



Vegetation Mapping at Natural Bridges 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 Natural Bridges NM mapping project was led by the Northern Colorado Plateau Network, with assistance from several partners, including engineering-environmental Management, Inc., NatureServe, the U.S. Department of Agriculture, and U.S. Bureau of Reclamation. 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

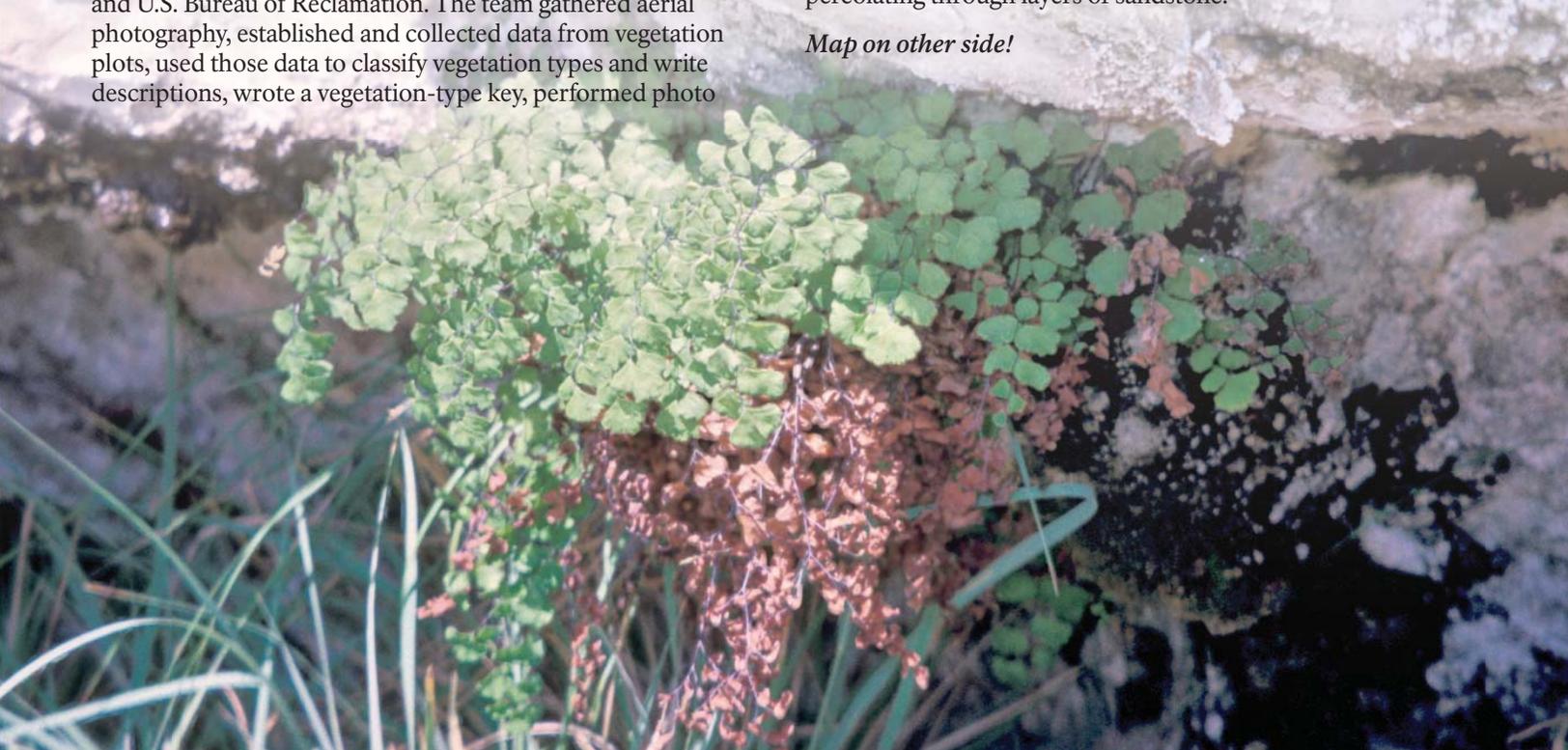
interpretation, assessed the accuracy of the results, created a geodatabase, and wrote a final report.

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. *Ecological systems* are used to organize the map classes (see map, next page). They represent groups of communities that occur in similar environments and are shaped by similar ecological processes.

For the Natural Bridges NM project, the NCPN crew developed 16 natural or semi-natural vegetation map classes, represented by 1,232 map polygons. The mapped vegetation was classified into 35 community types, including 3 forest, 12 woodland, 9 shrubland, 8 riparian/wetland, and 3 grassland associations.

The mapping results revealed that shrubland associations are common but patchy in the monument, tending to occur where deeper soils are available. Forested vegetation types are uncommon, occurring in small stands on mesic sites. Woodlands consist of deciduous woodlands growing on mesic sites in canyons and evergreen woodlands occupying xeric habitats on mesas, canyon rims, slopes, and alluvial fans. Graminoid associations are uncommon, with most occurring as small patches on point bars or bedrock ledges. Hanging gardens are present on canyon walls and alcoves throughout the monument, where lenses of shale create an impermeable contact zone for groundwater percolating through layers of sandstone.

