



Vegetation Mapping at Timpanogos Cave National Monument

Wondering where in the park to look for a certain bird? Trying to plan a prescribed fire? Need help identifying potential habitat for a threatened species? You need a vegetation map!

Vegetation maps visually display the distribution of vegetation communities across a landscape. Knowing what's growing where, and what kinds of habitat occur in a park, helps park managers to successfully conduct a variety of activities, including park planning, resource monitoring, interpretive programs, prescribed fire, and climate change response. Vegetation maps also provide a baseline for ecological studies.

In cooperation with the U.S. Geological Survey and many other partners, the National Park Service (NPS) is engaged in an effort to classify, describe, and map vegetation communities in more than 270 NPS units across the U.S. Each map represents hundreds to thousands of hours of effort by dozens of contributors: ecologists, field technicians, GIS technicians, data managers, writers, editors, and park staff. Each finished project comprises not just a map and report, but also an entire library of vegetation data and descriptive information.

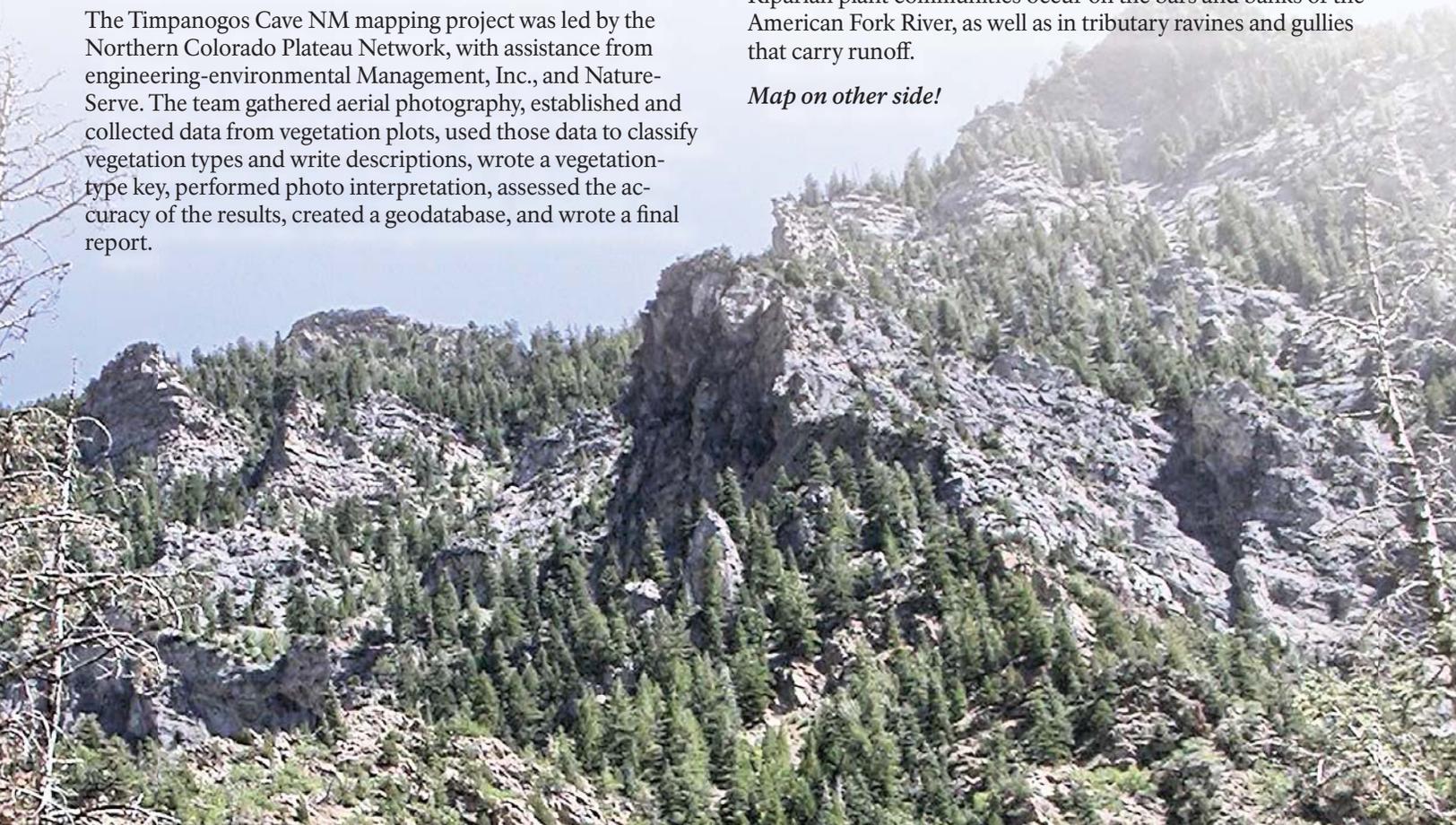
The Timpanogos Cave NM mapping project was led by the Northern Colorado Plateau Network, with assistance from engineering-environmental Management, Inc., and Nature-Serve. The team gathered aerial photography, established and collected data from vegetation plots, used those data to classify vegetation types and write descriptions, wrote a vegetation-type key, performed photo interpretation, assessed the accuracy of the results, created a geodatabase, and wrote a final report.

