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**SUPPLEMENTARY INFORMATION:** The purpose of the hearing is to receive oral comments in response to a notice of proposed rulemaking (NPRM) proposing regulations that would require certain railroads to implement systems for telephonic notification of unsafe conditions at highway-rail and pathway grade crossings. See 76 FR 11992-12012 (March 4, 2011). Interested parties are invited to present oral statements and to proffer information and views at the hearing. The hearing will be informal and will be conducted by a representative designated by FRA in accordance with FRA's Rules of Practice (49 CFR 211.25). The hearing will be a non-adversarial proceeding; therefore, there will be no cross examination of persons presenting statements or proffering evidence. An FRA representative will make an opening statement outlining the scope of the hearing. After all initial statements have been completed; those persons wishing to make a brief rebuttal will be given the opportunity to do so in the same order in which the initial statements were made. Additional procedures, as necessary for the conduct of the hearing, will be announced at the hearing. A transcript of the discussions will be made part of the public docket in this proceeding.

**Public Participation Procedures.** Any person wishing to participate in the public hearing should notify the Docket Clerk by mail or at the address or fax number provided in the *Attendance* section of this notice at least five working days prior to the date of the hearing and submit three copies of the oral statement that he or she intends to make at the proceeding. The notification should identify the party the person represents, the particular subject(s) the person plans to address, and the time requested. The notification should also provide the Docket Clerk with the participant's mailing address and other contact information. FRA reserves the right to limit participation in the hearing of persons who fail to provide such notification. FRA reserves the right to limit the duration of presentations if necessary to afford all persons with the opportunity to speak.

### Background

In section 205 of the Rail Safety Improvement Act of 2008, Public Law 110-432, 122 Stat. 4872 (Oct. 16, 2008) (codified at 49 U.S.C. 20152) (hereinafter RSIA), Congress directed the Secretary of Transportation

(Secretary) to issue a regulation, requiring railroads to establish a telephonic notification system for the public to report unsafe conditions at highway-rail and pathway grade crossings. While the statute vests certain responsibilities with the Secretary, those responsibilities have been delegated to the FRA Administrator. See 49 CFR 1.49(oo); 74 FR 26981 (June 5, 2009); see also 49 U.S.C. 103(g).

In an NPRM issued on March 4, 2011, FRA proposed various amendments to its regulations on grade crossing safety. The primary amendments proposed would require a railroad that dispatches a train through a public or private highway-rail or pathway grade crossing to establish and maintain a system that allows a member of the public to call the railroad and report an emergency or other unsafe condition at the crossing. Upon receiving such a report, the railroad may be required to warn all trains authorized to operate through the crossing of the reported unsafe condition, inform local law enforcement of the reported unsafe condition, and must either investigate the report itself or request that the railroad with maintenance responsibility for the crossing investigate the report. If the report is substantiated, the railroad with maintenance responsibility for the crossing would be required to take certain actions to remedy the condition found. The purpose of the hearing is to receive oral comments in response to the requirements related to a telephonic notification system as proposed in the NPRM.

FRA encourages all interested persons to participate in the hearing, at the address noted above. We encourage participants wishing to make oral statements to plan on attending the entire hearing, since FRA may not be able to accommodate competing requests to appear at specific times.

Issued in Washington, DC, on September 2, 2011.

**Robert Lauby,**

*Deputy Associate Administrator for Regulatory and Legislative Operations, Federal Railroad Administration.*

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## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

[Docket No. FWS-R8-ES-2010-0049; MO 92210-0-0008-B2]

RIN 1018-AX89

#### Endangered and Threatened Wildlife and Plants; 12-Month Petition Finding and Proposed Listing of *Arctostaphylos franciscana* as Endangered

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule; 12-month finding.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to list *Arctostaphylos franciscana* (Franciscan manzanita), as endangered under the Endangered Species Act of 1973, as amended (Act), and to designate critical habitat. After review of all available scientific and commercial information, we find that listing *A. franciscana* as an endangered species under the Act is warranted. Accordingly, we herein propose to list *A. franciscana* as an endangered species pursuant to the Act. This proposed rule, if made final, would extend the Act's protections to this species. We believe that critical habitat is not determinable at this time due to lack of knowledge of what physical and biological features are essential to the conservation of the species, or what other areas outside the site that is currently occupied, may be essential for the conservation of the species. The Service seeks data and comments from the public on this proposed listing rule and whether the designation of critical habitat for the species is prudent and determinable.

**DATES:** We will accept comments received or postmarked on or before November 7, 2011. We must receive requests for public hearings, in writing, at the address shown in the **FOR FURTHER INFORMATION CONTACT** by October 24, 2011.

**ADDRESSES:** (1) *Electronically:* Go to the Federal eRulemaking Portal: <http://www.regulations.gov>. In the Keyword box, enter FWS-R8-ES-2010-0049, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on "Send a Comment or Submission."

(2) *By hard copy*: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS-R8-ES-2010-0049; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042-PDM; Arlington, VA 22203.

We will post all information received on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see the Information Requested section below for more details).

**FOR FURTHER INFORMATION CONTACT:**

Karen Leyse, Listing Coordinator, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, CA 95825; by telephone at 916-414-6600; or by facsimile at 916-414-6712. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800-877-8339.

**SUPPLEMENTARY INFORMATION:**

**Information Requested**

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from the public, other concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. We particularly seek comments concerning:

(1) Additional information concerning the historical and current status, range, distribution, and population size of this species, including the locations of any additional populations of this species.

(2) Any information on the biological or ecological requirements of the species, and ongoing conservation measures for the species and its habitat.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and regulations that may be addressing those threats.

(4) Current or planned activities in the areas occupied by the species and possible impacts of these activities on this species.

(5) Additional information regarding the threats in the five listing factors:

(a) The present or threatened destruction, modification, or curtailment of its habitat or range;

(b) Overutilization for commercial, recreational, scientific, or educational purposes;

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; and

(e) other natural or manmade factors affecting its continued existence.

We are particularly interested in information regarding threats from vandalism, disease (particularly transmission of *Phytophthora* sp.), climate change, collection of cuttings and seeds by the public, and regulations that may be addressing those threats.

(6) What physical or biological features are essential to the conservation of the species.

(7) The reasons why areas should or should not be designated as critical habitat as provided by section 4 of the Act (16 U.S.C. 1531, *et seq.*), including the possible risks or benefits of designating critical habitat, including vandalism, *Phytophthora* sp. being brought in by hikers and recreationists, collection of seeds and cuttings, and any other risks associated with publication of maps designating any area on which this plant may be located, now or in the future, as critical habitat.

(8) Specific information on:

(a) The amount and distribution of habitat for the *Arctostaphylos franciscana*;

(b) What areas, that were occupied at the time of listing (or are currently occupied) and that contain features essential to the conservation of this species, should be included in a critical habitat designation and why;

(c) Special management considerations or protection that may be needed in critical habitat areas, including managing for the potential effects of climate change; and

(d) What areas not occupied at the time of listing are essential for the conservation of this species and why.

(9) Information on the projected and reasonably likely impacts of changing environmental conditions resulting from climate change on *Arctostaphylos franciscana* and its habitat.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is a threatened or endangered species must be made "solely on the basis of the best scientific and commercial data available."

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. If you submit information via <http://www.regulations.gov>, your entire submission—including any personal identifying information—will be posted on the Web site. If your

submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review.

However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on <http://www.regulations.gov>. Please include sufficient information with your comments to allow us to verify any scientific or commercial information you include.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on <http://www.regulations.gov>, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office 2800 Cottage Way, Room W-2605, Sacramento, California 95825 (see **FOR FURTHER INFORMATION CONTACT**).

**Background**

Section 4(b)(3)(A) of the Act requires that, for any petition to revise the Federal Lists of Endangered and Threatened Wildlife and Plants that contains substantial scientific or commercial information that listing a species may be warranted, we make a finding within 12 months of the date of receipt of the petition on whether the petitioned action is: (a) Not warranted; (b) warranted; or (c) warranted, but the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether any species is threatened or endangered, and expeditious progress is being made to add or remove qualified species from the Federal Lists of Endangered and Threatened Wildlife and Plants. In this rule, we have determined that the petitioned action to list *Arctostaphylos franciscana* is warranted, and we are proceeding with publishing a proposed rule to list the species.

*Previous Federal Actions*

On December 23, 2009, we received a petition dated December 14, 2009, from the Wild Equity Institute, the Center for Biological Diversity, and the California Native Plant Society, requesting that *Arctostaphylos franciscana* be listed as endangered on an emergency basis under the Act and that critical habitat be designated. Included in the petition was supporting information regarding the species' taxonomy and ecology, historical and current distribution, present status, and actual and potential causes of decline. On January 26, 2010, we acknowledged the receipt of the petition in a letter to Wild Equity

Institute. In that letter we responded that we had reviewed the information presented in the petition and determined that issuing an emergency rule temporarily listing the species as per section 4(b)(7) of the Act was not warranted. Our rationale for this determination was that, although only a single plant of this species remained in the wild, the individual had recently been transplanted to a new location on Federal land.

The transplanted plant is considered to be the single remaining plant in the wild, despite having been transplanted on the Presidio of San Francisco (the Presidio), a unit of the National Park Service's system, on the San Francisco peninsula. Additionally, a conservation plan (Chasse *et al.*, 2009, pp. 1–44) and associated Memorandum of Agreement (MOA) (referred to herein as California Department of Transportation (Caltrans) *et al.* 2009) signed by five Federal and State wildlife and land management agencies (conservation partners), successfully addressed the concerns raised by the petition to the extent that none of those concerns constituted an “emergency posing a significant risk to the well-being of the species” (50 CFR 424.20(a)). The Federal agencies participating in these efforts were the National Park Service (NPS) and the Service. The State of California was represented by Caltrans and the California Department of Fish and Game (CDFG). The Presidio Trust, a wholly owned government corporation that jointly manages the Presidio with the NPS, also participated (71 FR 10608; March 2, 2006; NPS 2006).