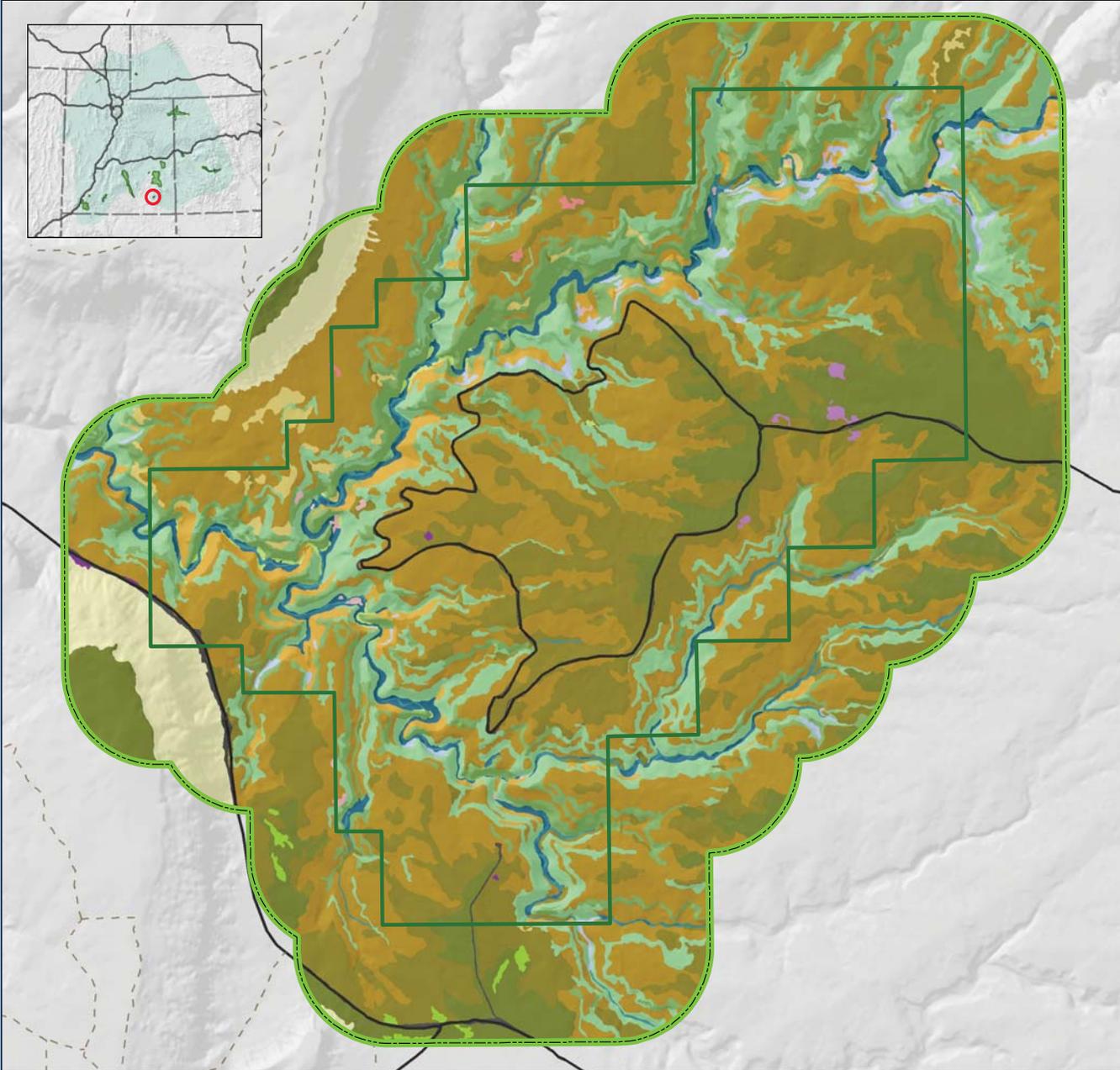
Map on other side!



Natural Bridges National Monument

Vegetation Map

U.S. Department of the Interior
National Park Service



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Vegetation Map Classes

- | | | | |
|---|--|---|--|
|  | 2 Canyon Bottom Vegetation |  | 18 Pinyon-Juniper / Native Grass Woodland |
|  | 3 Stream Channel - Sand Bar Sparse Vegetation |  | 19 Pinyon-Juniper / Buffaloberry - Serviceberry Woodland |
|  | 12 Douglas-fir Woodland |  | 4 Gambel Oak Tall Shrubland |
|  | 14 Ponderosa Pine - Pinyon-Juniper Woodland |  | 20 Wyoming Sagebrush Shrubland |
|  | 9 Pinyon-Juniper / Littleleaf Mountain Mohogany Woodland |  | 21 Needle-and-Thread - Ricegrass Bunchgrass Grassland |
|  | 9r Slickrock Sparse Vegetation |  | 22 Galleta - Blue Grama Grassland |
|  | 15 Pinyon-Juniper / Sagebrush Woodland |  | 220 Park Facility |
|  | 16 Pinyon-Juniper / Sparse Understory Woodland |  | 320 Quarry / Borrow Pit |
|  | 17 Pinyon-Juniper / Mixed Shrubs Woodland |  | 226 Road |
|  | 17r Pinyon-Juniper / Mixed Shrubs Woodland |  | Natural Bridges National Monument Boundary |