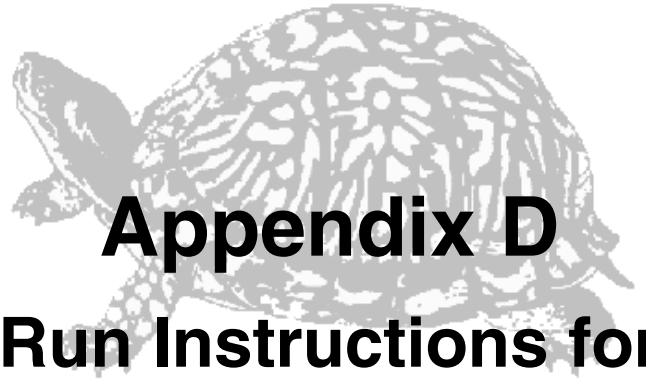

Appendix D

Run Instructions for ECOSEARCH

Installation

Download a copy of ECOSEARCH from:
http://www.mbr-pwrc.usgs.gov/software.html

If you have any problems downloading or running ECOSEARCH, please contact Jim Hines, Computer Specialist, at: USGS-Patuxent Wildlife Research Center, 11510 American Holly Drive, Laurel, MD 20708-4017, phone 301-497-5661, or through the website.

Data Preparation

Prepare the landscape data as separate grids in ArcInfo/ GRID. Then aggregate the data into a single ASCII file using the GRID command:

OutFile.dat = SAMPLE (*mask grid*, *vegetative structure grid*, *wetland status grid*, *soil type grid*, *topography grid*)

Mask grid determines which cells are to be sampled. Data for vegetative structure, wetland status, soil type, and topography are all described in Chapter 2. This creates a single ASCII file containing the cell values of all the input grids. Exported data will be in ASCII and will include the mask value, x-coordinate, y-coordinate, vegetation code, wetland code, soil code, and topography code, all separated with commas. The x and y coordinates will be in the units of the input grids.

Running ECOSEARCH

1) Click the START button, select PROGRAMS, then select the ECOSRCH icon. An ECOSEARCH window will appear welcoming the user to Version 1.0.

2) Select the desired species by clicking the box next to the species name. Make sure that only the boxes you desire have a check in them. The SORT button sorts the species list in alphabetical order on the four-letter species code. Appendix A contains the common name, four-letter code and approximate distribution for > 300 species of inland, terrestrial wildlife.

3) Select a data file. The SA.All data file (South Amherst, Massachusetts [used in Chapter 3]) is included as an example. Use the BROWSE button to view multiple landscape grids and *explicitly set* the input data file by clicking on it.

4) Set the output dimensions. The maximum area for an analysis is 500 by 500 cells (50-m cells would represent 72,500 ha. The maximum size of the SA.All file is 120 x 120.

5) Select output options. Choices are:

- .DAT gives the species occurrence map that can be printed with a line printer;
- .EDG provides a map of all defined edge habitats;
- .HAB represents the species breeding habitat (labeled 1), feeding habitat (2), or both breeding and feeding habitat (3);
- .MAP gives the species-occurrence map that can be imported into Arc/Info; and
- .BDM is a cumulative species-occurrence or species-richness map.

Use the BROWSE button to locate your desired output directory, *explicitly set* the output file by typing in a name that includes the 4-letter species code with the proper extension. If you make multiple runs for the same species, the program may stop or overwrite the earlier file. Take the time to rename files and delete old files.

6) Provide a label for the output (20 character maximum). This is optional because the label can be added later in ArcView. The printed label contains the 4-letter species code, species common name, selected label, date, and time. The date and time helps keep track of multiple analyses.

7) Select PLOT or QUIT. All subprograms are written in FORTRAN. Various run-time messages are printed from DOS to inform the user of the progress of the analysis. With faster machines, these messages appear as a blur. The program was initially designed to run on a 486 personal computer (25 mHz).

8) Once the analysis is completed, the user has two choices: select the FILE menu and choose PRINT, CLOSE, or QUIT for each species map; or bring the map into Grid or ArcView for further analysis or printing. This is done by minimizing ECOSRCH, starting ArcInfo, and using the Arc command:

asciigrid *<output.MAP> <outgrid>*

The output.Map file was generated by ECOSEARCH while outgrid is that same file in GRID format. Now minimize ArcInfo. Start ArcView. Please note ArcView must have the 'Spatial Analyst' extension installed and turned on. Add outgrid as a grid theme where 0 = absence, 1 = presence, and no data is black for single species maps and 0 = no species, 1 to *x* = number of species out of the *x* species checked for a biodiversity map, and no data being black for these biodiversity maps.

9) Users restart ECOSEARCH for a new analysis by clicking the old species off, clicking a new one on, and running it again.

10) If the program crashes, click-on the START button, select Shut-down, select End Task, and Reboot.