The original habitat of the plant was threatened by the ongoing redevelopment of Doyle Drive, but that threat was removed by the translocation of the plant to a new location. Potential immediate threats applicable to the new location, including the danger that the plant might not survive the move and transplantation, were addressed by provisions in the conservation plan for collecting and propagating rooted clones, seeds, and cuttings from the original plant. The conservation plan provides for the long-term propagation, and eventual reestablishment in wild populations, of all remaining genetic lines, including those from the surviving wild plant and from individuals surviving in botanical gardens. It also includes long-term monitoring provisions. While these provisions did not remove the need for further review of the species' status, they appeared to be effective for protecting the species in the short term. We also indicated that we would make an initial finding in Fiscal Year 2010

regarding whether the petition presented substantial information to indicate that listing may be warranted. The 90-day finding was published on August 10, 2010 (75 FR 48294). This notice constitutes the 12-month finding on the December 23, 2009, petition to list *Arctostaphylos franciscana* as endangered.

*Arctostaphylos franciscana* was originally proposed for listing as an endangered species under the Act in 1976 (41 FR 24524; June 16, 1976). In 1980, it was included in the list of Category 1 candidates for listing, as one of the taxa retaining a high priority for addition to the list subject to confirmation of extant populations. At the time, the species was thought to be extinct in the wild although known to be extant in cultivation (45 FR 82480; December 15, 1980). It is included as a “species of concern” in the Recovery Plan for Coastal Plants of the Northern San Francisco Peninsula (Service 2003, p. 95). In October 2009, 62 years after the loss of the last known wild plants, one individual *A. franciscana* plant was located in the wild on the Presidio. The Presidio is under joint management by the Golden Gate National Recreation Area (GGNRA), a part of the NPS, and by the Presidio Trust. The *A. franciscana* plant is located in the portion of the Presidio that is managed by the Presidio Trust. 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 botanical garden may receive.

The *Arctostaphylos franciscana* plants that exist in cultivation fall into three categories: (a) Cuttings and rooted specimens that were collected from the Laurel Hill Cemetery and transplanted to various managed botanical gardens in San Francisco, Berkeley, and Claremont prior to 1947; (b) specimens currently being propagated in greenhouses from cuttings and layers taken from the wild plant in 2010; and (c) specimens of unknown origin that are sold in the nursery trade or have been transplanted into home gardens. We consider the single wild plant and plants identified in (a) and (b) above to be the listable entity under the Act. Our rationale for not including plants identified in item (c) above is outlined below.

The *Arctostaphylos franciscana* plants found in botanical gardens may represent from one to six genetically distinct plants, other than the single wild plant (Vasey 2011b, pp. 2, 3;

Chasse 2011a, p. 1; Chasse 2011b, p. 1; Chasse *et al.* 2009, p. 7) and may contribute genetic material in the form of cuttings for efforts to expand the number of wild plants. The botanical garden plants are not considered part of the wild population and, therefore, are not being addressed in this 12-month finding and proposed rule although they will be considered to be listed if this proposed rule becomes final. The cuttings and layers that were collected from the wild plant currently being propagated in greenhouses will be used to establish additional populations of the species by being planted with plants propagated from the botanical garden *A. franciscana* specimens. We have concluded that the third category of plants, those cultivated for private or commercial uses, will not aid in the conservation or the recovery of the species in the wild because cultivated plants may be hybrids and bred for landscape use and thus offer minimal conservation contribution.

#### Species Information

##### Species Biology

*Arctostaphylos franciscana* is a low, spreading-to-ascending evergreen shrub in the heath family (Ericaceae) that may reach 0.6 to 0.9 meters (m) (2 to 3 feet (ft)) in height when mature (Chasse *et al.* 2009, p. 5). Its leaves are about 1.5 to 2 centimeters (cm) (0.59 to 0.79 inches (in)) 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) (Eastwood 1905, p. 201; Chasse *et al.* 2009, p. 39). Its mahogany brown fruits are about 6 to 8 millimeters (mm) (0.24 to 0.32 in) wide, while its urn-shaped flowers measure about 5 to 7 mm (0.2 to 0.28 in) long (Wallace 1993, p. 552; Service 2003, p. 57).

A closely related species, *Arctostaphylos montana* ssp. *ravenii* (Raven's manzanita), listed as federally endangered, looks similar but has a more prostrate growth habit, more rounded leaves, smaller and less reddish fruits, and smaller and more spherical flowers (Service 2003, pp. 55, 57). Another somewhat similar appearing species, though not as closely related, is *A. uva-ursi* (bearberry), which can be distinguished by its lack of isofacial leaves (Chasse *et al.* 2009, p. 39).

In the wild, *Arctostaphylos franciscana* is an obligate-seeding species (it reproduces primarily from seed after a fire or other disturbance rather than from burls) (Vasey 2010, p. 1). *Arctostaphylos* species are members of the chaparral plant community,

which have a variety of triggers for seed germination including heat, smoke, and light (Keeley 1987, p. 434). The germination requirements for *A. franciscana* have not yet been studied; however, other *Arctostaphylos* species have germinated after being exposed to charate (ground charred wood) (Keeley 1987, pp. 435, 440).

The seeds of *Arctostaphylos* are dispersed primarily by mammals, including coyotes, foxes, and rodents (T. Parker pers. comm., 2011; Vasey 2011a, p. 1). Animals such as coyotes and foxes eat the *Arctostaphylos* fruit and may travel long distances before depositing their scat. Any undigested fruit left in the scat can then be harvested by rodents and either eaten or buried. Parker (2010b, p. 1) found that 70 percent of the fruits buried by rodents were located deeper than 2 centimeters (cm) (0.78 inch (in)), which is the maximum soil depth at which seeds are typically killed by wildfire.

#### Genetics and Taxonomy

At one point *Arctostaphylos franciscana* and *A. montana* ssp. *ravenii*, along with *A. montana* ssp. *montana* (Mount Tamalpais manzanita), were considered to be subspecies of *A. hookeri* (Hooker's manzanita). However, recent taxonomic revisions have established *A. montana* ssp. *ravenii* and *A. franciscana* as separate species. These revisions have been based primarily on genetic comparisons, including the fact that *A. franciscana* is diploid (with 13 pairs of chromosomes) while *A. montana* ssp. *ravenii* is tetraploid (with 26 chromosome pairs) (Service 2003, p. 95; Parker *et al.* 2007, pp. 149, 150; Chasse *et al.* 2009, p. 6).

#### Distribution and Habitat

Known historical occurrences and collections of *Arctostaphylos franciscana* are from serpentine maritime chaparral, a plant community dominated by *Arctostaphylos* (manzanita) and *Ceanothus* (California lilac) species, on the San Francisco Peninsula. This area is part of a region that Willis Linn Jepson named the Franciscan Area, one of 10 areas that he considered to have the highest concentration of endemic plant species in California (Jepson 1925, pp. 11–14). An endemic species is one that is native to and restricted to a particular geographical area. Native habitats have been largely converted to urban areas of the City of San Francisco and habitat that might support *A. franciscana* is now mostly lost to development (Chasse 2010, p. 2; Gluesenkamp 2010, p. 7).

Chasse (2009, pp. 6, 7) has noted that information on the plant community

that historically included *Arctostaphylos franciscana* is largely missing from the literature. Early records describe the species as growing “on rocky ground” (Eastwood 1905, p. 202), on “bare, stony bluff” (Brandegge 1908, as cited in Chasse 2009, p. 6) and with coast live oak (*Quercus agrifolia*), coast blue blossom (*Ceanothus thyrsiflorus*), and coyote brush (*Baccharis pilularis*) (Wieslander 1938, cited in Service 2003, p. 95). *Arctostaphylos franciscana* was also observed “forming flat masses over serpentine outcroppings and humus-filled gravel and flopping down over the sides of gray and chrome rocks. *Ericameria*, *Baccharis*, Ferns, Buckwheats, and Golden Yarrow grow among it; and over it stand Toyons and Live Oaks.” Additionally, *A. montana* ssp. *ravenii* was found at nearly all *A. franciscana* locations. These observations, along with the geology and climate of historical sites, indicate that the species' community likely consisted of a mosaic of coastal scrub, barren serpentine maritime chaparral, perennial grassland, with occasional woodland of coast live oak and toyon shrubs and small trees (Chasse 2009, pp. 6, 7).

Parker (2007, pp. 8–11) examined the prehistoric distribution of *Arctostaphylos* in California and the geologic changes that helped lead to the number and location of *Arctostaphylos* species present today. *Arctostaphylos* evolved at least 15 million years ago during the Miocene epoch, corresponding with an earlier period of global warming; however, only during the last 1.5 million years have large numbers of new fossil types of the genus appeared. Currently there are at least 95 species and subspecies of *Arctostaphylos* within California. The large number of species is thought to be a response to significant changes in climate and physical geography that occurred approximately 1.5 million years ago. Tectonic changes in the landscape resulted in a diversity of new niches that selected for new species. Additionally, glacial advances and retreats during the last 2 million years have impacted the distribution of plants as well as created two possible paths of *Arctostaphylos* evolution.

One potential path is that populations of *Arctostaphylos* species moved in response to climatic changes but also left behind remnant populations of formerly more widespread species that persisted in isolated areas. Secondly, new species could have resulted from hybridization between rapidly migrating species and the remnant populations of other *Arctostaphylos* species. The San

Francisco Bay area was a forested river valley during the last glacial period. At the end of the last glacial period, the climate became warmer and drier, and conditions became more favorable for *Arctostaphylos*. The area from San Francisco Bay to Monterey now contains 42 species or subspecies of *Arctostaphylos*, 32 of which are narrow endemics. Researchers have accepted that the obligate-seeder life history also promotes a more rapid rate of speciation in contrast to the vegetative regeneration of burl-sprouting species (Wells 1969, p. 264), which is evidenced by the fact that nearly all of the 32 narrow endemics in the San Francisco Bay to Monterey area are obligate-seeders.

