITELN(O);
  WRITELN(O,' ','AVERAGE CYCLE:');
  WRITELN(O);
  WRITE  (O,' ','--');
  COL:=COLX;
  FOR K:=-4 TO 4 DO FOR I:=1 TO COL DO WRITE(O,'-');
  WRITELN(O);

  (*FIRST COMPUTE AVERAGE CYCLE FOR LARVAL DENSITIES*)
```

```
FOR I:=1 TO CULMINATIONS DO
BEGIN
  A.X[0]:=A.X[0]+X[CULMYEAR[I+1]];
  A.N[0]:=A.N[0]+1;
  INTERNODE(LADE,CULMYEAR[I+1],MINYEAR[I+1],X,A.X);
  IF CULMYEAR[I+1]<=MINYEAR[I+1]
  THEN INTERNODE(LADE,CULMYEAR[I+1],MINYEAR[I],X,A.X)
  ELSE INTERNODE(LADE,CULMYEAR[I+1],MINYEAR[I+2],X,A.X);
END;
(*COMPUTE AVERAGE CYCLE FOR OTHER VARIABLES*)
W:=AAVCY^.C.BRANCH;
WHILE W^.V.BRANCH<>SENTINEL DO
BEGIN
  W:=W^.V.BRANCH;
  IF W^.V.KEY<>LADE THEN
  BEGIN
    (*READ DATA FROM FILE RESULTS*)
    RESET(RESULTS);
    WHILE NOT EOF(RESULTS) DO
    BEGIN
      REPEAT READ(RESULTS,RR);
      UNTIL (RR.SITENR=SNR) OR EOF(RESULTS);
      IF RR.SITENR=SNR THEN
      Y[TRUNC(RR.Z[T])]:=RR.Z[W^.V.KEY];
    END;
  FOR K:=-4 TO 4 DO A.Y[K]:=0;
  END;

  FOR I:=1 TO CULMINATIONS DO
  BEGIN
    IF W^.V.KEY<>LADE THEN
    BEGIN
      A.Y[0]:=A.Y[0]+Y[CULMYEAR[I+1]];
      INTERNODE(W^.V.KEY,CULMYEAR[I+1],MINYEAR[I+1],Y,A.Y);
      IF CULMYEAR[I+1]<=MINYEAR[I+1]
      THEN INTERNODE(W^.V.KEY,CULMYEAR[I+1],MINYEAR[I],Y,A.Y)
      ELSE INTERNODE(W^.V.KEY,CULMYEAR[I+1],MINYEAR[I+2],Y,A.Y);
    END;
  END;

  WRITE(O,' ',W^.V.ABBR,' ');
  IF W^.V.KEY=AVCYT THEN
  BEGIN
    FOR K:=-4 TO 4 DO WRITE(O,K:COL); WRITELN(O);
    WRITE  (O,' ','N',' ');
    FOR K:=-4 TO 4 DO WRITE(O,A.N[K]:COL); WRITELN(O);
  END
  ELSE
  IF W^.V.KEY=LADE THEN
  BEGIN
    SQ:=0;
    SQOUT:=0;
    FOR K:=-4 TO 4 DO
    BEGIN
      IF A.N[K]>0 THEN A.X[K]:=A.X[K]/A.N[K];
      SQ:=SQ+SQR(A.X[K]-A.O[K]);
      IF A.X[K]>A.OX[K] THEN SQOUT:=SQOUT+SQR(A.X[K]-A.OX[K]);
      IF A.X[K]<A.ON[K] THEN SQOUT:=SQOUT+SQR(A.ON[K]-A.X[K]);
      WRITE(O,A.X[K]:COL:W^.V.PREC);
    END;
  END
  ELSE
  IF W^.V.KEY=OLADE THEN
  BEGIN
    FOR K:=-4 TO 4 DO WRITE(O,A.O[K]:COL:W^.V.PREC);
  END
  ELSE
  IF W^.V.KEY=OLADEN THEN
  BEGIN
    FOR K:=-4 TO 4 DO WRITE(O,A.ON[K]:COL:W^.V.PREC);
```

```
      END
      ELSE
      IF W^.V.KEY=OLADEX THEN
      BEGIN
        FOR K:=-4 TO 4 DO WRITE(O,A.OX[K]:COL:W^.V.PREC);
      END
      ELSE
      BEGIN
        FOR K:=-4 TO 4 DO
        BEGIN
          IF A.N[K]>0 THEN A.Y[K]:=A.Y[K]/A.N[K];
          IF W^.V.PREC>0
          THEN WRITE(O,A.Y[K]:COL:W^.V.PREC)
          ELSE WRITE(O,TRUNC(A.Y[K]):COL);
        END;
      END;

      WRITELN(O);
    END(*WHILE W^.V.BRANCH<>SENTINEL*);

    WRITE  (O,' ','--');
    FOR K:=-4 TO 4 DO FOR I:=1 TO COL DO WRITE(O,'-');
    WRITELN(O);
    WRITELN(O);
    WRITELN(O);
    WRITE  (O,' ','SQ OF DIFFERENCES BETWEEN OBSERVED MEAN AND ');
    WRITELN(O,'SIMULATED DENSITY: ',SQ:13:3);
    WRITE  (O,' ','SQ OF PART OF SIMULATED DENSITY OUTSIDE OF ');
    WRITELN(O,'OBSERVED RANGE: ',SQOUT:13:3);
    WRITELN(O); WRITELN(O);
  END(*IF CYCLES>=1*)
  ELSE
  BEGIN
    WRITELN(O); WRITELN(O);
    WRITE  (O,' ','*** SINCE NO CYCLE FOUND, ');
    WRITELN(O,'ANY FURTHER OUTPUT SUPRESSED ***');
  END;

END(*PRAVERAGECYCLE*);
```

4.9 Procedure PRAAVERAGECYCLES

```
PROCEDURE PRAAVERAGECYCLES(VAR RESULTS: SAVEFILET; VAR RR: SAVETYPE;
                           SNR: INTEGER; VAR SIMSPEC: STYPE;
                           X,Y: ARRAY [INTEGER] OF REAL;
                           ROOTAVCY,SENTINEL: NODEP;
                           VAR O: TEXT);
  (*BY CALLING THE PROCEDURE PRAVERAGECYCLE SEVERAL TIMES FOR
  SITE SNR, ALL THE AVERAGE CYCLES DEFINED SINCE THE LAST CALL OF
  TREESTART(ROOTAVCY) ARE WRITTEN ONTO FILE O *)

  VAR AAVCY: NODEP;

  BEGIN(*PRAAVERAGECYCLES*)
    AAVCY:=ROOTAVCY;
    WHILE AAVCY^.C.NEXT<>SENTINEL DO
    BEGIN
      AAVCY:=AAVCY^.C.NEXT;
      PRAVERAGECYCLE(RESULTS,RR,SNR,SIMSPEC,X,Y,AAVCY,SENTINEL,O);
    END;
  END(*PRAAVERAGECYCLES*);
```