

SAGIS¹ Application Worked Out At DSC

Editor's Note: In the Winter 1982 issue of Park Science Harvey Fleet, Chief of the Science Section at the Denver Service Center, discussed activities in digital cartography (computer mapping). The following article describes a recent application.

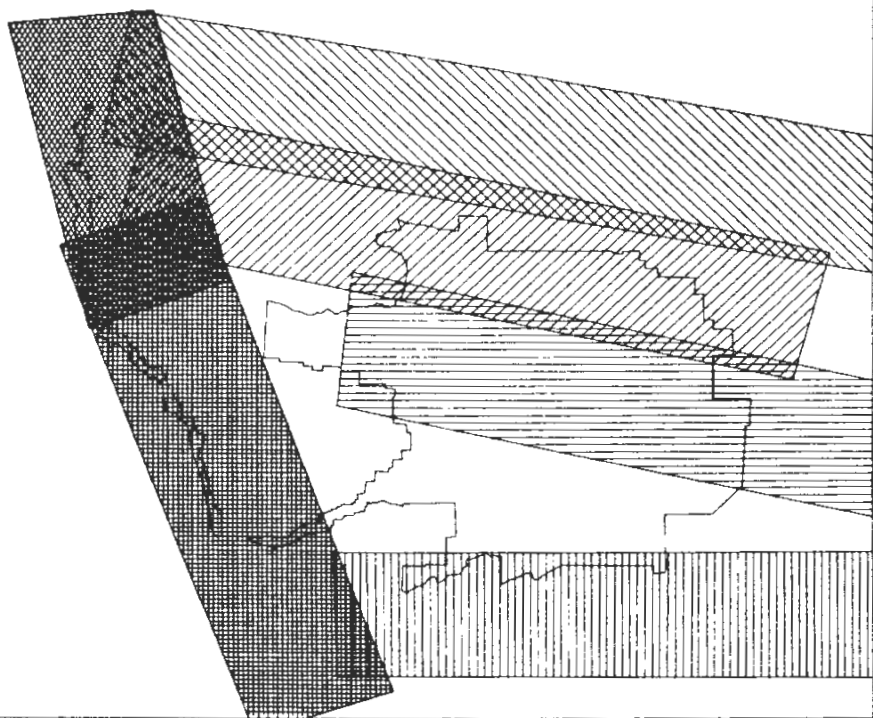
The Division of Natural Science, WASO, recently asked the Remote Sensing Section, Denver Service Center, to discover the availability of aerial photography and Landsat imagery for potential use in a Parks-As-Islands study

of 10 NPS Biosphere Reserves.² An appropriate search request to the National Cartographic Information Center (NCIC) produced a rather awesome stack of computer listings containing thousands of accessions and their associated

¹Systems Applications Group Information System

²Everglades, Yellowstone, Great Smokies, Glacier, Olympic, Big Thicket, Big Bend, Sequoia/Kings Canyon, Organ Pipe, Rocky Mountain.

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Olympic NP is shown here as a superimposition of medium scale (between 1:19,500 and 1:60,000) color infrared aerial photography. Each shaded area represents an EROS Data Center "accession" containing a group or series of photographs shot as a single project. The different accessions are distinguished by shading patterns.

latitude/longitude coordinates. Plotting each accession on a map of its respective Biosphere Reserve is the only way to learn the exact extent of its coverage — information essential for the Parks-As-Islands study. But plotting thousands of accessions by hand is a very labor-intensive process and produces stacks of single-purpose hardcopy maps. We thought that SAGIS (Systems Applications Group Information System), adopted and adapted from the U.S. Fish and Wildlife Service in Fort Collins, might be able to help us with this task.

As always, the most formidable problem was entry. How were we going to get the data into SAGIS? After an initial attempt at hand-coding and hand-entering the data from the computer keyboard (using the printouts previously received), we decided to try to get a tape listing from the EROS Data Center (EDC) in Sioux Falls, SD. Our second attempt was successful and yielded a computer tape containing all the data we wanted...and then some, because our search criteria resulted in many duplicate accessions.

We read the data from the tape into the computer (the Bureau of Reclamation's CDC CYBER) and reformatted them using a program written by Ron Buss, a programmer in the Rocky Mountain Regional Office. Using a CYBER system edit utility, we then separated the master file into 10 separate files, one for each Biosphere Reserve. Using another CYBER utility, we then sorted the accessions within each file so that the duplicate accessions occurred one right after the other in the file. This allowed us to weed out duplicate accessions simply by checking successive numbers.

We then ran a BASIC program I wrote to create "headers" (identifying, coded labels) for each accession and to extract and convert the respective four latitude/longitude coordinates to UMT (Universal Transverse Mercator) coordinates, which SAGIS uses.

We reformatted this output, using our own software, sorted the reformatted output, and assigned sequential header numbers using another package of our own construction. At this point we used UNWAMS (specifically, this means un-Wetlands Area Mapping System, and it is a typical cryptic file name, any of which must be seven characters or fewer in number), a SAGIS utility, to convert the data to a SAGIS mapfile.

Working with the SAGIS mapfile, we use CALPLOT (a computer plotting program) to search and display the accessions for each Biosphere Reserve. For example, one graphic might show the location of all medium-scale (between 1:19,500 and 1:60,000) black-and-white aerial

photography available for Olympic NP for 1953. The Figure here shows how you can use a variety of shading patterns to distinguish between accessions. Colors also are possible using the plotter rather than the black-and-white hardcopy unit.

Using SAGIS in this way allows us to store, locate, and display a large volume of map-based data that otherwise would be difficult and time consuming to handle. Now that the software is written, the process could readily be used for any geographic location. As needs arise, we anticipate applying the technique to other NPS area.