*Arctostaphylos franciscana* is considered to be endemic to the San Francisco peninsula, California, and historically occurred in areas with serpentine soils and bedrock outcrops, greenstone, and mixed Franciscan rock, typically growing in mixed populations with *A. montana* ssp. *ravenii* (Service 2003, pp. 95, 96; Chasse *et al.* 2009, p. 6). The Doyle Drive site was comprised of disturbed soil over serpentinite (Chasse *et al.* 2009, p. 3). Serpentine soil restricts the growth of many plants due to its high nickel and magnesium concentrations, and thus tends to support unique plant communities (Brooks 1987, pp. 19, 53; Service 2003, p. 16) because relatively few plant species can tolerate such soil conditions. Such conditions generally result in semibarren soil and a lack of competing plants that benefits serpentine-tolerant plants such as *A. franciscana* (Bakker 1984, p. 79).

The coastal upland habitat of *Arctostaphylos franciscana* is influenced by cool, humid conditions and frequent summer fog. The serpentine chaparral plant community, of which *A. franciscana* is a part, may have been present historically in the southeastern portion of the San Francisco area (for example, in Potrero Hill, Bayview Hill) but the cumulative effects of burning by native Americans, grazing during the Spanish/Mexican period and later, more grazing and gathering of firewood during the U.S. military period may have converted the maritime chaparral to grassland or depauperate coastal scrub (Chasse 2010, p. 2). Prior to 1947, *A. franciscana* was known from three locations: the Masonic and Laurel Hill Cemeteries in San Francisco's Richmond district, and Mount Davidson in the south-central part of San Francisco (Service 2003, pp. 16, 62, 95; Chasse *et al.* 2009, p. 4). Unconfirmed sightings were also noted at a possible fourth location near Laguna and Haight Streets. By 1947, the

Masonic and Laurel Hill Cemetery sites were removed and the grounds destroyed in preparation for commercial and urban development (Chasse *et al.* 2009, p. 7). The Mount Davidson and the Laguna and Haight Streets locations were lost to urbanization as well. Until October 2009, *A. franciscana* had not been seen in the wild since 1947 (Chasse *et al.* 2009, pp. 3, 7), although no systematic surveys are known to have taken place to search for potential remaining individuals (Chasse 2010, p. 1).

Between 1930 and 1947, prior to the loss of the wild plants, botanists collected cuttings and rooted specimens from confirmed wild *Arctostaphylos franciscana* plants representing possibly one to six distinct individuals, and propagated them in botanical gardens (Vasey 2011b, p. 2; Chasse 2011a, p. 1; Chasse 2011b, p. 1; Service 2003, p. 96; Chasse *et al.* 2009, p. 7). The number of distinct individuals depends on whether more than one of the botanical garden specimens were started from cuttings of the same individual (which would mean multiple plants would have identical genotypes) or whether all the specimens originated from separate plants (in which case all the specimens would have different genotypes) (Vasey 2011b, pp. 2, 3; Chasse 2011a, p. 1; Chasse 2011b, p. 1). Genotype is defined as the genetic constitution of an individual.

Accession records for the botanical garden specimens indicate that some specimens collected and planted prior to 1947 did not survive and that others are duplicates of original collections leaving only three specimens confirmed to have been original plants transplanted from Laurel Hill (Chasse 2011b, p. 1). Further genetic work will verify whether plants with differing morphological features prove to be additional *A. franciscana* individuals. Although some of the botanical garden specimens may have different genotypes, which is the result of sexual reproduction (sprouting from seed) rather than clonal reproduction, all of the botanical garden specimens are currently considered to be *A. franciscana* until further genetic work can be conducted. The number of existing distinct individuals cannot currently be determined because a suitable genetic sampling technique has not yet been developed (Chasse 2011a, p. 1). Modern collections of this plant at East Bay Regional Park District's Botanical Garden at Tilden Regional Park, Strybing Arboretum, Rancho Santa Ana Botanic Garden, Claremont, and UC Berkeley Botanical Garden include some of the original specimens from Laurel

Hill, as well as specimens propagated vegetatively after the species was thought to have been extinct in the wild (Chasse *et al.* 2009, pp. 6–8).

In October 2009, an ecologist identified a plant growing in a concrete-bound median strip along Doyle Drive in the Presidio as *Arctostaphylos franciscana* (Chasse *et al.* 2009 pp. 3, 4; Gluesenkamp 2010, p. 7). The plant's location was directly in the footprint of a roadway improvement project designed to upgrade the seismic and structural integrity of the south access to the Golden Gate Bridge (Caltrans *et al.* 2009, p. 1; Chasse *et al.* 2009, p. 10). The identification of the plant as *A. franciscana* has since been confirmed with 95 percent confidence based on morphological characteristics (Chasse *et al.* 2009 pp. 3, 4; Vasey and Parker 2010, pp. 1, 5). Additional tests of ploidy level indicate that the plant is diploid, consistent with *A. franciscana* (Vasey and Parker 2010, p. 6). Molecular genetic data also indicate that the plant is *A. franciscana* (Parker 2010a). Based on the best available scientific information, we consider the individual found along Doyle Drive in October 2009 to be *A. franciscana* (Vasey and Parker 2010, pp. 1, 5–7).

Several agencies, including the Service, established an MOA and conservation plan for the species (see *Previous Federal Actions* section above). The conservation partners concluded that leaving the plant undisturbed at its original site would compromise public safety and cultural resources by the potential curtailment or redesign of the roadway improvement project (Chasse *et al.* 2009, pp. 9, 10).

The conservation plan evaluated potential translocation sites, established procedures for preparation of the new site and for the translocation itself, and called for 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 (Chasse *et al.* 2009, pp. 23–27, 29–30). Following recommendations in the conservation plan, the *Arctostaphylos franciscana* plant was moved successfully to a new site within the Presidio in January 2010. Subsequent monitoring reports indicate the translocated plant continues to do well at its new location (Yam 2010, pp. 1, 3–14, Young 2010a, p. 1).

Cuttings from the plant, both from nonrooted stems and from layering stems (stems that have rooted at their leaf nodes), were taken for vegetative propagation prior to its translocation in January 2010 (Chasse *et al.* 2009, pp.

10–16, 40–42, Young 2010a, p. 1). This material was distributed to seven locations including UC Berkeley Botanic Garden, Regional Parks Botanic Garden, UC Santa Cruz Botanical Garden, San Francisco Botanical Garden, Cal Flora Nursery, Presidio Nursery, and the Presidio Trust Forester (Young, 2011). A total of 1,346 seeds were collected in July and August, 2010, from the plant (Young 2010a, p. 1; Frey 2010, p. 1).

The plan calls for eventual propagation of seeds (including seeds collected from the soil around the plant's original location), and for genetic testing of resulting plants. Seeds fertilized in the wild could result from cross-pollination by pollen from another individual *Arctostaphylos franciscana* or a closely related species and would produce a genetically unique individual (Chasse *et al.* 2009, p. 13). 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 (Chasse *et al.* 2009, p. 9). Propagation of *A. franciscana* seed and inoculation of seeds and cuttings by mycorrhizal fungi have not yet occurred. Soil surrounding the wild plant is being examined for presence of a seedbank but no *A. franciscana* seed has yet been found (Young 2011, p. 1). Propagation methods for *A. franciscana* seed will be developed using seed of a surrogate species, *A. montana* ssp. *montana*, which was collected from Mount Tamalpais in 2010 (Young 2011, p. 1). Outplanting of two rooted *A. franciscana* cuttings took place at the UC Santa Cruz Arboretum in January 2011 (Kriegar 2011, unpaginated).

#### Summary of Information Pertaining to the Five Factors

Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the following five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. Listing

actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

In considering what factors might constitute threats to a species, we must look beyond the exposure of the species to a particular factor to evaluate whether the species may respond to that factor in a way that causes actual impacts to the species. If there is exposure to a factor and the species responds negatively, the factor may be a threat and, during our review, we attempt to determine how significant a threat it is. The threat is significant if it drives, or contributes to, the risk of extinction of the species such that the species warrants listing as endangered or threatened as those terms are defined in the Act. However, the identification of factors that could impact a species negatively may not be sufficient to compel a finding that the species warrants listing. The information must include evidence sufficient to suggest that these factors are operative threats that act on the species to the point that the species may meet the definition of endangered or threatened under the Act.

*Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

All known habitat originally occupied by *Arctostaphylos franciscana* has been lost to urban development (Chasse *et al.* 2009, pp. 4, 7). The range of the species is now limited to a single transplanted plant on the Presidio. In January 2010, after the newly discovered wild plant was moved to the Presidio, the plant's habitat at Doyle Drive was destroyed as part of a Caltrans highway improvement project. The loss of the plant's native serpentine chaparral habitat to development and the curtailment of the species' range restrict the species' current and future ability to naturally reproduce and expand its range.

The remaining area of potential habitat for the species on the San Francisco peninsula has not yet been determined but is very limited as a result of past urban development. Although areas of greenstone or serpentine soils remain on the peninsula, the residual effects of urbanization (primarily habitat fragmentation and degradation) have resulted in reducing the remaining greenstone/serpentine soils into areas of about 0.4 hectare (ha) (1 acre (ac)) or less in size with some up to 2.4 ha (6 ac). These small remnant areas may no longer be suitable for reestablishment of *A. franciscana* due to factors such as dominance by other plant species (Chasse pers. comm., 2011). Currently,

these small, isolated parcels are subject to "edge effects" such as increased invasion of weed species that would compete with *A. franciscana* for limited resources (water, nutrients, space).

Small isolated parcels have also been shown to be dryer than larger parcels and the habitat on these smaller parcels has become desiccated due to lack of surrounding vegetation, thus potentially leading to increased plant stress (Murcia 1995, p. 58). Urban barriers such as streets and buildings have been found to impose a high degree of isolation on chaparral species and to result in trends for decreased numbers of native plant species and concurrent increased numbers of nonnative plant species in habitat fragments over time (Soule *et al.* 1992, pp. 41–43); Alberts *et al.* (unpubl.) as cited in Soule *et al.* 1992, p. 41). These effects of the urbanization of the San Francisco peninsula are expected to continue to affect these remnant parcels into the future and to pose a threat to establishment of additional *A. franciscana*.

