

# LOLASURVIV (ver 1.0)

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User's Manual

by

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## Introduction

Program LOLASURVIV (Unknown-sex SURVIVAL analysis) computes "open-model" parameter estimates of survival and capture probabilities. Actually, LOLASURVIV is a specially modified version of SURVIV written by Dr. G. White. With this program and its companion program, CNVLOLA, users are able to get parameter estimates for these complex models from capture-history data without having to specify the cell probabilities.

LOLASURVIV is intended to be used in a situation where the sex of a captured animal is not known at each capture occasion.

Output from LOLASURVIV includes survival probability estimates, capture probability estimates, goodness-of-fit tests, and likelihood-ratio tests.

The data-conversion program CNVLOLA, will allow the user to generate models with time-constant or time-specific survival and capture probabilities, as well as sex-proportion estimates. If necessary, users may examine these models to generate statements for their own models.

The experimental situation to which this program applies is one in which animals are initially marked with a unique tag, and released. This process is repeated for each of the sampling periods. Information used to assign the animal to the proper stratum (eg. sex, weight, age, capture location, ...) is recorded for each capture of each animal. Using these data, the capture-history of each animal is generated consisting of codes indicating the status of the animal at each capture period. For example, if a male animal was captured in time 1 and the biologist was able to determine the sex at that time, but was not able to determine sex on the next capture at time 4, the capture history would be: "M00U".

Input to LOLASURVIV consists of statements which define the capture data and statements defining the selected model structure. The format of the input file is similar to the input for program MARK. Statements which set parameters equal to other parameters define model structure.

## Step 1: Getting the data in the proper format

Capture-history data must be in a format acceptable to the program. The format is as follows:

```
COHORT=R1 /* 1st captured in time 1*/;  
AAAA N1;  
BBBB N2;  
CCCC N3;  
: :  
: :
```

```

COHORT=R2 /* 1st captured in time 2*/;
0AAA N4;
0BBB N5;
0CCC N6;
: :
: :

```

Where R1,R2,... are the number of animals which were initially captured in time 1,2,...

N1,N2,... are the number of animals which exhibited the corresponding capture-history (AAAA,BBBB,...).

This format is very similar to the widely-used program MARK except that the number of animals initially captured at each occasion is needed and the data must be sorted by time of initial capture. If the data are in MARK format, the conversion program, CNVLOLA, will sort and insert the necessary COHORT statements. The program will also generate model statements to build various models.

## Step 2: Running the program.

CNVLOLA is a Windows program which reads the MARK-style input file and generates an output file to be used with LOLASURVIV. The program is fairly simple to run and is similar to many Windows programs. Once the program is launched, Select "Open" from the "File" menu, then select the MARK-style input file. Next, use the "Model" menu to select the parameters which are to be constant or time-specific. Finally, select "Save" from the "File" menu to save the file. The output file will be named "CNVLOLA.OUT" and can be run with LOLASURVIV from the "Run" menu or in a DOS window.

To run LOLASURVIV, open a DOS (or CMD) window, change to the directory/folder where the LOLASURVIV program resides, and type:

```
lolasurviv i=cnvlola.out l=myoutput.txt
```

If there are many input records and/or many time-periods, the program may take a long time to run. Progress messages are printed while the program runs to let the user know it is actually doing something.

When the program finishes, the output file (myoutput.txt in this example) can be viewed with the Windows Notepad, or any editor. After viewing the output, more models may be desired, which can be run by modifying a copy of the first input file, CNVLOLA.OUT, and running the modified file with LOLASURVIV.