

(5) Contractor/Government investment in facilities and equipment (and any modernization to be provided by the contractor/Government). Although not all inclusive, the following are to be covered:

- (i) The facilities needed by the contractor;
- (ii) How the facilities are to be provided (Government or contractor);
- (iii) If to be provided by the contractor, the alternatives considered (operating lease, capital lease, contractor purchase or construction, or other alternatives);
- (iv) Whether a financial guarantee has been requested by the offeror;
- (v) The reasons for the alternative selected; and
- (vi) How the costs are to be charged.

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## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

50 CFR Part 17  
RIN 1018-AC52

83-94

#### Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for *Castilleja levisecta* (Golden Paintbrush)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

**SUMMARY:** The U.S. Fish and Wildlife Service (Service) proposes to list the plant *Castilleja levisecta* (golden paintbrush) as a threatened species pursuant to the Endangered Species Act of 1973, as amended (Act). This species once occurred from Oregon north to Vancouver Island in British Columbia, Canada. Only 10 disjunct populations of this plant now exist, in open grasslands ranging from south of Olympia, Washington, in Thurston County, north through the Puget Trough to southwest British Columbia, Canada. One of these populations may be extirpated. Threats to the species include competition with encroaching native and alien plant species, habitat modification through succession in the absence of fire, predation, and the reduced ability of small, isolated populations to recover from stochastic (random) events. Direct human-caused threats include development of habitat, possible damage associated with road maintenance, and catastrophic fire. This proposal, if made final, would implement the Federal protection and

recovery provisions of the Act for this plant.

**DATES:** Comments from all interested parties must be received by July 11, 1994. Public hearing requests must be received by June 24, 1994.

**ADDRESSES:** Comments and materials concerning this proposal should be sent to the Field Supervisor, Boise Field Office, U.S. Fish and Wildlife Service, 4696 Overland Road, Room 576, Boise, Idaho 83705. Comments and materials received will be available by appointment for public inspection during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:** Alison Beck Haas or Dr. Robert Parenti at the above address (208/334-1931).

#### SUPPLEMENTARY INFORMATION:

##### Background

*Castilleja levisecta* (golden paintbrush) was first collected near Mill Plain, Washington, by Thomas Jefferson Howell in 1880 and was described by Jesse More Greenman in 1898 (Greenman 1898). A perennial herb of the snapdragon family (Scrophulariaceae), *C. levisecta* typically has 5 to 15 erect to spreading unbranched stems, reaches a height of 0.5 meter (m) (20 inches (in)), and is covered with soft, sticky hairs. The lower leaves are entire and narrowly pointed; the upper leaves are broader, usually with one to three pairs of short lateral lobes on the distal end. The flower, mostly hidden by the overlapping bracts, has a calyx 15 to 18 millimeters (mm) (0.6 to 0.7 in) long and deeply cleft, and a corolla 20 to 23 mm (0.8 to 0.9 in) long, with a slender galea (concave upper lip) three to four times the length of the unpouched lower lip (Hitchcock and Cronquist 1978). It is distinguished from the other *Castilleja* species within its range by brilliant golden to yellow floral bracts. The plant flowers from April to June. When not flowering, the plant is inconspicuous. The species may be semi-parasitic like other members of the genus *Castilleja*, requiring a host plant for seedling development (Heckard 1962, Sheehan and Sprague 1984).

The plant tends to grow in clumps. One genet (genetic individual) may consist of 1 to 15 ramets (stems), making the calculation of exact numbers of individual plants difficult. Also, a wide variability of numbers of ramets per plant among genets and sites exists. Determining the number of ramets that comprise an individual plant generally requires destroying the plant (Reid Schuller, Natural Area Scientist, Washington Department of Natural

Resources, pers. comm., 1992). In addition, variation in census methods exists. Therefore, estimates of population densities are difficult.

Western Oregon and Washington (and southern Vancouver Island) have a maritime climate, characterized by wet, mild winters and cool, relatively dry summers. Precipitation averages 800 to 1,350 mm (31 to 53 in) in the Puget-Willamette Trough (Sheehan and Sprague 1984).

The plant occurs in open grasslands at elevations below 100 m (328 feet (ft)) around the periphery of the Puget Trough. Most populations occur on glacially derived soils, either gravelly glacial outwash or clayey glaciolacustrine sediments (Sheehan and Sprague 1984). Associated species include *Festuca idahoensis*, *Festuca rubra*, *Plantago lanceolata*, *Holcus lanatus*, *Achillea millefolium*, *Pteridium aquilinum*, and several species of *Vicia* and *Bromus* (Sheehan and Sprague 1984). Frequent, low intensity fires can be important in maintaining habitat for some plant species. Historically, periodic fires in the Puget Trough were instrumental in maintaining native grassland habitat by limiting successional encroachment of trees and shrubs (Sheehan and Sprague 1984).