Additionally, nitrogen deposition poses a current and continuing threat to remnant habitat that might otherwise be found to be suitable for *Arctostaphylos franciscana*. Weiss and Luth (2003, p. 1) have conducted research on the effects of nitrogen deposition in a serpentine grassland south of the San Franciscan peninsula, which has bearing on threats to *A. franciscana*. Weiss and Luth found that nitrogen deposition from automobiles on Highway 280 was responsible for higher nitrogen levels in the soil within 400 m (1,312 ft) on the west side and 100 m (328 ft) on the east side of the roadway. Grass cover was higher in these areas. Native species within this zone are thought to be at long-term risk from invasions of nitrogen-loving grasses and other weedy plant species. The entire northern San Francisco peninsula, with the exception of the Presidio and Golden Gate Park, has been urbanized, and four major highways travel across the peninsula (Highways 1, 101, 280, and 480). Urban areas and roadways are a continuous source of nitrogen deposition from automobiles, trucks, and industrial and home heating (Weiss 1999, p. 1477). Invasions of nitrogen-loving plants into nitrogen-limited grasslands and shrublands appears to be a common response to atmospheric nitrogen deposition (Weiss and Luth 2003, p. 1) and may partly explain why the ecosystem that existed on the San Francisco peninsula has been so altered.

The one remaining wild plant is subject to multiple threats. The Presidio Trust's Vegetation Management Plan provides for the protection and

management of rare plants on the Presidio (further discussed in *Factor D*). However, in some cases when the Trust has acted as a project proponent on the Presidio, direct project impacts to federally listed species and their habitat have resulted. For example, actions by the Presidio Trust and NPS related to management and remediation of former Army landfills on the Presidio have impacted federally listed plant species, including the *Lessingia germanorum* (San Francisco lessingia), and their habitat. Remediation of a large landfill near the transplanted *Arctostaphylos franciscana* plant is ongoing (M. Frey, pers. comm., 2011a) and has the potential to impact the plant and its habitat due to their close proximity to the remediation site. The remaining remediation activities involve the use of heavy equipment to complete final recontouring and to bring in soil to the site, followed by installation of plants, and restoration of original habitat features at the landfill (Presidio Trust 2011a, p. 2, M. Frey, pers. comm., 2011b).

We are not aware of any specific proposals by the Presidio Trust for other activities in or near the habitat of the remaining wild *A. franciscana* plant. However, the Presidio Trust Act contains a sunset clause that could result in the transfer of Presidio holdings to the General Services Administration for disbursement, if the Trust operations are not self-sufficient by 2013. The Presidio Trust Act is discussed under *Factor D* below; however, the potential that lands could be transferred and become available for development presents a threat that additional habitat loss could occur within the foreseeable future.

Based on the best scientific and commercial information available, we consider the present or threatened destruction, modification, or curtailment of the species habitat or range to be a high-magnitude and ongoing (imminent) threat to the wild population of *Arctostaphylos franciscana*. 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 only remaining wild plant in the foreseeable future.

*Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

Overutilization of the species is possible due to the popularity of *Arctostaphylos franciscana* for landscape use, as evidenced by the widespread use of cultivars of this species in the commercial nursery trade. *Arctostaphylos franciscana* is specifically recommended for use in erosion control on steep slopes (Theodore Payne Foundation 2009, p. 1; Sierra Club 2011, p. 1).

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. The Presidio is a National Park and is part of the Golden Gate National Recreation Area; the Presidio is open to the public 24 hours a day, every day of the week and receives 5 million visitors annually. Because of the Presidio's proximity to the City of San Francisco and because the Park has no entrance fees and contains restaurants, trails, and businesses that can be accessed by car, foot, or public transport, it receives heavy use. The Presidio Trust and NPS are making serious efforts not to disclose the location of the translocated plant. The Presidio Trust and NPS are concerned that public knowledge of the plant's location would lead to authorized and unauthorized group tours by plant enthusiasts that would overwhelm the *Arctostaphylos franciscana* and compact the soil (T. Thomas, pers. comm., 2011).

No damage to the plant has been observed to date; however, trampling or the taking of cuttings could occur if the identification and location of the plant become known. Similarly, another extremely rare plant, *Arctostaphylos montana* ssp. *ravenii* is also located on the Presidio. Its location has not been revealed to the public by NPS in order to protect the plant from vandalism although it was federally listed as endangered in 1979.

Based on the best scientific and commercial information available, we consider the overutilization for commercial and recreational purposes to be a high-magnitude and ongoing (imminent) threat to wild *Arctostaphylos franciscana* plants. Although captively propagated *A. franciscana* are available to residents for use in private gardens, collection of

wild individuals is a threat to the species, and we expect it may be a threat in the foreseeable future, particularly if the location of the plant becomes known to the public.

*Factor C. Disease or Predation*

Transplantation of the single wild *Arctostaphylos franciscana* plant may have caused stress to the plant, and thereby made the plant more susceptible to predation and disease. In this case, stress and root damage may result from a number of sources including compaction of soil from foot traffic around the plant (Hammit and Cole 1998, p. 52), too little or too much water, and improper planting depth. A fungal infection called twig blight is also a potential concern, particularly during wet years (Service 2003, p. 69). Some twig blight was observed in the wild plant during winter of 2009–2010, but it subsided during the dry summer months (Chasse 2010, p. 2).

The soil-borne pathogen, *Phytophthora cinnamomi*, has long been known as a world-wide threat to commercial and ornamental plants. *Phytophthora cinnamomi* is a fungus-like organism most closely related to diatoms and kelp (Kingdom Stramenopila) rather than to the true fungi (Kingdom Fungi or Eumycota). It is an introduced exotic pathogen in North America whose native range is unknown, but is suspected to be southeast Asia. Human-related activities, including the international plant trade have facilitated spread of *P. cinnamomi* into many habitats worldwide (Swiecki *et al.* in press, p. 3). *Phytophthora cinnamomi* was introduced to California early in the 20th century and recently has been identified as a serious threat to the State's native plants and their habitats (Swiecki *et al.* in press, p. 3).

*Phytophthora cinnamomi* has been the cause of the decline and death of rare *Arctostaphylos* species, including the federally threatened *A. pallida* (pallid manzanita) in the Oakland Hills of the East San Francisco Bay region, and federally threatened *A. myrtifolia* (Ione manzanita) near Ione in the Sierra Nevada foothills, and of other woody native species in the San Francisco Bay area (Swiecki *et al.* in press, pp. 3–5). This organism causes root decay but can also kill above-ground portions of some plants (Swiecki *et al.* in press, p. 3). *Phytophthora cinnamomi* is persistent in soil, and once introduced to native habitat, it cannot be eradicated (Swiecki *et al.* in press, p. 3). *Phytophthora cinnamomi* is transmitted by contaminated shoes, tools, and infested soil clinging to tires, and by using

contaminated nursery stock, including native plant stock. Many areas showing plant mortality caused by *P. cinnamomi* are associated with hiking trails, landscaping with ornamental plants, and, in one case at the Apricum Hill Preserve, with use by visitors including researchers, agency personnel, and students (Swiecki *et al.* in press, p. 4).

This pathogen poses a significant threat in the foreseeable future to *A. franciscana* through the potential for infestation by the public and by staff who regularly work with the plant. It is not possible to predict when the pathogen might infect the single plant since the disease is generally transmitted directly or indirectly by humans or human activity. The pathogen could be introduced from soil on contaminated shoes and tools, or from cuttings of *A. franciscana* plants that are currently being grown in a number of nurseries in the San Francisco Bay area that could become contaminated. Swiecki *et al.* (in press, p. 6) tested *A. menziesii* plants purchased from four nurseries and found them to be infested with four *Phytophthora* species that cause root infections or stem cankers, including *P. cinnamomi*. Crown rot, which is caused by *P. cinnamomi*, is known to occur in *A. myrtifolia* and *A. viscida* (Swiecki *et al.* in press, p. 3), and is a concern when outplanting nursery-grown plants to wild locations (Chasse *et al.* 2009, p. 17). However, crown rot has not been observed in the wild plant (Chasse 2010, p. 2).

*Arctostaphylos franciscana* cuttings are proposed to be planted with the transplanted *A. franciscana* to facilitate cross-pollination of the different genotypes. Should the wild plant become contaminated with *P. cinnamomi*, the result would be the decline and death of the wild plant and the permanent contamination of the soil and seedbank beneath the plant. Any seedlings that germinate from this seedbank would also very likely be contaminated and not survive. Any cuttings that become contaminated will also die of the pathogen. The Golden Gate National Parks Conservancy staff in charge of propagation and care of *A. franciscana* cuttings are aware of the threat of contamination and rigorously follow clean procedures to prevent infection to the cuttings or the wild plant; however, a risk of contamination continues to exist because current fungicides do not eradicate 100 percent of *Phytophthora* spores (Young 2010b, p. 1). The cuttings and layers have been dispersed to seven different locations and growers, which, while decreasing the risk of complete loss of plant

material, also increases the risk of exposure to disease.

After being transplanted, the wild plant became severely infested with the larvae of a native leaf roller moth (*Argyrotaenia franciscana*) (Estelle 2010, p. 1). Treatment for the infestation was hand removal of the larvae and all infected leaves, which resulted in the removal of some of the new growth on the plant (Young 2010a, p. 1; Estelle 2010, p. 1). A parasitic wasp emerged from one leaf roller moth larva that had been captured, indicating that the moth has natural enemies (M. Frey 2010, p. 2). The moth has not been known to kill plants and does not appear to be a serious threat at this time; however, the moth species was found to have five overlapping generations in a year (Estelle 2010, p. 1), so monthly removal of moth larvae and pupae is planned (Frey 2010, p. 2). The leaf roller moth infestation in early 2010 did not permanently damage the plant; new growth has been observed, and the plant began blooming in November 2010 (Frey 2010, p. 2).

We conclude that the best scientific and commercial information available indicates that *Arctostaphylos franciscana* is threatened by disease and predation. We consider predation to be a relatively minor (low magnitude) but ongoing (imminent) threat to the wild population of the species. Although the leaf roller moth has not been known to kill *Arctostaphylos* species, the moth produces five overlapping generations per year and severely damaged the leaves in 2010. We consider infection of the plant by *P. cinnamomi* to be a high-magnitude and ongoing (imminent) threat to *A. franciscana* because only one plant occurs in the wild and the disease is easily and quickly spread by multiple vectors.

