

September 2011

## Franciscan Manzanita 12-month Finding and Proposed Rule

### Questions and Answers

**Q. What is the history behind this announcement?**

A. On Friday, Oct. 23, 2009 the Service was advised that botanists had identified a single specimen of a manzanita species previously thought to be extinct in the wild in a partially cleared area immediately adjacent to an existing highway on the San Francisco peninsula that was in the process of being replaced. Quickly following discovery of the Franciscan manzanita, *Arctostaphylos franciscana*, a conservation plan was designed to protect the plant and a Memorandum of Agreement (MOA) to implement it was signed in Dec. 2009. The 15-year plan contains conservation measures to assure that the species survives. Plan implementation included moving the plant, propagation of cuttings and seeds, and funding for a long-term conservation effort. The plant was moved to a new location in January 2010, where it is growing well.

In December, 2009, shortly after the plant's discovery, the Service received a petition from the Wild Equity Institute, the Center for Biological Diversity, and the California Native Plant Society, requesting that Franciscan manzanita be listed as endangered on an emergency basis under the Endangered Species Act (Act) and that critical habitat be designated. In August, 2010, the Service determined that issuing an emergency regulation temporarily listing the species was not warranted because the conservation plan was already in place and addressed the emergency needs of the plant.

After review of all available scientific and commercial information, in September 2011, the Service found that listing Franciscan manzanita as an endangered species under the Act is warranted, proposed to list the species, and opened a 60-day comment period requesting more information from the public before making the final rule. As stipulated by the Act, the Service has also reviewed critical habitat requirements and believes that designation of critical habitat may not be prudent and is not determinable at this time.

**Q. Why is the Service proposing to list the Franciscan manzanita as endangered?**

A. After review of all available scientific and commercial information, we find that listing Franciscan manzanita as an endangered species under the Act is warranted based on the following five factors:

**1. The present or threatened destruction, modification, or curtailment of its habitat or range.**

All known original occupied habitat of the species has been lost to urban development and the range of the species is now limited to a single transplanted plant on the Presidio. The current fragmented and degraded condition of most remaining serpentine/greenstone soil habitat on the San Francisco peninsula threatens the ability of the species to expand its range. The threats of possible development and change in management of the habitat may further limit the species' propagation and expansion, and could potentially threaten the remaining wild plant in the foreseeable future.

**2. Overutilization for commercial, recreational, scientific, or educational purposes.**

Overutilization of the species is possible due to the popularity of Franciscan manzanita for landscape use, as evidenced by the widespread use of cultivars of this species in the

commercial nursery trade. The attention and media coverage generated by the discovery of a species thought to be extinct may result in efforts by the public to visit the plant and possibly collect cuttings or seed. Although the location of the transplanted plant has not been disclosed, it was planted in a heavily-used area in the Presidio near common-use trails with unrestricted access by the public.

### **3. Disease or predation.**

The Service considers infection of the plant by a variety of diseases and insect infestations to be a significant threat to Franciscan manzanita within the foreseeable future because only one plant occurs in the wild. These threats can easily and quickly spread through a multitude of ways. Of particular concern is *Phytophthora cinnamomi*, a soil-borne water mold, which causes root rot or dieback in plants. This pathogen is one of the world's most invasive species and is transmitted by contaminated shoes, tools, and infested soil clinging to tires, and by using contaminated nursery stock, including native plant stock.

### **4. The inadequacy of existing regulatory mechanisms.**

The species is not listed under the California Endangered Species Act. The conservation plan and MOA are not regulatory in nature, and are not legally enforceable by third parties, limiting their usefulness in enforcing protections for the plant. Although general protections are provided for plants on National Parks, existing regulatory mechanisms are inadequate to protect the last known wild specimen of *Franciscan manzanita*, or any other such wild specimens of the species that may be established or found to exist.

### **5. Other natural or manmade factors affecting its continued existence.**

Only one wild plant is currently known to exist and therefore faces disproportionate threats from other natural or manmade factors affecting its continued existence. These include climate change, change in fire frequency, trampling, vandalism, loss of genetic diversity, loss of pollinators, chance events, effects of small population size, and hybridization. Cumulatively, the Service considers these threats to be significant and imminent.

## **Q. Why isn't the Service proposing critical habitat for the Franciscan manzanita?**

A. The Service is proposing that designation of critical habitat may not be prudent, and is not determinable at this time due to a lack of knowledge of what physical and biological features are essential to the conservation of the species, and what other areas outside the site currently occupied, may be essential for the conservation of the species. During the 60 day comment period, the Service is seeking data and comments from the public on this proposed listing rule and whether the designation of critical habitat for the species is prudent or determinable.

## **Q. How might climate change affect the species?**

A. Climate change may cause presently suitable habitat to become unsuitable for endemic California plants in general, due to projected changes in temperature and rainfall. The preliminary results of recent studies show an increase in average maximum summer air temperatures at Golden Gate National Recreation Area, located near the Presidio, and a reduction statewide in fog frequency. Summer fog is one of the primary habitat requirements, besides serpentine soil and cool air temperatures, for Franciscan manzanita. If the trend towards a warmer, drier climate continues, the climate may become too warm or dry to support Franciscan manzanita. Natural movement of the species by seed dispersal to reach cooler, moister areas to the north would be blocked by barriers such as the San Francisco Bay.

