Zion National Park

Vegetation Mapping Project

U.S. Department of Interior
National Park Service
U.S. Geological Survey
U.S. Bureau of Reclamation

Assisted by: NatureServe

Project Facts: 36,476 polygons 76 map classes
Zion National Park = 148,000 acres Environs = 100,000 acres Total Project = 248,000 acres

Kolob Canyons

Springdale

Rockville

HWY 9

Zion Canyon

Parunuweap Canyon

See Inset 1 for Full Detail of Vegetation Map in this Area

Nevada | Utah | Zion National Park | California | Arizona

The spatial database used to create this map was prepared under contract for the U.S. Geological Survey. Work was performed under direction of the USGS Biological Resources Division's Center for Biological Informatics (CBI) with assistance from the National Park Service, NatureServe (formally The Nature Conservancy) and the staff at Zion National Park.

Vegetation and land cover (land-use) were identified through stereoscopic examination of 1:12,000 scale true color aerial photography taken in June 22-23, 1999. Field sampling and ecological analysis supported this effort. Vegetation boundaries were identified on the photographs by means of photographic signature and collateral information. Classification was in accordance with the Federal Geographic Data Committee's National Vegetation Classification Standard.

The vegetation boundaries were transferred to an ArcInfo (copyright) GIS database using digital ortho-photos made exclusively for this project. Base imagery for the ortho-photos was 1:40,000 scale true color aerial photography flown on June 22, 1999 and subsequently enlarged to 1:12,000 scale. Standards for the ortho-photos matched the USGS Digital Orthophoto Quadrangle specifications. The mapped information reflects conditions that existed during the time of the photography.

The U.S. Bureau of Reclamation under contract with USGS and NPS generated this data. Although the data has been processed successfully on computers at BOR and USGS, no warranty, expressed or implied, is made regarding the accuracy or utility of the data on any other system or for general or scientific purposes. Any person using the information presented here should fully understand the data collection and compilation procedures, as described in the metadata, before beginning analysis. The burden for determining fitness for use lies entirely with the user.

Overall accuracy of the mapped thematic data is 82% with a Kappa Index of 80%..

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Index to Zion National Park 1999-2003 Vegetation Map

N W E S

1 inch equals 5,000 feet

Zion Overview Map 1:60,000 scale
Projection UTM, Zone 12, Datum NAD83, Units Meters

1 0.5 0 1 2 3 4 5 Kilometers

1 0.5 0 1 2 3 4 5 Miles

Overview Legend (Ecological Systems)

Roads
Trails and Routes
Project Boundary
Zion National Park Boundary

Mogollon Vegetation

Mogollon Chaparral
Talus Mixed Shrubland
Greenleaf Manzanita - Gambel Oak Shrubland
Greenleaf Manzanita Shrubland Complex
Mixed Mountain Shrubland

North American Vegetation

North American Warm Desert Lower Montane Riparian Woodland and Shrubland
Emory Seepwillow Shrubland
Tamarisk spp. Temporarily Flooded Shrubland
Arrow-weed Seasonally Flooded Shrubland
Fremont Cottonwood Woodland Complex
Fremont Cottonwood - Velvet Ash Woodland
Russian Olive Semi-natural Woodland

North American Warm Desert Riparian Mesquite Bosque
Honey Mesquite Shrub Stands

North American Arid West Emergent Marsh
Cattail, Bulrush, Emergent Wetland Complex

Colorado Plateau Vegetation

Colorado Plateau Mixed Bedrock Canyon and Tableland
Littleleaf Mountain-mahogany Slickrock Sparse Vegetation
Mountain-mahogany Rock Pavement Sparse Vegetation
Ponderosa Pine Slickrock Sparse Vegetation

Colorado Plateau Blackbrush-Mormon-tea Shrubland
Blackbrush Shrubland Complex
Nevada Joint-fir Basalt Shurbland
Sand Sagebrush Colorado Plateau Shurbland

Colorado Plateau Mixed Low Sagebrush Shrubland
Black Sagebrush Dwarf-shrubland Complex

Colorado Plateau Pinyon-Juniper Woodland
Juniper / Big Sagebrush Complex
Pinyon - Juniper / Gambel Oak Complex

Mixed Vegetation

Colorado Plateau Pinyon - Juniper Woodland (or) Great Basin Pinyon - Juniper Woodland
Pinyon - Juniper Woodland Complex

Semi-Natural Vegetation

Semi-natural Vegetation
Perennial Disturbed Grassland Complex
Cheatgrass Annual Disturbed Grassland