#### *Factor D. The Inadequacy of Existing Regulatory Mechanisms*

Regulatory mechanisms protecting *Arctostaphylos franciscana* derive primarily from the location of the single known wild plant on Golden Gate National Recreation Area lands on the Presidio, which are administered by the Presidio Trust. The Presidio Trust was established by the Presidio Trust Act of 1996 to manage the leasing, maintenance, rehabilitation, repair, and improvement of property within the Presidio (Presidio Trust Act, as amended, Section 104(a)). The Presidio Trust is directed to preserve the natural, scenic, cultural, and recreational resources on the Presidio, but also is directed to ensure that the Presidio becomes financially self-sufficient by 2013 (Presidio Trust 2002, pp. 1, 2, 12).

The Presidio Trust Act directed that the Presidio Trust design a management program to reduce expenditures of the NPS and increase revenues to the Federal Government to the maximum extent possible (Presidio Trust Act, pp. 5, 6). The Presidio Trust Management Plan was published in May 2002.

Federal regulations at the Presidio, which offer some protection to *Arctostaphylos franciscana*, include regulations that prohibit disturbing, injuring, removing, possessing, digging, defacing, or destroying from its natural state, any plant or parts thereof. Unauthorized introduction of plants and plant seeds is also prohibited, offering limited protection against invasive nonnative species. Additional regulations require that special events be permitted by the Trust, and provide for restricting visitor use to address resource conflicts (36 CFR, part 1002).

The Presidio Trust and the NPS have developed a Vegetation Management Plan for the Presidio. For special status plants, the plan provides an objective to preserve and enhance rare plant habitats by evaluating species-specific habitat needs and giving high priority to actions that preserve and enhance those habitats (Presidio Trust 2001, Chapter 3, unpaginated).

Future management of the Presidio, and of *Arctostaphylos franciscana* and its habitat, are uncertain because of differences in the missions of the Presidio Trust and NPS. The Presidio Trust is a new model for National Park management in that the Trust is directed to preserve the natural, scenic, cultural, and recreational resources on the Presidio, and at the same time ensure that the Presidio becomes financially self-sufficient by 2013 (Presidio Trust 2002, pp. 1, 12), which means that generation of revenue is a consideration for its activities as well as resource protection. The cost of operation and care are higher for this park than for most National Parks because of the Presidio's large number of structures and cultivated landscapes (Presidio Trust 2011, unpaginated). In 2002, the Trust adopted a management program designed to reduce expenditures of the NPS and to increase revenues to the Federal Government to the maximum extent possible (Presidio Trust 2002, p. 1; Presidio Trust Act, as amended 2001, p. 6). The mission of NPS on the Presidio as stated in the Golden Gate National Recreation Area Act (16 U.S.C. 460bb), although similar to the Presidio Trust Act regarding the protection of natural, historic, scenic, and recreational values, does not include the mandate to ensure that the Presidio becomes financially self-sufficient.

The future status of the Presidio as National Park land is uncertain, as explained in the Presidio Trust Act, Section 104(o) Reversion, which states: If, at the expiration of 15 years, the Trust has not accomplished the goals and objectives of the plan required in section 105(b) of the Presidio Trust Act, then all property under the administrative jurisdiction of the Trust pursuant to section 103(b) of this Act shall be transferred to the Administrator of the General Services Administration to be disposed of in accordance with the procedures outlined in the Defense Authorization Act of 1990 (104 Stat. 1809) and any real property so transferred shall be deleted from the boundary of the Golden Gate National Recreation Area. In the event of such transfer, the terms and conditions of all agreements and loans regarding such lands and facilities entered into by the Trust shall be binding on any successor in interest (Presidio Trust Act, Section 104(o), p. 9). This clause indicates that lands currently considered National Parks lands could be disbursed to the private sector and subject to development within the near future.

The Presidio Trust is subject to section 7 consultation under the Act, which would confer protections to the plant should it be listed under the Act. For example, actions by the Presidio Trust and NPS related to management and remediation of former Army landfills on the Presidio have impacted federally listed plant species including the federally endangered *Lessingia germanorum* (San Francisco lessingia) and federally endangered *Clarkia franciscana* (Presidio clarkia). Because those plant species are federally listed, the Presidio Trust has consulted with the Service to minimize such impacts. *Arctostaphylos franciscana* does not currently have these protections.

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 (Caltrans 2009, p. 8; Chasse *et al.* 2009, p. 3), 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 *Arctostaphylos franciscana*, or any other such wild specimens that may be established or found to exist.

Based on the best scientific and commercial information available, we consider the inadequacy of existing regulatory mechanisms to be a threat of moderate-to-low magnitude to the species. We expect this threat to

continue into the future unless the species is listed under the Act, and thus we consider the threat to be ongoing (imminent).

*Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence*

Potential threats to the species include changes in environmental conditions resulting from climate change, trampling, or disturbance by people visiting the Presidio, change in fire frequency, loss of genetic diversity, and stochastic (chance) events.

**Climate Change**

Changes in environmental conditions resulting from climate change may cause presently suitable habitat to become unsuitable for endemic California plants in general, due to projected changes in temperature and rainfall (Loarie *et al.* 2008, pp. 1–2). A U.S. Geological Survey (USGS) study in National Park lands in northern California and Oregon is being conducted to examine trends in climate, ocean conditions, and other features (Madej *et al.* 2010, p. 7). In these National Park lands, variation in abiotic factors (for example, precipitation, fog, and air and ocean temperatures) regulates many ecological processes, including the distribution of vegetation and frequency of disturbance from fires, floods, landslides, and pest species. The preliminary results of the USGS study 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 (Madej *et al.* 2010, p. 24; Johnstone and Dawson, 2010, p. 4535).

Summer fog is important to upland coastal vegetation and partly determines the distribution of coastal species (Johnstone and Dawson 2010, p. 4533). Besides serpentine soil and cool air temperatures, (Parker 2010c, p. 1), summer fog is one of the primary habitat requirements for *Arctostaphylos franciscana* (Vasey 2010, p. 1). Summer fog results from the presence of two phenomena that may be affected by changes in environmental conditions resulting from climate change: Upwelling of cold, coastal ocean water and a temperature inversion of hot air flowing toward the ocean over a cool, humid marine air layer below (Vasey 2010, p. 1; Johnstone and Dawson 2010, p. 4533). Fog reduces sunlight and air temperature, and raises humidity. Summer fog provides a source of water for plants, including *Arctostaphylos* species, by condensing in the plant canopy and falling directly as water to

the soil and being taken up by the plant's roots or by being taken up directly by leaves (Johnstone and Dawson 2010, p. 4533; Vasey 2010, p. 1).

Fog frequency is highest in north and central California and declines in Oregon and Southern California. Mean fog frequency in the California region, quantified by cloud ceiling height measured at airports, has decreased since 1951 (Johnstone and Dawson 2010; p. 4535). Research by Vasey suggests that most coastal endemic *Arctostaphylos* species are more vulnerable to drought stress than those found in interior California and could be threatened by a decrease in coastal summer fog (Vasey 2010, p. 1). Vasey has found that obligately seeding *Arctostaphylos* species, such as *A. franciscana*, are better hydrated in areas that receive fog. He also found that obligately seeding species are more vulnerable to vascular cavitation (air bubbles forming in water vessels in the plant) when the rate of evapotranspiration of water through the leaves becomes too great (Vasey 2010, p. 1). This disruption of water flow can lead to branch death and possible death of the entire plant (Vasey 2010, p. 1).

Reduced soil moisture from loss of summer fog may also result in a reduction of seed germination and seedling survival. Additionally, the ability of *A. franciscana* to track future climate changes by establishing new plants in new habitat may be limited because of its association with serpentine and greenstone bedrock outcrops (Service 2003, pp. 95, 96) and because remaining soils derived from serpentine and greenstone bedrock on the peninsula are limited in area and largely fragmented (Chasse 2010, p. 1). If the trend towards a warmer, drier climate continues as shown in data from Madej *et al.* (2010, p. 24) and Johnstone and Dawson (2010, p. 4535), the climate may become too warm or dry to support *A. franciscana*. 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.

**Alteration of the Natural Fire Regime**

Fire, in addition to soil type and climate, plays an important role in the determination of plant distribution (Keeley 2007, p. 19). The chaparral plant community, of which *Arctostaphylos* is an important member, is adapted to specific fire regimes that vary in different areas in California. In the San Francisco East Bay region, the current fire rotation interval is estimated at about 100 years (Keeley 2007, p. 20). Factors that affect the fire frequency in

the San Francisco Bay area are a short fire season, moist climate, the local human population density, and changes in human behavior. Due to prevailing ocean winds and frequent fogs, the average relative humidity along the coast is moderate to high throughout the year. The exceptions typically occur in the fall, when changing prevailing weather patterns allow dry northeasterly winds from the State's interior to reduce humidity in the coastal area to around 20 percent, thereby creating dry and windy conditions that typify high fire danger (GGNRA 2005, pp. 136, 140).

Fire frequency in the San Francisco Bay area has varied substantially in the last several thousand years. Not only have fire regimes changed with changing climate, fire regimes have changed as patterns of human utilization of the landscape have changed. Disturbances by fire occurred at long intervals in the pre-human period, then at shorter intervals during the late Native American and Spanish-Mexican period, at moderate intervals during the European settlement period, and have generally returned to long intervals in the modern period (GGNRA 2005, pp. 144–147). The natural fire regime has been heavily altered by the urbanization of San Francisco and the fragmentation of remaining undeveloped lands. The City of San Francisco is essentially built out, with the exception of small isolated parcels and undeveloped hilltops. Lands administered by the NPS and the Presidio Trust are surrounded by other land uses and close to the wildland-urban boundary where landscape plants and nonnative plants contribute to vegetative buildup (GGNRA 2005, pp. 130–131) that can increase fire danger. In addition, fire suppression has been prevalent during the last 100 years. This altered fire regime has led to an increase in crown and surface fuels, contributing to high-intensity fires (GGNRA 2005, p. 147). These administered lands could eventually be identified as suitable for outplanting *Arctostaphylos franciscana* seedlings, but the specific habitat characteristics for the species are not known at this time.

