A Newsletter about Natural Resource Digital Data Bases Relating to National Park Service Areas

Issued by:
Science and Remote Sensing Sections
Denver Service Center
National Park Service
U.S. Department of the Interior
Editor's Note:

As preoccupied as I am with information and information management, I not long ago realized that I had lost sight of the forest for the trees. I had no overall summary, no ready reference, for the increasing number of digital data bases that my colleague, Maury Nyquist, and I are building here in Denver. Ever more frequently, in describing our work to visitors, I could not remember the details of one data base or another. What I needed was a handy central reference that pulled it all together. So long as I was at it, why not issue the thing Servicewide, so that interested folks "out there" could also learn what was going on? Occasionally, I figured, the information might come in handy. Hence, this our premiere issue.

We intend to cover here, for your benefit as well as ours, news about the digital data bases we are constructing. We will be concerned in these pages with digital data bases only, because of their enormous utility (compared to noncomputerized data bases, such as those on paper or film) and the predominant (though not by any means exclusive) emphasis that we place upon them. I have presented the matter in two sections: completed data bases (i.e., ready to be used), and data bases under construction (not ready to be used). If you know of other "Natural Resource Digital Data Bases Relating to National Park Service Areas" (as our subtitle indicates), please let me know (FTS 234-4527) and maybe we can include news of them in a future issue.

Harvey Fleet

About our logo: Our logo attempts to portray computers and computer technology (represented by the CRT) in the service of management (represented by the ranger hat). We do indeed hope that management can "hang its collective hat" --at least partly--on these capabilities in dealing with resource problems and issues. (Many thanks to Nancy Thorwardson, our geographic information specialist, for creating, drawing, and--yes--digitizing the logo.)
COMPLETED DATA BASES
Data Base. .................. Olympic National Park and surrounding region

Type. ...................... Cellular

Source ..................... 1976 Landsat data and DMA topographic data

Scale of source map(s) or base map(s). . NA

Minimum mapping unit or resolution. . 50m X 50m cells
(= approx. 0.6 acre in size)

Organization .............. Regionwide (one-million acres), by theme, one theme to a file.

Size ........................ Fifty-million pixels.

Software/hardware system .... ELAS/Varian 75 minicomputer system

Themes:

- Unprocessed Landsat data
- DMA data
- Spectral classes
- Nine-class vegetation/land cover
- Twenty-one-class vegetation/land cover
- Elevation
- Slope
- Aspect
- Geographic zones
- NFDRS fuel models
- Potential fire hazard model
- Park boundary
<table>
<thead>
<tr>
<th><strong>Data Base</strong></th>
<th>Imagery Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Line</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>NCIC</td>
</tr>
<tr>
<td><strong>Scale of source map(s) or base map(s)</strong></td>
<td>NA</td>
</tr>
<tr>
<td><strong>Minimum mapping unit or resolution</strong></td>
<td>NA</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>By park, one mapfile for each park: Yellowstone, Great Smokies, Glacier, Olympic, Big Thicket, Big Bend, Sequoia/Kings Canyon, Organ Pipe, Rocky Mountain</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>Approximately 4000 accessions</td>
</tr>
<tr>
<td><strong>Software/hardware system</strong></td>
<td>SAGIS/CDC CYBER</td>
</tr>
</tbody>
</table>

**Themes:**
- Imagery accessions at EROS Data Center
Data Base: Saratoga
Type: Line
Source: 1981 color-infrared aerial photography
Scale of source map(s) or base map(s): 1:12000
Minimum mapping unit or resolution: Approximately 1 acre
Organization: By park unit:
  Saratoga, Schuylerville

Size: 600 lines and polygons
Software/hardware system: SAGIS/CDC CYBER

Themes:
  Vegetation
Data Base: Upper Delaware

Type: Line

Sources: For landuse/land cover: 1979 1:24000-scale black-and-white aerial photography; other themes: from USGS, state, and county maps

