

Rare Plant Monitoring and Management at Point Reyes

By Gary M. Fellers and Virginia Norris

Rare plants are not assured of survival simply by growing on lands protected by public parks. Their preservation also demands careful, long-term monitoring and, from time to time, well-designed intervention. Most parks have limited resources and may find it difficult to provide sufficient protection for their rare plants. Point Reyes National Seashore (NS) has developed a cooperative program with the California Native Plant Society (CNPS) to monitor and manage rare plants.

The Seashore, located 40 miles north of San Francisco, includes sandy and rocky beaches, coastal prairie, Douglas fir and Bishop pine forests, chaparral, and wilderness lakes. About one-third of the Seashore is designated a pastoral zone with both dairy and beef cattle ranches. In large part due to the wide diversity of habitats, strongly maritime climate, and southern geological origin, Point Reyes has a remarkably diverse flora with 828 species and an additional 35 varieties and subspecies. About 16 percent of the entire California flora is represented in an area of only 114 square miles.

Not surprisingly, this diverse flora includes a significant number of rare plants. Forty-two of the species listed in the 1988 edition of the CNPS's inventory of the state's rare and endangered plants have been reported from Point Reyes or are likely to occur within the Seashore. Two of these are presumed to be extinct, four are presumed to have been extirpated from the Seashore, 30 have been confirmed since 1983, and another six are objects of current searches. Four of the 42 species are listed by the State and 33 are candidates for Federal listing.

In the early 1980s, the Seashore had very little information on most of the rare plants, and was concerned that they might inadvertently be threatened by grazing, or that the Seashore's fire management program might have a negative impact on them. From 1983 to 1984, the Seashore conducted a systematic search for rare plants, which documented the occurrence of 21 species. (Clark and Fellers, 1986).

The final report recommended some immediate management actions and outlined an ambitious monitoring program that would allow the Seashore to track rare plant populations and assure their continued survival. The rare plants were to be resurveyed at intervals ranging from one to four years, depending on their rarity and possible endangerment.

The Seashore promptly began some of the specified management, but resources were not available to monitor all the rare plants. Meanwhile, the list of those expected to occur at Point Reyes had increased, due to new information on plant distributions and additions to the CNPS rare plant inventory.

CNPS Volunteers

In 1986, the CNPS contacted the Seashore to volunteer its assistance in monitoring rare plants. A priority list of plants was agreed upon and the Seashore provided copies of the rare plant report, topographic maps, photographs of the plants, and occasional assistance in the field. Weekly field trips were scheduled throughout the spring and were announced in the CNPS newsletter. By the end of that season, 13 CNPS botanists had visited 16 historic sites and had discovered two new populations of rare plants.

The first year demonstrated the success of the cooperative program. The volunteers had shown sustained interest in the project and had been able to relocate



Monardella undulata

and survey known populations of rare plants as well as find new populations. The CNPS leaders contributed a substantial amount of time, not only in organizing and leading the field trips, but also in preparing field survey reports and maps for each visit to every rare plant population. These field forms were filed at the Seashore and a copy sent to state and county CNPS offices as well as to the California Natural Diversity Data Base, which is maintained by the State Fish and Game department.

The cooperative monitoring program has grown considerably since that first year. During the 1989 field season, 34 botanists participated in 27 field days of monitoring. As CNPS botanists became more familiar with Seashore terrain and the habitat characteristics of each new species, they were able to locate many more new populations - 21 in 1988 and 22 in 1989.

The Seashore has continued to participate in the rare plant monitoring on a limited basis. Initially, the list

of plants and populations to survey was developed jointly, but planning now is done primarily by the CNPS botanists. Seasonal park botanists have joined a number of field trips and have worked in more detail on selected plants (see below). The Research Biologist has assisted with finding some of the more difficult historic localities and with identification of some of the grasses.

During the first five years of the cooperative monitoring program, 94 people have surveyed for rare plants at Point Reyes. Some came only occasionally, but seven people have averaged more than 50 days each. They have located 29 species of rare plants and have made significant contributions to the knowledge and management of Seashore flora.