Two opposing types of changes in fire frequency can threaten *Arctostaphylos franciscana*. First, "senescence risk" occurs when too little fire leads to the loss of a species that is dependent on fire for regeneration from seeds or sprouts. The second is "immaturity risk," which is a threat especially to obligate-seeding species. In this case, wildfires that occur too frequently will kill plants before they can reach reproductive maturity and produce seed (Keeley 2007, p. 18). Wildfire can

substantially reduce the number of live seeds in the soil (Odion and Tyler 2002, p. 1). Odion and Tyler (2002 p. 1) found that a controlled burn in a 40-year-old stand of *A. morroensis* (Morro manzanita) substantially reduced the seedbank to 33 percent of that which had accumulated in the soil since the previous burn 40 years earlier. Three years after the burn, the new population of *A. morroensis* that had germinated from the seedbank was less than half the size of the original population (Odion and Tyler 2002, p. 1). Odion and Tyler (2002 p. 2) concluded that if viable seed densities in the soil are too low because fires are too frequent to allow seeds to accumulate in the soil, the population may risk extinction.

The fire return interval for this general area, and, therefore, for this species, is currently approximately 100 to 125 years (T. Parker pers. comm., 2011, Vasey 2011a, p. 1). The long fire return interval is not thought to be a threat to the mature *Arctostaphylos franciscana* plant at the Presidio or to future seedlings that are likely to be outplanted in the future as a result of efforts by the NPS and the Presidio Trust. Infrequent fire would allow the mature plant at the Presidio to produce seed to build up a sufficiently large seedbank to withstand seed loss from wildfire, and would allow the growth of outplantings. However, if fire continues to be excluded from these areas and the fire return interval greatly exceeds the natural return interval, over time the loss of fire may also result in the loss of the mature plant and individual outplanted seedlings due to competition by plants, including nonnative plants, that could encroach upon the manzanita.

Other aspects of the altered fire regime within the remaining undeveloped lands of San Francisco pose greater threats to the species. Alteration of the fire regime has led to an increase in crown and surface fuels in some areas, leading NPS fire planners to conclude that it is difficult to predict where the changed fire regime will ultimately lead, given the trend to warmer and drier climate conditions (Madej *et al.* 2010, p. 24; Johnstone and Dawson, 2010, p. 4535), and the climatic correlation with fire frequency (GGNRA 2005, pp. 147, 148). In the past, large fires have occurred within areas that are typically subject to maritime climatic conditions. Such fires include the 1923 Berkeley Fire; the October 1991 Oakland Fire (Keeley 2005, p. 286) that burned 607 ha (1,500 ac); the October 1995 fire at Point Reyes National Seashore that burned 4,999 ha (12,354 ac) (GGNRA 2005, p. 151); and

the 1,133-ha (2,800-ac) 2009 Lockheed Fire north of the City of Santa Cruz (The Associated Press 2009). On the Presidio, fire history data show that 17 fires occurred between 2000 and 2009, with no fires in some years and as many as 5 fires in other years. All fires were contained at 0.04 ha (0.1 ac) or less (A. Forrester, pers. comm., 2011a, 2011b). In the same period, approximately four wildfires occurred in the Marin Headlands, directly to the north of the Presidio across the Golden Gate, while recent fire history records for all areas of the GGNRA show the potential for larger wildfires in the maritime zone (GGNRA 2005, pp. 150–155).

Although the Presidio is located within a highly urbanized setting, substantial areas of open space within the Presidio itself and within the adjacent GGNRA lands harbor an interspersed mixture of vegetative types, including native vegetation, landscaped grounds, and forest (GGNRA 2005, pp. 190–199; Presidio Trust 2011, unpaginated). Grasslands are now dominated by nonnative annual grasses and forbs, which burn with greater intensity and have a more rapid rate of spread (GGNRA 2005, p. 192). A fire model prepared by the GGNRA indicates that areas managed by the GGNRA on the western and southwestern borders of Presidio Trust lands present a moderate and moderate-high fire hazard (GGNRA 2005, p. E–7). As a result of the altered fire regime, infrequent fires may burn larger and hotter than previously occurred, potentially increasing the loss of seedbanks when such fires do occur. As a result of the altered fire regime, the incidence of wildfire may also increase, which would be detrimental to *Arctostaphylos franciscana* by killing mature plants, seedlings, and seeds in the seedbank. In obligate-seeding species, such as *A. franciscana*, fire normally kills the adult plants, which are then replaced by plants that germinate from seed in the soil seedbank after the fire. A wildfire that would kill the single wild *A. franciscana* would be an especially serious threat to the future of the species because no *A. franciscana* seedbank has been found in soil collected from the area beneath the wild plant (Young 2011, p. 1).

#### Trampling

Trampling by people could impact the wild plant, and its offspring, or any herbarium-raised plants that are restored to the wild, if they are placed in areas subject to regular foot traffic. The translocated wild plant has been planted in an active native plant

management area that receives heavy public use; however, it is protected by a cable and post fence from public access and is monitored (Chasse *et al.* 2009, pp. 20–28). The post and cable fence was placed along an adjacent trail so that people do not enter the immediate area around the plant. The fence currently appears to be working well (Young 2010a, p. 1); however, a single trampling event could result in damage or the death of the wild plant. As noted under *Factor B*, the Presidio Trust and NPS have made continuous efforts not to reveal the location of *Arctostaphylos franciscana*. They are concerned that public knowledge of the *A. franciscana* location would attract large numbers of plant enthusiasts who may damage the *A. franciscana* and compact the soil (T. Thomas, pers. comm., 2011).

Roots grow into soil to maintain stability and to extract water and nutrients; however, soil compaction from trampling increases the resistance of the soil to root penetration and thus diminishes the plant's ability to extract sufficient water and nutrients. Soil compaction also reduces water infiltration rates from rainfall and reduces soil aeration by collapsing the larger pores in the soil. Reduced soil oxygen levels from loss of soil pores also can reduce root growth, which further reduces water and nutrient uptake (Hammit and Cole 1998, p. 52). Soil compaction also inhibits seed germination and establishment of new plants. Smooth, dense soil makes it difficult for the radicle (the seedling's primary root) to penetrate the soil for stability, water, and nutrients (Hammit and Cole 1998, p. 52). Trampling has also been found to cause considerable damage to mycorrhizal fungi in seedling roots (Walter *et al.* 2002, p. 1). As noted in the Distribution and Habitat section, most *Arctostaphylos* species form strong symbiotic associations with soil mycorrhizal fungi, which form an external sheath surrounding the plant's roots; all water and nutrients pass through this sheath to the plant's roots rather than directly from the soil to the plant's roots (Chasse 2009, p. 12). Damage from trampling will not only impact the wild plant by reducing its ability to take up water and nutrients, but will also reduce the ability of any seedlings germinating near the wild plant to survive.

#### Vandalism

The location of the *Arctostaphylos franciscana* plant within the Presidio is near common-use trails and an area that is available for rent for private and public events. Threats to *A. franciscana*

include damage from vandalism and interested visitors. Vandalism to trees was reported in the Presidio in the early 2000's (T. Thomas pers. comm. 2011). Severe vandalism was observed in Golden Gate Park, located approximately 1.5 mi (2.4 km) south of the Presidio, in summer 2010 where more than 40 trees and 30 rose bushes were killed by unknown persons for unknown reasons (King 2010, unpaginated, Gordon 2010, unpaginated). The post and cable fence protecting *A. franciscana* in the Presidio is approximately 30 ft (9.1 m) from the plant and is not constructed to completely exclude visitors.

#### Loss of Genetic Diversity

Any new population starting from the single wild plant is likely to have reduced genetic variation compared to historical populations. The generation with the smallest number of individuals has the greatest effect on the genetic variation of subsequent generations. Even if the number of plants is expanded, it may not reverse the previous genetic loss known as the "bottleneck effect" (Allendorf and Luikart 2007, p. 158). Bottlenecks generally have a greater and more lasting effect on the loss of genetic variation in species that have slow growth rates (long-lived species with few offspring) (Allendorf and Luikart 2007, p. 133). The age of the single wild *A. franciscana* plant is estimated at 60 years, and no other *A. franciscana* plants or seedlings were found associated with the wild plant.

Reduced genetic variation may result in the plant's offspring not being able to adapt to changes in habitat such as those noted above in the discussion on climate change (decrease in fog and increase in temperature), or loss of pollinators (see pollinator discussion below). *Arctostaphylos franciscana* may be capable of self-pollination. In general, self-pollination results in a decrease in genetic variation in the offspring of a plant (Allendorf and Luikart, 2007, p. 123); therefore, a loss of genetic variation is expected if *A. franciscana* is dependent on self-pollination to produce seed. In a study on the effects of habitat fragmentation on a non-self-pollinating plant (Lennartsson 2002, pp. 3065, 3066, 3068), the author found that fragmented populations exhibited dramatically reduced seed set and population viability, both caused by a reduction in number of pollinators. Threats associated with reduced seed production are discussed further in the following section on Stochastic Events and Small Population Size.

#### Stochastic Events and Small Population Size

Chance events constitute a serious threat to the species. Because the known population of *Arctostaphylos franciscana* in the wild is currently limited to a single plant, the species is extremely vulnerable to stochastic events—normal but damaging environmental perturbations and catastrophes such as droughts, storm damage, and fires, from which large, wide-ranging populations can generally recover, but which may lead to extirpation of small, isolated populations (Gilpin and Soule 1986, pp. 25–31). Suitable pollinators may be critical for seed production for this obligately seeding species. If pollinators are not present or are in insufficient numbers, viable seeds may not be produced to develop and maintain the seedbank. Pollinators have been observed on the wild plant; however, no surveys have yet taken place to identify the most important pollinators. The most frequent pollinators seen have been bees and bumblebees; however, hummingbirds and butterflies have also been seen visiting the *A. franciscana* flowers, likely because few other plants are blooming during the winter months when *A. franciscana* blooms (M. Vasey, pers. comm. 2010). Although the loss of the seed produced in a single year would not likely lead to the extirpation of the species, a continued reduction of the seed crop or dependence on self-pollination would reduce the seedbank, the genetic variation, and the potential for expansion of the population.

