

From Redwood NP

In the summer of 1983, Redwood NP's Technical Services and Resource Management Divisions bought their first computer hardware for use in the Arcata, Calif. office. This system is used for accessing the Humboldt State University CYBER 170-720(2) mainframe, also located in Arcata. The University is authorized to provide computer processing services to agencies of the U.S. Government on a full cost recovery basis. This is a particularly attractive arrangement for the park because of the power and speed of this computer and the large amount of software. Both are serviced and maintained by the University, enabling us to concentrate on data input, analysis, and program development.

For our first system, a stand alone microcomputer was unnecessary, due to our ability to access the University CYBER. Our hardware consists of a Digital Equipment Corporation VT-100 terminal and LA-100 printer and a 1200 baud Racal-Vadic modem for both the park office and the University to establish a communication line. The terminal has the advanced video option, useful for scanning output from "canned" statistical packages. A Digital Engineering GENII Retro-Graphics board in the terminal gives us the ability to display graphics on the terminal screen.

We are acquiring a Tektronix graphic system capable of locally running the SAGIS resource management mapping software (reviewed in Winter 82 and Winter 83 PARK SCIENCE). Our needs for such a

system are based on (1) our current inability to extrapolate results obtained in statistical analyses to generate schematic portrayals of numeric trends and to generate secondary data for input in statistical computations; and (2) our need for a large capacity graphics system that can reduce to usable form map base data from the first five years of our watershed rehap program.

Our "canned" software gives us flexible, powerful tools that provide analysis of simple univariate or complex multivariate data by researchers with no previous experience of considerable expertise. In addition, a number of programming languages are available for use when a task cannot be handled by conventional canned software.

Two larger FORTRAN programs, SYNTAB, and RD2BED, written by the author, may have applications in other parks. SYNTAB is an interactive program that will produce a synthesis table for ranking or classifying data that have been recorded in the traditional ZM style, into discrete plant communities, called associations. RD2BED is an interactive menu driven program that will produce the contract specs that enable heavy equipment operators to bid on such jobs as putting a road to bed as part of our program to prevent significant sediment sources from entering the mainstem of Redwood Creek. The Geologists/Hydrologists COTR determines which of five techniques to use for returning the hillslope to its pre-road profile, enters the data as the program prompts, and puts out the contract specifications.

Currently the Divisions of Resources Management and Technical Services are jointly funding a half-time (temporary) computing consultant position, the duties of which include: (1) liaison with the Humboldt State University Computer Center; (2) training staff in the use of specific application programs and utilities; (3) writing programs for applications not available in canned software; (4) standardizing and archiving existing data; and (5) trouble shooting hardware and software problems. Benefiting projects provide for their own data entry and analysis utilizing existing personnel.

Mark Schroeder, our wildlife biologist, has collected a large data base that focuses on the ecology of the black bear in Redwood NP. The largest set consists of relocation data for the monitoring of habitat use by bears throughout the mosaic of cutover lands in the expanded portion of the park. Each relocation of a radio-instrumented animal is coded into UTM grid coordinates. This generates hundreds of relocation points. When analyzing these data for associations with habitat type, topography/landforms, climate, and possibly other instrumented bears, computers greatly simplify the work. Available software also can prepare tables, graphs, and maps. The information is easily stored and can be retrieved for reuse in similar wildlife studies. This data base also includes information on food habits, hematology and blood chemistry, somatic measurements, and condition evaluation. Schroeder expects the new technology to aid in interpretation of the various parameters and to enhance his contribution to wildlife research management.

**William S. Lennox
Redwood National Park
Crescent City, CA 95531**