Scale of source map(s) or base map(s): Various

Minimum mapping unit or resolution: 5 acres

Organization: Study-corridor-wide; some themes to township boundaries

Size: 3187 lines and polygons

Software/hardware system: SAGIS/CDC CYBER

Themes:
- Land use
- Land cover
- Transportation
- Utilities
- Geology
- Soils
- Zoning (by type)
- Zoning (by density)
- Floodprone areas
- Prime agricultural lands
- Ownership
- Recreation zones
- Political boundaries
- Quad sheet boundaries
- Mineral resources
- Significant features
Data Base: Shenandoah National Park and surrounding region

Type: Cellular

Source: Landsat data (winter and summer 1976) and DMA data

Scale of source map(s) or base map(s): NA

Minimum mapping unit or resolution: 50m x 50m cells (approx. 0.6 acre in size)

Organization: Regionwide, by theme, one theme to a file, Region includes a one-million-acre area surrounding the park.

Size: Twenty-five million pixels

Software/hardware system: ELAS/Varian 75 minicomputer system

Themes:

- Unprocessed Landsat data (2 seasons)
- DMA data
- Unlumped spectral classes
- Twenty-two-class vegetation/land cover
- Elevation
- Slope
- Aspect
- Boundaries, roads, trails
- NFDRS fuel models
Data Base. ................. Cape Cod
Type. ..................... Line
Source ..................... Aerial photography (for 1979 data); existing map (for 1962 data)
Scale of source map(s) or base map(s) .. 1:24000; 1:25000
Minimum mapping unit or resolution ... 5 acres
Organization ................ By quad sheet: Provincetown, North Truro, Wellfleet, Orleans, Chatham. Quad sheets cannot be merged one to another.
Size ....................... 3775 lines and polygons
Software/hardware system ......... SAGIS/CYBER
Themes:
   Vegetation
   Roads (except Orleans '79)
   Township boundaries
   Park boundaries
   Coastlines (1962 only)
   Developed areas
Data Base. Death Valley National Monument and surrounding region

Type. Cellular

Source. Landsat (spring 1973)

Scale of source map(s) or base map(s). NA

Minimum mapping unit or resolution. 50m X 50m cells (approx. 0.6 acre)

Organization. Regionwide, by theme, one theme to a file. Region includes a three-million-acre area surrounding the park.

Size. Thirty-million pixels

Software/hardware system. ELAS/Varian 75 minicomputer system

Themes:

- Unprocessed Landsat data
- Unlumped spectral classes
- Geology/vegetation/landcover
Data Base. .................. Big Thicket National Preserve and surrounding region

Type. .................... Cellular

Source ..................... Landsat (winter 1976 and spring 1977)

Scale of source map(s) or base map(s). . NA

Minimum mapping unit or resolution. . . . 50m x 50m cells (approx. 0.6 acre in size)

Organization ................ Regionwide, by theme, one theme to a file. Region includes a 1.1-million-acre area surrounding the park.

Size ....................... 11-million pixels

Software/hardware system .......... ELAS/Varian 75 minicomputer system

Themes:

  Unprocessed Landsat data (2 seasons of coverage)

  Eighteen-class vegetation/land cover

  NFDRS fuel models
Data Base. .................. NPFLORA

Type. ....................... Text

Source. ..................... Soil Conservation Service National List of Scientific Plant Names and Park Floras

Scale of source map(s) or base map(s). . NA

Minimum mapping unit or resolution. . NA

Organization ................ Hierarchical by key attributes: phylum, class, subclass, order, family, genus, species, infraspecies, habit, national distribution, park, and literature source.

Size ....................... Data on 22,000 vascular plant taxa in 19 parks

Software/hardware system ......... System 2000/CDC CYBER

Themes: Vascular plants of selected units of the National Park System
DATA BASES UNDER CONSTRUCTION
Data Base: Yellowstone

Type: Line

Source: Habitat type: park map; geology: USGS-published map; cover type: 1:40000-scale aerial photographs

Scale of source map(s) or base map(s): Habitat type and geology: 1:125000; cover type: 1:62500

Minimum mapping unit or resolution: Approximately 50 acres

Organization: By 15' quad sheets, in pairs, fourteen pairs in all

Size: Approximately 20,000 lines and polygons, one-million X-Y points

Software/hardware system: SAGIS/CDC CYBER

Themes:
- Cover type
- Geology
- Habitat type
Data Base. ......................... Great Smokies

