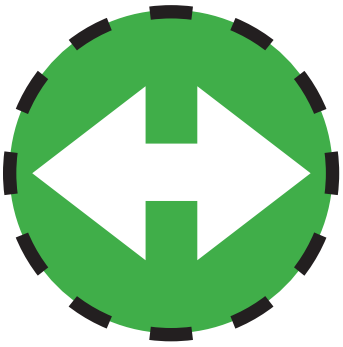
Measuring the Health of the Mountain: A Report on Mount Tamalpais' Natural Resources (2016)
(Chapter 4 excerpts)

ONE TAM

SARGENT CYPRESS COMMUNITIES

Cupressus sargentii



Condition: Good

Trend: No Change

Confidence: Moderate

WHY IS THIS RESOURCE INCLUDED?

Sargent cypress communities occur as open, scrubby forests and woodlands associated with serpentine chaparral. They are relatively limited in distribution and globally rare. The "pygmy forest" of Sargent cypress along San Geronimo Ridge is a rare vegetation type that hosts several California Native Plant Society-listed and locally rare plant species.

In the One Tam area of focus, this community is characterized by an understory of navarretias, Indian warrior (*Pedicularis densiflora*), jewelflowers (*Streptanthus*), and scattered to dense Mt. Tamalpais manzanita (*Arctostaphylos montana ssp. montana*, a California Native Plant Society 1B species, which are plants Rare, Threatened, or Endangered in California and elsewhere). Sargent cypress communities provide habitat for large ground cone (*Kopsiopsis strobilacea*) and pleated gentian (*Gentiana affinis ssp. ovata*), which are also locally rare.

These communities are good indicators of wildfire and mechanical disturbance. Sargent cypress stands typically recruit new trees following stand-replacing wildland fires, making this a key disturbance process for their long-term persistence. Fire return intervals in Sargent cypress stands vary, but are typically multi-decadal. Too-frequent fires can threaten recruitment because individual trees need several years to mature and produce sufficient cones to create an adequate seedbank. Wildfire return intervals that are either too short (e.g., less than a decade) or too long (150+ years) can negatively impact this community.

OVERALL CONDITION

The One Tam area hosts approximately 366 acres of Sargent cypress. Stands have an even-aged appearance, a lack of visible canopy disease, and a low abundance of non-native species. A good example of a healthy Sargent cypress community in the One Tam area of focus is the pygmy cypress forest along San Geronimo Ridge.

DESIRED CONDITIONS

Maintain more than 360 acres of Sargent cypress communities at the current spatial extent in the One Tam area of focus, supporting the current species richness and structural diversity, and with natural recruitment of Sargent cypress saplings and minimal invasive species.

STRESSORS

Changing Fire Regimes: Sargent cypress trees have an estimated life span of 300 years in the absence of disease of fire. Fire plays a critical role in new tree recruitment by stimulating seed dispersal from serotinous cones and creating the bare soil conditions Sargent cypress seedlings need to establish. Consequently, even-aged stands which date from the last wildfire event are the norm for this species.

Roads, Trails, and Fuelbreaks: Road grading or mowing may impact trees growing along road shoulders. Roads, trails, and fuelbreaks also facilitate non-native, invasive species (mostly annual grasses such as purple false brome *[Brachypodium distachyon*]) encroachment by creating sunny openings and disturbance in otherwise closed-canopy, high-shade conditions that limit weed establishment.

Mistletoe (*Phoradendron bolleanum/pauciflorum*): Dense clusters of this species often form on bushy Sargent cypress trees in Marin County. It is uncertain if this is detrimental to the trees, or just a result of stand age.
Douglas-fir Encroachment: Sargent cypress communities can be invaded by Douglas-fir, although that is less likely to occur in serpentine areas, as Douglas-fir is not as tolerant of those soil types.

METRICS USED TO MEASURE HEALTH

Metric	Condition Goal	Status
Metric 1 Acres (total and distribution)	Maintain more than 360 acres of Sargent cypress communities at the same spatial extent as shown in the 2004 vegetation survey	
Metric 2 Recruitment of new trees at least at replacement level following fire events	Seedling/sapling presence greater than or equal to tree mortality in burned stands	
Metric 3 Time since last wildfire	At least 80% of Sargent cypress habitat in the One Tam area of focus has experienced a broadcast burn event within the last 150 years, with a return interval of less than one fire every 10 years	
Metric 4 Targeted invasive non-native species cover	Sargent cypress stands are weed-free	

INFORMATION GAPS

Invasive Species and Recruitment Data: Ground plots sampled for the production of the 2004 vegetation map should be resampled to determine change over time in weed abundance. Burn sites should be monitored for seedling recruitment.