

From Glacier NP

Since August 1982, Glacier National Park (GNP) has maintained an interagency agreement with Flathead National Forest to develop a digital geographic information system (GIS). Impetus behind the agreement has stemmed from regional interagency cooperation and expertise within both agencies for developing automated information systems. Benefits include the ability to address shared resource problems that are regional in scope, a standardized technical jargon and methodology, increased interagency communication, and opportunities for reduced cost. The GIS will be relevant to about 8,000 mi² (20,000 km²) within northwestern Montana. It will not only inventory and monitor resources, but also analyze data. User options will exist to merge two or more data planes to formulate higher, more complex levels of information.

The project goal is to implement an operational "in-house" system that addresses a broad spectrum of resource and research issues. Such a generalized approach permits maximum flexibility and requires many independent data bases. Data bases completed for the entire project area include two Landsat land cover classifications (dating from 1979 and

1981), elevation, slope, aspect, political boundaries, and subdrainage boundaries. For about 35 percent of the project area, data bases are complete for: roads, trails, logging activities, streams, lakes, islands, and an ecological land type classification developed by the Forest Service. Additional data will be added in the near future including precipitation, lightning ignition, forest age classes, fire history, forest disease sites, wildlife winter range, land ownership, and other land use types or facilities.

Washington State University is assisting the project, providing computer hardware and software support. Digital files are created in raster/image format for each data base — a process that usually requires prerequisite steps such as map drafting, digitizing, and vector file generation. The files are then registered to a UTM (Universal Transverse Mercator) coordinate base. Most functions are accomplished within the scope of image processing using batch VICAR/IBIS and interactive I²S system 575 software. A Numonics series 2400 digitizing tablet is used to generate the vector map files.

Once operational, the data base will reside with Flathead National Forest and/or GNP. A need will continue, however, for mainframe computer assistance when old data files are updated and when new files are created. The capability will exist to display and analyze subsets of the data on image processing hardware planned for in-house purchase. Thus, the system should be readily available for local resource managers and field personnel.

Data base compatibility, development by field personnel, and proximity to field operations are important factors determining an information system's success.

Carl H. Key
Glacier NP
West Glacier, MT 59936