Inter-Mountain Vegetation

Inter-Mountain Basins Shale Badland
Painted Desert Sparsely Vegetated Alliance

Inter-Mountain Basins Semi-Desert Grassland
Dry Meadow Mixed Herbaceous Vegetation Mosaic
James' Galleta Herbaceous Vegetation
Sand Dropseed Great Basin Herbaceous Vegetation

Inter-Mountain Basins Semi-Desert Shrub-Steppe
Rabbitbrush Shrubland Complex
Snakeweed - (Prickly-pear species) / James' Galleta Dwarf-shrubland

Inter-Mountain Basins Big Sagebrush Shrubland
Big Sagebrush Shrubland Complex

Inter-mountain Basins Aspen- Mixed Conifer Forest and Woodland
White Fir Forest Alliance

Rocky Mountain Vegetation

Rocky Mountain Alpine-Montane Wet Meadow
Sedge - Rush Wet Meadow Herbaceous Vegetation Mosaic

Rocky Mountain Gambel Oak-Mixed Montane Shrubland
Gambel Oak Shrubland Alliance
Gambel Oak Woodland Alliance
Mountain Snowberry / Kentucky Bluegrass Semi-natural Shrubland
Utah Serviceberry Shrubland

Rocky Mountain Lower Montane Riparian Woodland and Shrubland
Sandbar Willow Shrubland Alliance
Strapleaf Willow / Beaked Sedge Shrubland
Single-leaf Ash Woodland
Boxelder Woodland Alliance

Rocky Mountain Bigtooth Maple Ravine Woodland
Bigtooth Maple / Gambel Oak Forest

Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland
Douglas-fir Forest Alliance

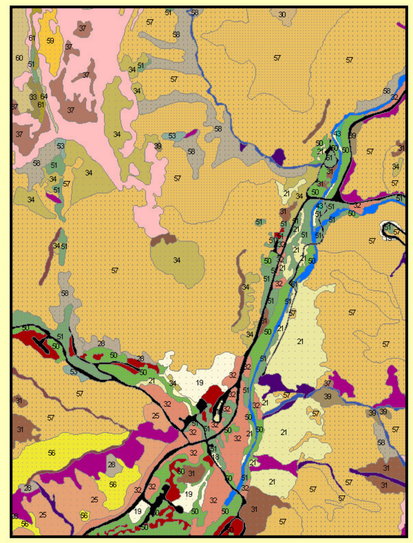
Rocky Mountain Aspen Forest and Woodland
Quaking Aspen Forest Complex

Rocky Mountain Ponderosa Pine Woodland
Ponderosa Pine / Greenleaf Manzanita Woodland
Ponderosa Pine / Gambel Oak Woodland Complex
Ponderosa Pine / Mixed Herbaceous Woodland Complex
Ponderosa Pine Forest (Closed Canopy)

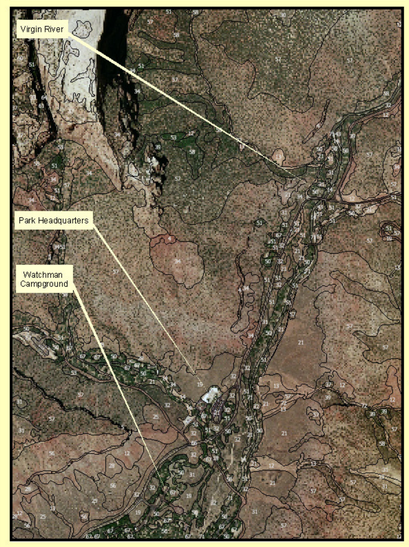
Land Use and Barren Lands

Barren
Land-Use
Agricultural
Streams
Impoundments

Inset 1: Example of 1:12,000 Vegetation Polygons with Densities (Full Detail)



Inset 2: Example of 1:12,000 True-color 1999 Ortho-photo with Polygon Outlines (Full Detail)



Inset 1: Legend (Map Units)

Polygon Density
0-5%
25-50%
5-25%
50-75%
75-100%
N/A

Unvegetated Surface
1, Carmel Formation (Limestone)
2, Temple Cap (Sandstone)
3, Navajo Formation (Sandstone)
4, Kayenta Formation (Sandstone)
5, Moenave Formation (Sandstone)
6, Chinle Formation - Petrified Forest (Shale)
7, Chinle Formation - Shinarump (Shale)
8, Moenkopi Formation (Conglomerate)
9, Kaibab Formation (Limestone)
10, Basalt Talus
11, Unvegetated Volcanic Cinders and Cinder Cones
12, Slides (Fans and Slumps)
13, Gullies and Eroded Lands
14, Sand Bars and Beaches
15, Volcanic and Basalt Cliffs
16, Sinkpi
17, Tinajas (natural water holes /tanks)