## **Q. What do we know about this species, and what makes this plant different from other manzanitas?**

A. Franciscan manzanita (*Arctostaphylos franciscana*) is a low, spreading to ascending evergreen shrub in the heath family (*Ericaceae*) that may reach two or three feet in height when mature. Its leaves are about one-half to three-quarters of an inch long, are isofacial (have the same type of surface on both sides), and are oblanceolate (longer than they are wide and wider towards the tip). Its mahogany brown fruits are about a quarter to a third of an inch wide, while its urn-shaped flowers measure about a quarter inch long. A similar-looking species, bearberry (*A. uva-ursi*), can be distinguished by its lack of isofacial leaves. The Franciscan manzanita is native and restricted to the San Francisco peninsula, and historically the few known remaining plants occurred in areas with serpentine soils and bedrock outcrops. Recent taxonomic revisions have established *Franciscan manzanita* as a separate species, based primarily on genetic comparisons, including the fact that *Franciscan manzanita* has 13 pairs of chromosomes, while its closest relative (*A. montana ravenii*) has 26 chromosome pairs.

**Q. When did Franciscan manzanita disappear from the wild and where could it be found before it was thought to be extinct?**

A. Prior to the discovery of a single plant found in October 2009, *Arctostaphylos franciscana* had not been seen in the wild since 1947. It is considered to be restricted in range to the San Francisco peninsula, California, and historically the few known remaining plants occurred in areas with serpentine soils. It was originally known from three locations in the Masonic and Laurel Hill Cemeteries in San Francisco's Richmond district, and from Mount Davidson in the south-central part of San Francisco. Unconfirmed sightings were also noted at a possible fourth location near Laguna and Haight streets. The Masonic and Laurel Hill Cemetery sites had been converted to urban development by 1947. The Mount Davidson and possibly the Laguna and Haight streets locations were presumably lost to urbanization as well.

**Q. What has been done to save the species since this discovery?**

A. The conservation plan recommended that the plant be moved to a new site within the Presidio. The plant was carefully moved to an undisclosed location on Jan. 23, 2010. The plant, its rootball, and the surrounding soil were all kept intact and moved as one unit that weighed 11 tons.

The conservation plan also included measures to take cuttings from the plant, both from non-rooted stems and from layering stems (stems which have rooted at their leaf nodes), for vegetative propagation. The plan also called for collection and eventual propagation of seeds (including seeds in the soil around the plant's original location), and for genetic testing of resulting plants (since seeds fertilized in the wild would likely produce hybrids). Additionally, because the roots of most *Arctostaphylos* individuals establish a mutually beneficial association with species of mycorrhizal fungi living in the soil, the conservation plan established means by which the soil for propagating cuttings and seeds should be inoculated with spores from such fungi. The plan also evaluated potential translocation sites, established procedures for preparation of the new site and the translocation itself, and set up management and monitoring (both short- and long-term) of the translocated plant and all newly propagated plants, with the goal of eventually establishing self-sustaining populations of the species in the wild.

**Q. If there are cultivars of the species in the nursery trade, why can't they be considered part of the population for the species or used for the recovery of the species?**

A. The cultivars of Franciscan manzanita available from nurseries likely descended from some of the last wild Franciscan manzanita plants known to exist in the 1940s, are available in commercial trade, and are "popular with home gardeners." Since hybridization between diploid species of manzanita is well recognized, there is a good chance that many of these commercially available specimens result from hybridization. Accordingly, any propagation or reintroduction programs for Franciscan manzanita must

account for the threat of cross pollination from hybrids or other species, and subsequent contamination and swamping of the Franciscan manzanita gene pool. Additionally, some nursery stock has been found to be contaminated by diseases, notably crown rot, and could infect the wild plants when outplanting nursery grown plants to wild locations.

**Q. Where can direct “descendants” of the original wild plants be found?**

A. There are Franciscan manzanitas at several Bay Area arboretums, including the University of California at Berkeley and Strybing arboretums. Prior to the loss of the wild plants, botanists collected cuttings and rooted branches from at least three genetically distinct individual Franciscan manzanitas, and propagated them. Modern botanical collections of this species include some of the original specimens from Laurel Hill, as well as specimens grown from cuttings since the species was believed to be extinct in the wild.

**Q. Why is the transplanted plant still considered wild?**

A. The plant is considered to be wild because it has been moved to an undeveloped area of the Presidio that is managed as natural habitat. Although the plant is currently receiving care associated with its transplantation, it is not receiving the level of protection, water, and nutrients that plants in a botanic garden may receive.

**Q. What protections will the species receive if listed?**

A. If the Franciscan manzanita were listed, the species would be protected by the prohibitions of section 9(a)(2) of the Act. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale in interstate or foreign commerce, or remove and reduce the species to possession from areas under Federal jurisdiction.

Franciscan manzanita plants located in areas of Federal jurisdiction, such as the Presidio, would be protected from damage or removal. For plants listed as endangered, the Act prohibits the malicious damage or destruction on areas under Federal jurisdiction and the removal, cutting, digging up, or damaging or destroying of such plants in knowing violation of any State law or regulation, including State criminal trespass law. Listing would also require Federal agencies to avoid actions that might jeopardize the species, and would provide opportunities for funding of conservation measures and land acquisition that would not otherwise be available to the agencies.

**Q. If Franciscan manzanita is listed as endangered, what will the effect on the cultivated plants in botanical gardens and homeowners yards be?**

Wild and cultivated plants on private property would generally not be regulated under the Act, although major projects that involve Federal agency permitting or funding could involve consultation with the Service to minimize effects to existing plants.