Type. ............................. Line

Source. ........................... Maps from the GMP and park; USGS quad sheets

Scale of source map(s) or base map(s). 1:125000 and 1:24000

Minimum mapping unit or resolution. Approximately 1 acre

Organization. ...................... Park-wide and by quad sheet

Size ............................... 4461 lines and polygons

Software/hardware system ......... SAGIS/CDC CYBER

Themes:

Streams
Boundaries
Park facilities
Roads
Trails
Historic sites and structures
Watershed boundaries
Monitoring stations
Kudzu sites
Data Base: Great Smokies National Park and surrounding region

Type: Cellular

Source: Aircraft MSS (winter & spring 1982); DMA

Scale of source map(s) or base map(s): NA

Minimum mapping unit or resolution: 13m X 13m (approx. 0.04 acres)

Organization: Slope, aspect, and elevation: regionwide (750,000 acres), one theme to a file. Other themes on separate files covering approximately half the region.

Size: Approximately 500-million pixels

Software/hardware system: ELAS/Varian 75 minicomputer system

Themes:

Unprocessed aircraft scanner data
Unprocessed DMA data
Spectral classes
Vegetation/landcover
Elevation
Slope
Aspect
Fuel models
Soils (potential addition)
Data Base: Yosemite National Park

Type: Line

Source: 1930 cover-type map

Scale of source map(s) or base map(s): 1:125,000

Minimum mapping unit or resolution: Unknown, but probably about fifty acres

Organization: By quadrants (singly or in pairs) of fifteen-minute quad sheets (twenty-four sections in all)

Size: Not yet known, but probably about seven-thousand polygons

Software/hardware system: SAGIS/CYBER

Themes: 1930 cover type

Note: These data, originally mapped on a base map prepared early in the century, do not register to modern, properly georeferenced maps. In effect, they "float free" in space and cannot, in their present form, be compared with contemporary data. Using appropriate software, we hope later to "rubber sheet" them to their correct georeferenced positions.
Data Base. Yosemite National Park and surrounding region

Type. Cellular

Source. Aircraft MSS, DMA, and some DEM's

Scale of source map(s) or base map(s). NA

Minimum mapping unit or resolution. 13m X 13m (approx. 0.04 acres)

Organization. Slope, aspect, and elevation: regionwide (one million acres), one theme to a file. Other themes on separate files covering approximately one quarter of the region.

Size. Approximately 930-million pixels

Software/hardware system. ELAS/Varian 75 minicomputer system

Themes:
Unprocessed aircraft scanner data
Spectral classes
Unprocessed DMA data
Vegetation/landcover
Elevation
Slope
Aspect
Fire fuel models
Fire behavior models
Data Base: North Cascades National Park and surrounding region

Type: Cellular

Source: Landsat MSS and DMA

Scale of source map(s) or base map(s): NA

Minimum mapping unit or resolution: 50m X 50m (approx. 0.6 acre)

Organization: One theme to a file, each theme covering the entire three-quarter-million-acre region.

Size: Approximately 14-million pixels

Software/hardware system: ELAS/Varian 75 minicomputer system

Themes:
- Unprocessed Landsat MSS
- Unprocessed DMA
- Spectral classes
- Vegetation/landcover
- Elevation
- Slope
- Aspect
- Fuel models
- Boundaries, roads, trails
<table>
<thead>
<tr>
<th><strong>Data Base</strong></th>
<th>Big Bend National Park and surrounding region</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Cellular</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>Aircraft MSS data (10 channels)</td>
</tr>
<tr>
<td><strong>Scale of source map(s) or base map(s)</strong></td>
<td>NA</td>
</tr>
<tr>
<td><strong>Minimum mapping unit or resolution</strong></td>
<td>15m X 15m cells (approx. 0.055 acres in size)</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>By thirds of the region, which includes a one-million-acre area surrounding the park.</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>345-million pixels</td>
</tr>
<tr>
<td><strong>Software/hardware system</strong></td>
<td>ELAS/Varian 75 minicomputer system</td>
</tr>
</tbody>
</table>

**Themes:**
- Unprocessed aircraft scanner data
- Spectral classes
- DMA data
- Twenty-six class vegetation/landcover