Management of Rare Plants

With CNPS volunteers conducting most of the monitoring, the Seashore has been able to focus its resources on managing the most vulnerable rare plants. The species identified as most in need of immediate protection in 1984 was the Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*). In 1985, the Seashore constructed an enclosure around the only known population, to keep cattle out. Over the next several years, the marsh vegetation within the enclosure flourished, but the population of alopecurus declined from 35 plants to one. Clearly the fence was not helping and may even have contributed to the decline by allowing other species of plants to thrive and out-compete the alopecurus. Hence the enclosure was opened in June 1990.

Fortunately the Seashore also had started a greenhouse propagation program using seeds collected in 1986. Alopecurus proved to be easy to raise. The greenhouse provided over 400 seedlings, which were plants in three areas. The outcome of two introductions still is uncertain, but the third has done well, with 62 plants present in 1988 and 85 in 1989. All populations will be carefully monitored during 1991.

An important lesson to be learned from the alopecurus experience is that rare plants cannot

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Coastal dune habitat supports several rare plants, including beach layia and curly-leaved monardella. Here, Myrtles Silverspot is shown on its North Beach habitat.



Volunteers search for Sonoma spineflowers at Point Reyes National Seashore.

always be preserved merely by protecting them from grazing or trampling. Some species are adapted to disturbance or may benefit from the control of competing vegetation. Hence it is important to understand the ecological interactions within the plant community before a full recovery effort is implemented. When immediate action seems warranted because of an imminent threat, it must be done carefully, with constant monitoring of results.

The Seashore is applying this experience to its management of the Sonoma spineflower (*Chorizanthe valida*), a species being proposed for Federal listing. The plant currently is recognized as the most endangered at Point Reyes. While this species has been reported from several other coastal populations, all but the one at Point Reyes now are disputed or believed to have been extirpated. The single Seashore population appears to be healthy, but it does occur in an area that is grazed and the question of grazing impact has again been raised.

This time the Seashore has taken a more experimental approach by protecting a small number of plants with test exclosures while leaving most of the population alone. Thus far it appears that the spine-

flower does better with grazing (Davis and Sherman, 1990). Further monitoring and competition experiments are planned.

Another plant of current interest is the Point Reyes lupine (*Lupinus tidestromii* var. *layneae*). Because of the loss of coastal dune habitat, the Point Reyes lupine is being proposed for Federal listing as a threatened species. At Point Reyes, the lupine is known from one extensive and four small populations. The larger site has been trampled by cattle with an obviously detrimental effect on the lupine and other dune species. The Seashore has now fenced the dunes to protect both the dune vegetation and nesting Snowy Plovers.

At least one, and possibly more, of the other lupine sites are threatened by non-native iceplant (*Carpobrotus edulis*). The CNPS botanists have documented the increasing threat from iceplant to the lupine as well as to two other rare dune plants, the beach layia (*Layia carnosa*) and the curly-leafed monardella (*Monardella undulata* var. *undulata*). While the iceplant problem seems almost overwhelming in some areas, the Seashore has begun removal experiments and currently is working on one small dune restoration project. Iceplant at that site was removed by bulldozer and



Chorizanthe valida



Layia carnosa

native dune species are being tested for their ability to stabilize windblown sand along roads.

Overall, rare plants at Point Reyes NS are doing well. The cooperative program between the Seashore and the CNPS has allowed the Seashore to track the status of rare plants while conducting essential management of the most vulnerable species. The Seashore now regularly consults the CNPS botanists, or the extensive rare plant files, about proposed projects that might affect rare plants. As a result, the chance of accidental damage to rare plants has been greatly reduced.

The experience of the past four years clearly demonstrates that this close partnership has produced a valuable program for protecting an important segment of California's rare flora.

Fellers is the research biologist at Point Reyes NS; Norris is a member of the Marin Chapter of the CNPS and current leader of the CNPS volunteers.

References

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