To create a map, vegetation is first classified into *associations* and/or *alliances*, which are repeating assemblages of plants in similar habitats. Those assemblages are then organized into *map classes*, which identify meaningful units to represent existing vegetation and land uses (see map, next page). *Ecological systems* are used to organize the map classes. They represent groups of communities that occur in similar environments and are shaped by similar ecological processes.

For the Timpanogos Cave NM project, the NCPN crew developed 16 natural or semi-natural vegetation map classes, represented by 84 map polygons. The mapped vegetation was classified into 12 community types, including five forest, two woodland, and five shrubland types. The vegetation map class with the greatest cover was White fir - Douglas-fir / Gambel Oak - Bigtooth Maple Forest, covering 29% of the mapping area.

The mapping results revealed that forest and woodland communities dominate the monument, occupying slopes stable enough to allow a degree of soil formation and the growth of long-lived woody plants. Shrublands dominate the monument's unstable, south-facing slopes, as well as avalanche chutes on the north-facing slopes. Herbaceous communities are rare and restricted to rocky substrates with very thin soils, on sites including the canyon rim and steep bluffs and cliffs. Riparian plant communities occur on the bars and banks of the American Fork River, as well as in tributary ravines and gullies that carry runoff.

Map on other side!



Timpanogos Cave National Monument Vegetation Map

U.S. Department of the Interior
National Park Service



0 50 100 200
Meters

Vegetation Map Classes

- | | |
|--|---|
| 1 Aspen Forest | 28 Gambel Oak - Snowberry Shrubland |
| 2 Douglas-fir - Limber Pine Woodland | 10 Meadow |
| 3 Douglas-fir / Mountain Maple Woodland | 51 Grassy Rock Goldenrod - Bluebunch Wheatgrass |
| 7 White fir - Douglas-fir / Gambel Oak - Bigtooth Maple Forest | 30 Rock Outcrop Sparse Vegetation (Littleleaf Mtn Mahogany Phase) |
| 8 White fir - Douglas-fir / Rocky Mountain Juniper / Gambel Oak Woodland | 31 Rock Outcrop Sparse Vegetation (Rocky Mountain Juniper Phase) |
| 9 White fir / Gambel Oak Woodland | 100 Cliff Band |
| 6 White fir - Douglas-fir / Bunchgrass Forest | 101 Talus |
| 23 Box Elder - Bigtooth Maple Ravine Woodland | 200 Park Facilities |
| 4 Narrowleaf Cottonwood - Conifer Riparian Woodland | 201 Road |
| 25 Gambel Oak - Bigtooth Maple Shrubland | 202 Parking Areas |
| 22 Bigtooth Maple - Chokecherry Ravine Shrubland | Timpanogos Cave NM Boundary |

