

Project Review 98-22 Bolinas Ridge Prescribed Burn

Barbara Moritsch

As concern has been expressed over the potential impacts of the proposed burn on three rare plant taxa within the burn unit, I have conducted a preliminary review of the rarity status and effects of fire on the taxa of concern. Additionally, I spoke with Tom Parker at San Francisco State University, who has extensive experience with fire effects on vegetation, specifically rare chaparral species in Marin County (pers. comm 10/21/98).

Mr. Parker believes the proposed burn will be beneficial to the three taxa. He stated that the last burn in the area probably occurred around 1943 to 1945. Mason's ceanothus has a lifespan of approximately 50-70 years, and Mr. Parker has observed decadence among the extant plants. Additionally, Douglas-fir has become tall and dense in the area, and oaks have become very large, which is crowding and shading the shrub species. The burn is expected to kill the adult chaparral shrubs, initiate recruitment of seedlings, and clear away some of the competing Douglas-fir and oak. He went on to say it is important to have a hot burn, and he has documented adverse effects of fire on chaparral species if soil is moist or wet when the site is burned (e.g., if burn is conducted after the onset of fall rains; see attached article).

He suggested that we not burn all of the occurrences of the rare plants in one year, as we cannot predict how wet the winter/spring will be following the fire. Adequate rainfall will be important to initiate good recruitment from the soil seed bank. He is reviewing the map of the proposed burn unit to ensure only a portion of the occurrences of each of the rare plant taxa will be burned. He is very interested in the burn and has a student who can be available to collect pre- and post-fire data on the three rare shrub taxa to help assess the actual affects of the burn.

General information on status, rarity, and the effect of fire on the three taxa follows:

Arctostaphylos virgata

Marin manzanita

No federal or state status/CNPS 1B

Previously federal C3c (considered but rejected)

CNPS states "threatened by fire supression"

Known from fewer than 20 occurrences

Several populations of Marin manzanita were burned in the Vision Fire, and were subject to moderate-high to high fire intensities. Although the fire killed all of the mature plants, post-fire reconnaissance teams noted ample seed in the soil and ash directly beneath burned plants. Two of the burned populations were monitored in Year 1 following the Vision Fire. In the first population, *A. virgata* seedlings were well established in openings. In the second population, surveys in May documented few seedlings, but surveys in November documented many well-branched individuals.

Ceanothus gloriosus* var. *exaltatus

No federal or state status

Because this taxon has no recognized status, it is not included in the table in the burn plan.

This taxon was proposed for listing by the CNPS, but was rejected because it is believed to be too common to warrant listing. CNPS members comments to proposed listing included "I wish I had more information about it"; "Uncommon in Sonoma County. Give this one some more thought, depending on its rarity status in other counties"; "Only one population known in Marin County."

Phone message from Dave Tibor (CNPS Rare Plant Botanist) on 10/13/98 indicated that CNPS listing action on this taxon was still not final.

Several populations of a different variety of *Ceanothus gloriosus* (var. *porrectus*) were burned in the Vision Fire, and were subject to moderate-high to high fire intensities. Again the fire killed all of the mature plants, but post-fire reconnaissance teams noted ample seed in the soil. Three sites were monitored in Year 1 following the fire. *C. gloriosus* seedlings were present on all sites. On one site seedling density was higher in March 1996 than in November 1996. The seedlings present in November, however, were well-branched and appeared to be well-established. In the second population, surveys in May documented no seedlings, but surveys in August documented 37 seedlings. In Year Three following the fire (1998), it appeared that the *C. gloriosus* may be suffering due to competition from other shrubs, primarily *Ceanothus thyrsiflorus* (D. Smith, pers. comm.).

Ceanothus masonii

Mason's ceanothus

Federal Species of Concern/State Rare/CNPS 1B

Known from approximately 5 occurrences; all in Marin County

I was unable to find fire effects information specific to this taxon. See Tom Parker's comments above.

In conclusion, I think the burn should be conducted as it is likely to increase density/abundance of the three rare plant taxa that will be affected. We should not burn all of the rare plants of any taxa in the area. I will determine locations of the populations next week in the field with Tom Parker and work with Ben Jacobs to ensure that only a subset of occurrences are burned.

Additionally, I think all burned rare plant populations should be monitored for a minimum of five years to document post-fire recovery. The only way we can effectively predict the effects of burning on our rare plants is to monitor the effects of burning whenever

we have the opportunity. Note: Pre-burn data will also have to be collected for the monitoring data to be meaningful. I will work with Tom Parker to see if his student can assist us with this data collection. Although the efforts of Tom's student would be a nice addition to our data set, the NPS should conduct comprehensive monitoring on the burn's effects on rare plants as well. Additionally, if the burn does not occur this year, Tom's student may not be available.

To ensure that focused monitoring of rare plants occurs, I would like to suggest the addition of the following objective to the burn plan:

"Enhance populations of rare plants in the burn area by increasing plant density, abundance and/or areal extent." This should be added as a second objective on Page 2, Goal #2 - Preservation of threatened and endangered species.