Resource Brief

National Park Service
U.S. Department of the Interior

Klamath I&M Network
Natural Resource Stewardship and Science

Vegetation Community Conditions at Oregon Caves National Monument as of 2019

Importance

Lush old growth forests with an overstory dominated by fir trees and a highly diverse herbaceous understory grow at Oregon Caves. These forests respond to local climate, soil, and disturbance conditions, and play a vital role in the monument's health, feeding and sheltering animals, and cycling water, carbon and other nutrients through the soil. But natural and human-caused changes, like changing fire regimes, climate, local land-use, and invasive species can profoundly affect plant communities. To alert monument managers if conditions change, we've been monitoring land plants (terrestrial vegetation) within the monument since 2013, though not in the expansion area. We measure composition (variety and abundance of species), structure (tree size, height, and density; shrub height) and function (tree death and regeneration) as vital signs of ecological health. This brief describes how we measure one of these elements—*species composition*—at Oregon Caves, and reports the average conditions we found over the past three sampling events that ended in 2019.

Measuring Vegetation Composition

Changes in vegetation are not always unhealthy. To discern which changes are concerning, we examine our species data in multiple ways. Taken as a whole, these different measures provide the context monument managers need to identify negative trends and make decisions.

Within a 20 x 50 m plot (0.1 ha), this botanist uses her trusty hand lens to identify plants for a total count of native and nonnative species present. In smaller nested plots, we also measure the total cover of each species to calculate diversity at different scales within the monument.

Species Richness

Richness is a straight count of the number of vascular plant species (not mosses or fungi) in our plots. In general, the wider variety of species we find, the more biodiverse and resilient the ecosystem is. Related to species richness, we also examine several measures of *diversity*—each one provides slightly different information about the balance of species relative to each other.

Nonnative Species

Because nonnative species can cause serious ecological problems, we report how many nonnative species we detect, how much area they cover, and the ratio of native to nonnative species. This ratio is a useful measurement to track over time and to compare with more disturbed areas inside and outside the monument.

Results and Ongoing Monitoring

Every 3 years, between June and early July, we monitor terrestrial vegetation at 10 sites at Oregon Caves, barring unforeseen complications. In 2019, we sampled all 10 sites. We'll sample vegetation again in 2022.

Sampling in 2013, 2016, and 2019 at Oregon Caves, we found an average of about 50 vascular plant species per site. Upland plots in Oregon Caves averaged approximately 13 to 36 more species than upland plots in the other 5 Klamath Network parks, illustrating the monument's high diversity. Nonnative species were very low in abundance and richness. Only 1 species (bull thistle, *Cirsium vulgare*) was observed at 1 site in 2016 and again in 2019. View the map on the back for detailed results.

More Information

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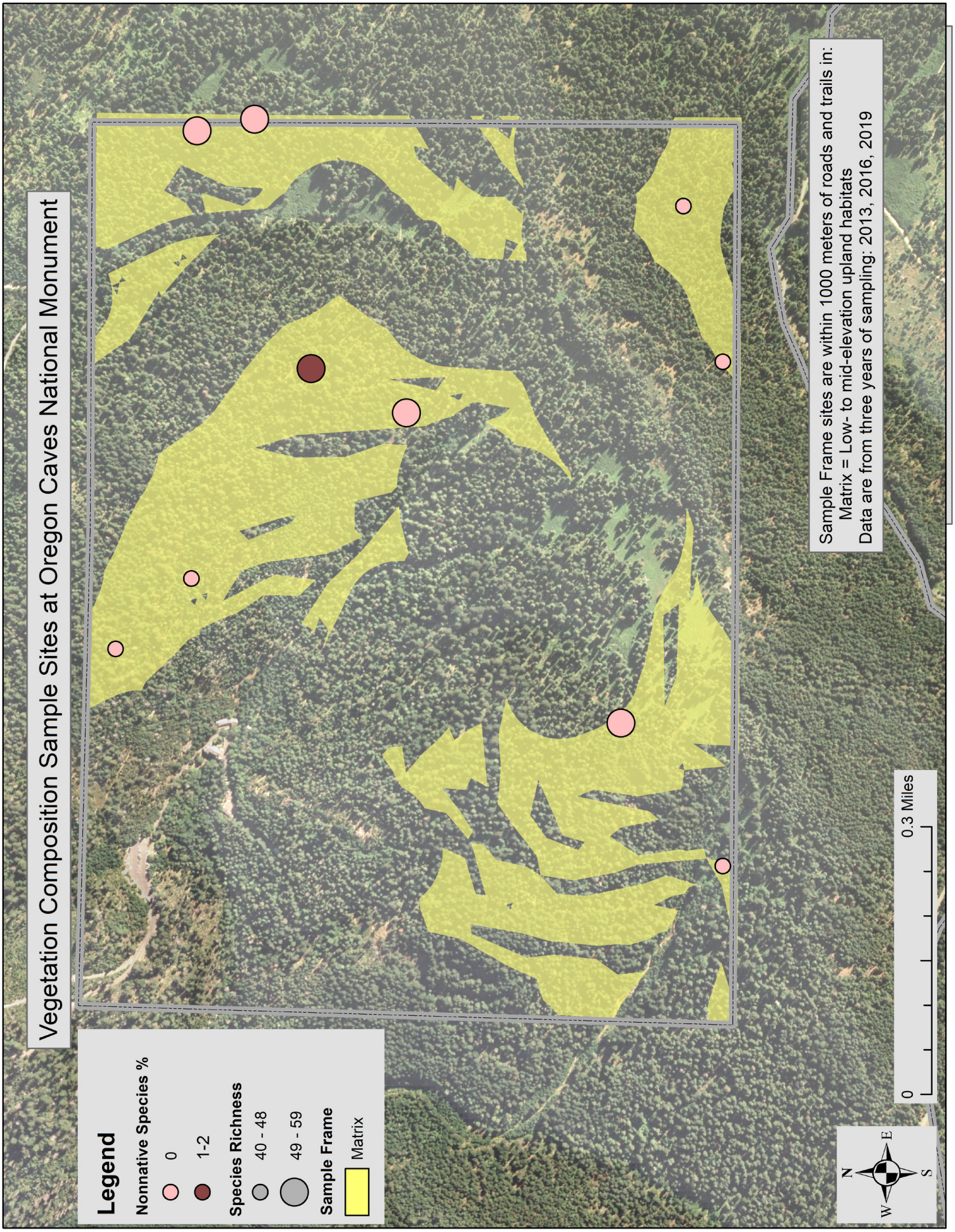
Project overview, reports, and protocol:
https://www.nps.gov/im/klmn/vegetation.htm

Datasets and all related publications:
https://irma.nps.gov/Datastore/Reference/Profile/2171794


Vegetation Composition Sample Sites at Oregon Caves National Monument
Legend
Nonnative Species %
0
1-2
Species Richness
40 - 48
49 - 59
Sample Frame
Matrix
Sample Frame sites are within 1000 meters of roads and trails in:
Matrix = Low- to mid-elevation upland habitats
Data are from three years of sampling: 2013, 2016, 2019
0
0.3 Miles
N
E
S
W