Upland Grassland
18, Perennial Disturbed Grassland Complex
19, Cheatgrass Annual Disturbed Grassland
20, James' Galleta Herbaceous Vegetation
21, Sand Dropseed Great Basin Herbaceous Vegetation
22, Dry Meadow Mixed Herbaceous Vegetation Mosaic

Mesic Grassland
23, Sedge-Rush Wet Meadow Herbaceous Vegetation Mosaic

Wetland Herbaceous Vegetation
24, Cattail, Bulrush, Emergent Wetland Complex

Xeric Shrubland
25, Blackbrush Shrubland Complex
26, Painted Desert Sparsely Vegetated Alliance
27, Nevada Joint-fir Basalt Shrubland
28, Snakeweed - (Prickly-pear species) /James' Galleta Dwarf-shrubland
29, Honey Mesquite Shrub Stands

Upland Shrubland
30, Sand Sagebrush Colorado Plateau Shrubland
31, Big Sagebrush Shrubland Complex
32, Rabbitbrush Shrubland Complex
33, Littleleaf Mountain-mahogany Slickrock Sparse Vegetation
34, Talus Mixed Shrubland
35, Mountain Snowberry / Kentucky Bluegrass Semi-natural Shrubland
36, Black Sagebrush Dwarf-shrubland Complex
37, Greenleaf Manzanita Shrubland Complex
38, Greenleaf Manzanita - Gambel Oak - (Utah Serviceberry) Shrubland
39, Gambel Oak Shrubland Alliance
40, Mixed Montane Shrubland
41, Utah Serviceberry Shrubland
42, Mountain-mahogany Rock Pavement Sparse Vegetation

Riparian Shrubland
43, Emory Seepwillow Shrubland
44, Sandbar Willow Shrubland Alliance
45, Tamarisk spp. Temporarily Flooded Shrubland
46, Arrowweed Seasonally Flooded Shrubland
47, Strapleaf Willow / Beaked Sedge Shrubland

Floodplain Woodland
48, Single-leaf Ash Woodland
49, Boxelder Woodland Alliance
50, Fremont Cottonwood Woodland Complex
51, Fremont Cottonwood - Velvet Ash Woodland
52, Russian Olive Semi-natural Woodland

Deciduous Forest
53, Gambel Oak Woodland
54, Bigtooth Maple / Gambel Oak Forest
55, Quaking Aspen Forest Complex

Coniferous Woodland
56, Juniper / Big Sagebrush Woodland Complex
57, Pinyon - Juniper Woodland Complex
58, Pinyon - Juniper / Gamble Oak Woodland Complex
59, Ponderosa Pine Slickrock Sparse Vegetation
60, Ponderosa Pine / Greenleaf Manzanita Woodland
61, Ponderosa Pine / Gambel Oak Woodland Complex
62, Ponderosa Pine / Mixed Herbaceous Woodland Complex

Coniferous Forest
63, Ponderosa Pine Forest (Closed Canopy)
64, Douglas-fir Forest Alliance
65, White Fir Forest Alliance

Land-use
66, Transportation, Communications, and Utilities
67, Mixed Urban or Built-up Land
68, Croplands and Pastures
69, Orchards, Groves, Vineyards, Nurseries, and Ornamental Horticultural Areas
70, Other Agricultural Lands
71, Perennial Streams
72, Intermittent Streams
73, Reservoirs
74, Canals
75, Stock Ponds
76, Strip Mines, Quarries, and Gravel Pits

Inset Maps 1:12,000 scale
1 inch equals 1,000 feet

0.3 0.15 0 0.3 Kilometers

0.3 0.15 0 0.3 Miles

Zion National Park's extreme range in elevation coupled with its topographic complexity creates a myriad of niches supporting a wide range of ecosystems. Plant species can be grossly separated by life zones based on geography. The resulting pattern ranges from low elevation inter-mountain shrubland communities with Mojave Desert elements to Rocky Mountain montane forests and oak-brush shrublands at higher elevations. A majority of the Park is covered by mid-elevation shrublands and pinyon-juniper woodlands typical of the Colorado Plateau and Great Basin. Tucked in the many canyons are important North American riparian and wetland communities and unique environments such as hanging gardens.