

Imagine This Guy – Using His GIS Data!

Dr. Jan (Jan Van Wagtendonk, Yosemite NP) called the other day to get some information from his GIS data base. Imagine this guy – actually wanting to use his data! Anyway, his query was kind of interesting, and since it resulted in some information never before seen by the eyes of man (or woman), I thought I'd report it and the process we used to get it.

It seems the park is involved in some kind of a discussion with the state of California over the stocking of high country lakes. I'm not up on the details, but the issue, for the moment, has come down to the number of lakes within the park in various size classes, for example, the number of lakes less than and the number of lakes greater than one acre and one hectare, respectively.

Well, it so happens the Yosemite GIS data base contains all the park's lakes. Wasn't that lucky! They

had been digitized (actually, scanned) a couple of years earlier, before anybody knew anything about this particular application. All we had to do was ask the GIS to count and sort the lakes by size. In the interests of candor and general enlightenment, I think it instructive to report how, using SAGIS, one of our GIS software systems, the process actually worked.

1. We first ran polygon overlay to separate the lakes inside the park from those outside the park. The park data file is quad sheet based and so all quads (except Hetch Hetchy) contain lakes both inside and outside the park boundary. The park only wanted counts on lakes *inside* its boundary.

2. Next we ran an area-computation program to compute areas and sent the results (which also included perimeters) to a file (rather than to the terminal's screen or an attached printer).

3. We then sorted the areas-file in ascending order.

4. We sent the sorted file to our PC for dressing up and permanent storage, printed it (Fig. 1), and sent the printed list to the park for classifying and counting the occurrences however they wished.

5. We plotted the lakes and visually inspected for ones that straddle quad sheet boundaries (there are six) to eliminate double counting of single lakes.

Experienced GIS users will probably scoff at this application. After all, it's monothematic, doesn't use sophisticated modeling and predictive techniques, and, except for the simple (-minded) polygon overlay, doesn't even combine themes and look at various combinations of intersections. That's okay. Here are some simple and useful results that would be very difficult and time-consuming to produce any other way

**Fig. 1. Lake Acreages and Perimeters,
Lake Eleanor Quad.**

Acreage	Perimeter (mi.)
.19	.063
.32	.089
.36	.091
.38	.091
.48	.107
.51	.119
.59	.115
.71	.130
.77	.135
.89	.153
.94	.151
.95	.150
.98	.143
1.01	.159
1.07	.179
1.21	.163
1.56	.234
2.10	.250
2.11	.216
3.48	.302
4.30	.419
4.54	.440
4.65	.499
7.07	.459
14.18	.594
21.85	.773
67.68	1.231

(if it could be done at all). Nobody had ever seen this information before, and I was intrigued. Maybe you are too.

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