The wild plant is also threatened by the Allee effect, which is a decline in population growth rate due to declining plant density (Akçakaya *et al.* 1999, p. 86). For the wild plant, the Allee effect may result from a lack of other available *Arctostaphylos franciscana* plants with which to cross-pollinate and produce viable seed. The wild plant is the single remaining individual of its species in the wild and is currently dependent on its potential ability to self-pollinate, which may be limited, and the efforts of researchers and Presidio staff to provide additional plants of different genotypes from botanical garden specimens (if they are proven to be *A. franciscana*) to cross-pollinate with the wild plant to produce new plants and populations.

#### Hybridization

Cultivars of *Arctostaphylos franciscana* are used in the commercial nursery trade. The cultivars are likely descended from some of the last wild *A. franciscana* plants known to exist in the 1940s and are located in at least four

botanical gardens (Chasse *et al.* 2009, pp. 7, 8). Since hybridization between diploid species of manzanita is well recognized (Chasse *et al.* 2009, p. 5), there is a good chance that many of these commercially available specimens have resulted from hybridization. Because of the threat of cross-pollination from hybrids or other species (Allendorf *et al.* 2001, pp. 613, 618–621), any propagation or reintroduction programs for *A. franciscana* must account for subsequent contamination and swamping of the *A. franciscana* gene pool. The conservation plan does take this into account by recommending that future outplantings of nursery-raised plants avoid areas that could facilitate cross-pollination (Chasse *et al.* 2009, p. 31). Appropriate outplanting areas will be determined by *A. franciscana* experts in conjunction with the NPS, the Presidio Trust, and the Golden Gate National Parks Conservancy (Chasse *et al.* 2009, p. 31). Although cross-pollination of the wild plant with hybrids is possible, we do not know the magnitude of this threat.

We conclude that the best scientific and commercial information available indicate that *A. franciscana* is threatened by other natural or manmade factors affecting its continued existence, and that these factors include changes in environmental conditions resulting from climate change, change in fire frequency, trampling, vandalism, loss of genetic diversity, loss of pollinators, stochastic events, effects of small population size, and hybridization. Cumulatively, we consider these threats to be of high magnitude and imminent.

#### Finding

As required by the Act, we conducted a review of the status of the species and considered the five factors in assessing whether *Arctostaphylos franciscana* is endangered or threatened throughout all or a significant portion of its range. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the *A. franciscana*. We reviewed the petition, information available in our files, and other available published and unpublished information, and we consulted with *A. franciscana* experts and other Federal and State agencies.

This status review identified threats to *Arctostaphylos franciscana* attributable to each of the five listing factors identified in section 4(a)(1) of the Act. The primary threat to *A. franciscana* is from the present or threatened destruction, modification, or curtailment of the species' habitat or

range (*Factor A*). All original occupied habitat of the species has been lost, and its current range has been reduced to a single location supporting a single *A. franciscana* plant. The last wild plant was moved from its habitat, which was subsequently destroyed during a highway construction project, and transplanted to the Presidio in San Francisco. Remaining potential habitat for the species on the San Francisco peninsula has not yet been determined or surveyed. It is unknown whether there is sufficient suitable habitat to support a viable population of the species. Although greenstone and serpentine soils remain on the peninsula, the majority of this land has been fragmented into areas of 0.40 ha (1 ac) with a few approximately 2.4 ha (6 ac) in size. Additionally, potential disparity in the mission of the Presidio Trust and NPS and the possible transfer of Presidio lands to the General Services Administration and the private sector may result in potential future loss or modification of the plant and its habitat.

Overutilization (*Factor B*) is a threat because the current known wild population consists of one individual plant, and manzanita plants are popular for landscaping and other horticultural purposes. *Arctostaphylos franciscana* is thus highly vulnerable to removal from the wild as a result of collection or damage from people collecting cuttings or seeds.

The species is threatened to a lesser degree by disease and predation (*Factor C*). Stress from transplanting of the wild plant may have weakened the plant and made it more susceptible to disease and predation. The plant was heavily infested with a native leaf roller moth after being transplanted; however, the caterpillars and damaged foliage were removed, and the plant has produced new foliage and flowers. Twig blight, a fungal infection, was observed on the plant during the winter of 2009–2010, but the infection subsided during the dry season. A serious and lethal problem among *Arctostaphylos* species in the wild and in the native plant nursery trade is the pathogen *Phytophthora cinnamomi*, which cannot be controlled once introduced to a plant or habitat. Many of the *A. franciscana* cuttings are being grown in commercial or university nurseries for outplanting with the wild plant. Although the use of clean propagation techniques has been requested by the staff in charge of the project, the risk of infection of the cuttings and wild plant by *P. cinnamomi* is still a threat.

Existing regulatory mechanisms (*Factor D*) afford certain protections for *Arctostaphylos franciscana* because the

plant is located on lands administered by the NPS Golden Gate National Recreation Area and the Presidio Trust. However, as mentioned above, these protections are not guaranteed into the future because the Presidio Trust Act dictates that, if the goals and objectives of the Presidio Trust Management Plan are not met by 2013, property shall be transferred to the Administrator of the General Services Administration to be disposed of in accordance with procedures outlined in the Defense Authorization Act. Therefore, lands on the Presidio could be disbursed to the private sector and subject to development. We, therefore, consider existing regulatory mechanisms to be inadequate to protect *A. franciscana*.

The species is also threatened by other natural or manmade factors affecting its continued existence (*Factor E*). These factors include changes in environmental conditions resulting from climate change, changes in fire frequency, trampling, loss of genetic diversity, stochastic events, small population size, and hybridization. Effects of changes in environmental conditions resulting from climate change on the plant's habitat are expected to include increased air temperature and reduced summer fog, both resulting in warmer and drier conditions than those to which the plant is adapted. A shift in the timing of flowering of the *Arctostaphylos franciscana* and availability of suitable pollinators or loss of pollinators due to climate change could affect the plants' ability to set seed. Warming and drying of the plant's habitat would likely also increase the frequency of wildfire that would result in death of the wild plant and its future seedlings if fire occurs before the plants are able to produce viable seeds.

Loss of mature *Arctostaphylos* plants to fire is a natural phenomenon; however, this species is currently represented by a single mature plant. Therefore, to our knowledge, the loss of the plant would result in extinction of the species in the wild. Loss of genetic diversity has likely already occurred due to the reduction of the species to a single wild plant and may continue by limiting this generally outcrossing species to self-pollination. Reduced genetic diversity may also limit the species' ability to adapt to changes in habitat such as those resulting from climate change (decrease in fog and increase in temperature) or loss of pollinators. The species is extremely vulnerable to stochastic environmental events such as droughts, storm damage, and fires, from which large, wide-ranging populations can generally

recover, but which would likely drive a species consisting of a single plant to extinction.

Based on our evaluation of all scientific and commercial information available regarding the past, present, and future threats faced by *Arctostaphylos franciscana*, we have determined that the continued existence of *A. franciscana* is threatened by residual effects from habitat loss, climate change, loss of genetic diversity, change in fire frequency, vandalism, predation, and inadequate regulatory mechanisms. Because the species faces these threats throughout its extremely limited range, we find that *A. franciscana* is warranted for listing throughout its range and, therefore, find it unnecessary to analyze whether it is endangered or threatened in a significant portion of its range.

#### Status Evaluation

The Act defines an endangered species as one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range. The species *A. franciscana* currently exists as a single plant on the San Francisco Presidio. Because the range of the species is restricted to a single plant, the risks presented by the threats noted in *Factors A* through *E* are more intensified than they would be were the species more widespread or numerous.

The species is affected primarily by small area of remaining suitable habitat and loss of natural disturbance regime, as a result of past urban development and ongoing changes in environmental conditions resulting from climate change, as well as loss of genetic diversity. Additionally, the species is threatened by factors including collection or vandalism, disease, predation, loss of pollinators, and inadequate regulatory mechanisms. These interrelated factors have and will continue to result in threats to the continued existence of the species. Based on our evaluation of the best available scientific and commercial information and given the current population size (one plant), and severely limited distribution throughout its historical range, we have determined the species is in danger of extinction throughout all of its range and thus meets the definition of an endangered species. Because the species is in danger of extinction now, as opposed to in the foreseeable future, *A. franciscana* meets the definition of an endangered species rather than a threatened species.

On the basis of our careful evaluation of the best available scientific and commercial information regarding the past, present, and future threats to the species as discussed above relative to the listing factors, we have determined that listing is warranted, and we propose to list *Arctostaphylos franciscana* as an endangered species throughout its range.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed, preparation of a draft and final recovery plan, and revisions to the plan as significant new information becomes available. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that determine when a species may be downlisted or delisted, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide

estimates of the cost of implementing recovery tasks. Recovery teams (comprising species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our Web site (<http://www.fws.gov/ endangered>), or from our Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may also occur on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the State of California would be eligible for Federal funds to implement management actions that promote the protection and recovery of *Arctostaphylos franciscana*. Information on our grant programs that are available to aid species recovery can be found at: <http://www.fws.gov/grants>.