Historically, *Castilleja levisecta* has been reported from over 30 sites in the Puget Trough of Washington and British Columbia, and as far south as the Willamette Valley of Oregon (Sheehan and Sprague 1984). In 1984, the Service conducted an assessment of the status of the species throughout its range. The plant was found to be extirpated from more than 20 historic sites (Sheehan and Sprague 1984). Many populations were found to be extirpated by conversion of habitat to agricultural, residential, and commercial development. In Oregon, *C. levisecta* historically occurred in the grasslands and prairie of the Willamette Valley; the species has been extirpated from all of these sites as the habitat has disappeared. The area around the type locality at Mill Plain, Washington, was converted to pasture and orchards some time after the plant was first collected there in 1880. Housing developments currently occupy the site (Sheehan and Sprague 1984).

*Castilleja levisecta* is now known from 10 extant populations. Seven occur in Washington: one just south of Olympia in Thurston County, five on Whidbey Island in Island County, and one on San Juan Island in San Juan County. In British Columbia, Canada, three populations exist: two populations on islands off the southern coast of

Vancouver Island and one in the city of Victoria, Vancouver Island.

The southernmost population of *Castilleja levisecta* occurs at the Rocky Prairie site south of Olympia, Washington, in Thurston County. The site is owned by the Washington Department of Natural Resources and is designated as a Natural Area Preserve that is managed primarily for protection of *C. levisecta* and *Aster curtus*, and preservation of the remnant native grassland community (R. Schuller, pers. comm., 1991). In 1983, the time of the last complete census, 15,000 plants were sporadically distributed throughout the 15-hectare (ha) (37-acre (ac)) site. A fire in 1985 eliminated the southernmost patch of *C. levisecta*, and the population was estimated to be about 7,000 plants in 1991 (R. Schuller, pers. comm., 1991). A population census at this burned area in 1993 revealed approximately 2,000 plants (Schuller, pers. comm., 1994).

Five populations are located on the north half of Whidbey Island, Island County, in Puget Sound. The largest of these occurs near Forbes Point on the west side of Crescent Harbor and is owned by the Department of Defense (Whidbey Island Naval Air Station). Navy personnel conducted a census of *Castilleja levisecta* in 1985 and counted more than 10,000 stems at the site (Clampitt 1985). The population was monitored in 1990, when it was estimated to be in the thousands, and again in 1991, when a reduction in density of about 25 percent was observed. The site was mapped and measures about 20 by 60 m (66 by 197 ft) (Matt Klope, Whidbey Island Naval Air Station, pers. comm., 1992).

A second population on Whidbey Island is located at Fort Casey State Park where approximately 120 plants occur on a 0.04 ha (0.10 ac) site (John Gamon, Botanist, Washington Natural Heritage Program, pers. comm., 1994). This State-owned historic site is managed as a park for recreational use (Ken Hagerman, Fort Casey State Park Manager, Washington Department of Parks, pers. comm., 1991).

A third Whidbey Island population of *Castilleja levisecta* occurs on the Bocker Environmental Preserve. This population occurs on two sites: one is 60 by 150 m (197 by 492 ft) on the Preserve, and a second is adjacent to the Preserve in a 4-square m (43-square ft) area. In 1993, 273 individuals existed (J. Gamon, pers. comm., 1994). The Preserve is owned by Seattle Pacific University and is used for environmental education courses (Keith Ludemann, Environmental Education

Supervisor, Bocker Environmental Preserve, pers. comm., 1992).

A fourth Whidbey Island population occurs at Ebey's Landing, where 300 to 400 plants are found in a 10 by 30-m (33 by 98-ft) area (Sheehan and Sprague 1984). This site is privately owned.

The fifth Whidbey Island population of *Castilleja levisecta* is located at West Beach, at a site approximately 0.66 ha (1.6 ac) in size. The property is privately owned and is adjacent to a county road. In 1991 it supported 10 to 20 plants (M. Klope, pers. comm., 1991), down from about 200 in 1984 (Sheehan and Sprague 1984). In a letter to the Island County engineer, a citizen reported that roadside maintenance activities by the county had resulted in the elimination of the population (Steve Erickson, Whidbey Environmental Action Network, *in litt.*, 1991). Subsequent field inspection by Washington Natural Heritage Program staff confirmed that the population had been reduced to about five plants; however, the cause of the plant's decline at this site is unknown (Mark Sheehan, Washington Natural Heritage Program, *in litt.*, 1992).

The final U.S. population occurs on San Juan Island (San Juan County), and is located on a privately owned parcel near the Mar Vista Resort at False Bay. The site is approximately 4.3 by 3.0 m (14.1 by 9.8 ft) in size, and is comprised of 20 to 25 plants (Mark Sheehan, pers. comm., 1991; Sheehan and Sprague 1984).