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely

modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal agency actions within the species habitat that may require conference or consultation, or both, as described in the preceding paragraph include management and any other landscape-altering activities on Federal lands administered by the National Park Service or Presidio Trust; issuance of section 404 Clean Water Act permits by the Army Corps of Engineers; permitting of construction and management of gas pipeline and power line rights-of-way by the Federal Energy Regulatory Commission; and construction and maintenance of roads or highways by the Federal Highway Administration.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered plants. If *Arctostaphylos franciscana* were listed, the last wild specimen (including any plants propagated from the wild plant) and the botanical garden specimens (i.e., those plants previously collected from the wild and subsequently propagated) would be protected by all prohibitions of section 9(a)(2) of the Act, which protects listed plants in areas of Federal jurisdiction such as the Presidio. Plants of unknown origin that have been or are being sold in the nursery trade or have been transplanted into home gardens would not be considered part of the listed entity. 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. In addition, 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. Certain exceptions to the prohibitions apply to agents of the Service and State conservation agencies. *Arctostaphylos franciscana* has not been listed by the State of California, therefore, State laws do not apply. Listing would also require Federal agencies to avoid actions that might jeopardize the species (16 U.S.C. 1536(a)(2)), and would provide opportunities for funding of conservation measures and land acquisition that would not otherwise be

available to them (16 U.S.C. 1534, 1535(d)).

We may issue permits to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 for endangered species, and at 17.32 for threatened species. With regard to endangered wildlife, a permit must be issued for the following purposes: For scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**). Requests for copies of the regulations concerning listed plants and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, California 95825 (telephone 916-414-6600; facsimile 916-414-6712).

## Critical Habitat

### Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, and transplantation.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner seeks or requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

For inclusion in a critical habitat designation, the habitat within the geographical area occupied by the species at the time it was listed must contain physical and biological features that are essential to the conservation of the species, and which may require special management considerations or protection. Critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological constituent elements (primary constituent elements) within an area that are essential to the conservation of the species (such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type). Primary constituent elements are the elements of physical and biological features that, when laid out in the appropriate quantity and spatial arrangement to provide for a species' life-history processes, are essential to the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific and commercial data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria,

establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

### Critical Habitat Determination

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species; or (2) such designation of critical habitat would not be beneficial to the species.

Our regulations (50 CFR 424.12(a)(2)) further state that critical habitat is not determinable when one or both of the following situations exist: (1) Information sufficient to perform required analysis of the impacts of the designation is lacking, or (2) the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

We have done a preliminary evaluation to determine if the designation of critical habitat for *Arctostaphylos franciscana* is prudent and determinable at this time. On the basis of that evaluation, we have determined that the designation of critical habitat may not be prudent for this species due to an increased degree of threat.

If the designation of critical habitat would increase threats to a species or if there are no benefits to a critical habitat designation, then a not prudent finding is warranted. A critical habitat designation may result in increased awareness of the specific area where the individual *Arctostaphylos franciscana* plant is likely to occur, which may result in increased threats for a species with such an extremely limited distribution—a single plant. Manzanitas are popular ornamental plants for landscaping and horticulture, and manzanita cuttings are easily propagated. Its rarity would make *A. franciscana* especially desirable to certain individuals who may try to take

cuttings or collect seeds from the *A. franciscana* plant (see *Factor B*). Vandalism of shrubs and trees has occurred recently within the Presidio and in Golden Gate Park (see *Factor E*); greater awareness of the specific location of where the individual *A. franciscana* plant occurs may result in increased risk of vandalism of the plant. Also, increased visitation of the individual plant that may result from critical habitat designation may result in increased risk of trampling and disease transmission of soil-borne pathogens to *A. franciscana* (see *Factor C*).

Because of the potential increased threats that may result from the identification of the specific areas containing features essential to the conservation of the species or specific essential areas as critical habitat, we have preliminarily determined that the designation of critical habitat for *Arctostaphylos franciscana* may not be prudent at this time. However we have not made our final determination and we are, therefore, seeking information from the public regarding threats to the species and its habitat and whether the risks of designation of critical habitat would outweigh the benefits of this determination. Please see *Information Requested* above for specific information we are seeking for making our determination whether the designation of critical habitat would be prudent at this time.

Further, we are currently unable to identify the physical or biological features for *Arctostaphylos franciscana*, because information on the full range of the physical or biological features that are considered essential to the conservation of this species is not known at this time. Little information is available on the historical populations that existed prior to habitat alteration from grazing and burning by Euro-American settlers (Keeley 2005, p. 285; Cooper 1922, p. 76) and prior to development of the city of San Francisco. We cannot be sure that the historical records of extirpated occurrences and the currently known record of *A. franciscana* represent the full extent of the species' predisturbance range and habitat (Chasse 2010, p. 1). Some records are available as noted in the Distribution and Habitat section of this rule; however, they may simply be the only locations that were recorded rather than being representative of optimum habitat.

The single remaining wild plant was found on a previously disturbed highway median, which was highly unlikely to represent natural habitat conditions. The remaining greenstone/serpentine habitat on the San Francisco

peninsula, which is highly fragmented and not occupied by *A. franciscana*, may not be suitable for supporting populations of the species. Because of the limited information available related to the species' physical or biological requisites, we are not currently able to identify the specific areas that contain the appropriate physical or biological features essential to the conservation of *A. franciscana* or otherwise identify areas that may be essential for its conservation without additional information. Therefore, since the physical or biological requirements of the species are not sufficiently known, we find that critical habitat for *A. franciscana* is not determinable at this time.

We are, therefore, seeking information from the public regarding which physical or biological features or specific areas may be essential to the conservation of *Arctostaphylos franciscana*. Please see *Information Requested* section for specific information we are seeking to assist us in trying to identify the biological requirements for *A. franciscana*.

#### Peer Review

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure that our determination of status for this species is based on scientifically sound data, assumptions, and analyses. We have invited these peer reviewers to comment during the public comment period on our specific assumptions and conclusions regarding the proposal to list *Arctostaphylos franciscana* as endangered and our proposed finding regarding critical habitat for this species.

We will consider all comments and information received during the comment period on this proposed rule during preparation of a final determination. Accordingly, the final decision may differ from this proposal.

#### Public Hearings

The Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposal in the **Federal Register**. Such requests must be sent to the address shown in **ADDRESSES**. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the

**Federal Register** and local newspapers at least 15 days before the hearing.

#### Required Determinations

##### Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (1) Be logically organized;
- (2) Use the active voice to address readers directly;
- (3) Use clear language rather than jargon;
- (4) Be divided into short sections and sentences; and
- (5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

##### Paperwork Reduction Act of 1995

This rule does not contain any new collections of information that require approval by Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

##### National Environmental Policy Act

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

##### References Cited

A complete list of all references cited is available on the Internet at <http://>

[www.regulations.gov](http://www.regulations.gov) and upon request from the Field Supervisor, Sacramento Fish and Wildlife Office (see ADDRESSES).

**Author(s)**

The primary authors of this notice are the staff members of the Sacramento Fish and Wildlife Office (see ADDRESSES).

**List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and

recordkeeping requirements, Transportation.

**Proposed Regulation Promulgation**

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

**PART 17—[AMENDED]**

1. The authority citation for part 17 continues to read as follows:

**Authority:** 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.12(h) by adding an entry for “*Arctostaphylos franciscana* (Franciscan manzanita)” to the List of Endangered and Threatened Plants in alphabetical order under FLOWERING PLANTS to read as follows:

**§ 17.12 Endangered and threatened plants.**

\* \* \* \* \*  
(h) \* \* \*

Species		Historic range	Family	Sta- tus	When listed	Critical habitat	Special rules
Scientific name	Common name						
Flowering Plants							
* <i>Arctostaphylos franciscana</i>	* Franciscan manzanita.	* U.S.A. (CA) .....	* Ericaceae .....	* E	* XXX	* NA	* NA
*	*	*	*	*	*	*	*

Dated: August 27, 2011.  
**Gregory E. Siekaniec,**  
*Acting Director, Fish and Wildlife Service.*  
 [FR Doc. 2011–22990 Filed 9–7–11; 8:45 am]  
**BILLING CODE 4310–55–P**

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

[Docket No. FWS–R4–ES–2011–0059; MO 92210–0–0008]

**Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To List the Snowy Plover and Reclassify the Wintering Population of Piping Plover**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice of 90-day petition finding.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on a petition to list the snowy plover (*Charadrius alexandrinus*) as endangered or threatened and to reclassify the wintering population of piping plover (*Charadrius melodus*) as endangered under the Endangered Species Act of 1973, as amended (Act). We find that the petition does not present substantial scientific or commercial information indicating that the petitioned actions may be warranted. This finding is based on our determination that the petition did not identify listable entities. Therefore, we

are not initiating a status review for either species in response to this petition. However, we ask the public to submit to us any new information that becomes available concerning the status of, or threats to, the snowy plover or the piping plover or their respective habitats at any time.

**DATES:** The finding announced in this document was made on September 8, 2011.

**ADDRESSES:** This finding is also available on the Internet at <http://www.regulations.gov> at Docket Number FWS–R4–ES–2011–0059. Supporting documentation we used in preparing this finding is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Panama City Field Office, 1601 Balboa Avenue, Panama City, FL 32405. Please submit any new information, materials, comments, or questions concerning this finding to the above address.

**FOR FURTHER INFORMATION CONTACT:** Don Imm, Project Leader, Panama City Field Office (see ADDRESSES), by telephone at 850–769–0552 ext. 238, or by facsimile to 850–763–2177. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800–877–8339.

**SUPPLEMENTARY INFORMATION:**

**Background**

Section 4(b)(3)(A) of the Act (16 U.S.C. 1531 *et seq.*), requires that we make a finding on whether a petition to list, delist, or reclassify a species

presents substantial scientific or commercial information indicating that the petitioned action may be warranted. We are to base this finding on information provided in the petition, supporting information submitted with the petition, and information otherwise available in our files at the time that the petition was submitted to us. To the maximum extent practicable, we are to make this finding within 90 days of our receipt of the petition, and to publish our notice of the finding promptly in the **Federal Register**.

Our standard for substantial scientific or commercial information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is “that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted” (50 CFR 424.14(b)). If we find that substantial scientific or commercial information was presented, we are required to promptly conduct a species status review, which we subsequently summarize in a 12-month finding.

*Petition History*

On September 5, 2000, we received a petition dated September 4, 2000, from Robert R. Reid, Jr., on behalf of the Alabama Audubon Council, Alabama Environmental Council, and Alabama Ornithological Society (petitioners), requesting that the snowy plover be listed as threatened or endangered, and that the wintering population of piping plover be reclassified from threatened to endangered under the Act, and that critical habitat be designated under the