Three extant populations of *Castilleja levisecta* occur near Victoria, British Columbia, Canada. One population is located on Alpha Islet, consisting of 200 to 300 plants, and is under the management of the Ministry of Parks. A second population, estimated at several thousand plants, in an area of about 2.3 ha (5.7 ac), is located on the Trial Islands and is currently managed by the Ministry of Parks as an Ecological Reserve. A third site consists of one clump (fewer than 10 plants) and was known to occur at Beacon Hill Municipal Park within the city of Victoria (Adolf Ceska, Curator of Botany, Royal British Columbia Museum, pers. comm., 1991). The current status of the Beacon Hill population is unknown.

*Castilleja levisecta* is threatened by habitat modification through succession of grassland to shrub and forest habitat, and low potential for expansion and refugia due to constriction of habitat. In addition, because the current distribution of the species has been greatly reduced from the historic distribution, the species is vulnerable to other threats such as collecting by recreational users, reduced vigor and

reproductive potential due to predation, interspecific competition with native and exotic woody species, and a reduced ability to recover from catastrophic natural or human-caused events, such as catastrophic fire or accidental chemical spills from an adjacent highway and railroad. Two sites are vulnerable to potential residential or commercial development.

#### Previous Federal Action

Federal action on this species began when the Service published a notice of review for plants on December 15, 1980 (45 FR 82480). In this notice, *Castilleja levisecta* was included as a category 1 candidate. Category 1 candidates are those species for which the Service has on file substantial information on biological vulnerability and threats to support preparation of listing proposals. Pending completion of updated status surveys, the status was changed to category 2 in the November 28, 1983, supplement to the Notice of Review (45 FR 53640). Category 2 candidates are those species for which information in possession of the Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat are not currently available to support a proposed rule. *C. levisecta* remained a category 2 candidate in the September 27, 1985, Notice of Review for plants (50 FR 39526). In the February 21, 1990, Notice of Review (55 FR 6184), *C. levisecta* was elevated to category 1 status, based on additional data collected by the Washington Natural Heritage Program. The species remained in category 1 in the September 30, 1993, Notice of Review for plants.

#### Summary of Factors Affecting the Species

Section 4 of the Endangered Species Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal Lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act. These factors and their application to *Castilleja levisecta* Greenman (golden paintbrush) are as follows:

##### A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Historic loss of prairie/grassland habitat in the Puget Trough has reduced the range of *Castilleja levisecta*, and habitat loss continues to be the primary

threat to remaining populations. Currently, encroachment by native and exotic woody species, as discussed in more detail under Factor E, is the primary cause of this habitat modification.

Development for residential or commercial use is a potential threat at two of the privately owned sites, West Beach and False Bay. The False Bay site is adjacent to a resort that may be sold in the near future, which ultimately may lead to expansion (M. Sheehan, pers. comm., 1991). The West Beach site is surrounded by residences and may be developed in the future. Although no plans for development have been initiated so far at these sites, the habitat for these two populations remains vulnerable to threats due to the adjacency to areas that receive high human use, and to the potential for development on these privately owned commercial and residential sites.

In recent history, fire suppression played a critical role in the reduction of grassland habitat in the Puget Trough and, therefore, in the reduction in numbers and sizes of *Castilleja levisecta* populations. A large, high intensity fire at any of the remaining sites where *C. levisecta* occurs could potentially eliminate populations, though the Service is unaware of permanent extirpations of this species due to fire. The ecology of the species should be studied further to determine the relationship between its habitat needs and fire, the effects of fire on reproductive viability, and the subsequent success of recruitment from outside burned areas.

The Washington Department of Natural Resources is conducting some experimental burning, and the Navy has also expressed interest in conducting burns (R. Schuller, M. Klope, pers. comm., 1991). Fire is a potential tool for maintaining and expanding habitat, however, because *Castilleja levisecta* has been reduced to 10 disjunct populations, and the potential for recruitment from other populations is low. The use of fire must be carefully considered to avoid the potential for extirpations. Interspecific competition and the role of fire in maintaining *C. levisecta* habitat are overlapping factors (see Factor E).

Loss of suitable habitat from either encroachment of woody species or development in the areas surrounding the disjunct populations prevents expansion of the species and affords no refugia in the case of catastrophic events that affect existing populations. Because the grassland habitat in the areas surrounding the existing populations has been lost, it is doubtful that the

populations would expand naturally. Thus, the continued existence of *Castilleja levisecta* is threatened by the absence of available habitat for recruitment and colonization.

#### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

*Castilleja levisecta* has no known commercial use. Because of its showy golden-yellow bracts, recreational users may pick flowers at public sites. Fort Casey State Park, Bocker Environmental Preserve, Forbes Point, and Beacon Hill Municipal Park are sites of high levels of public use; collection and trampling are potential threats at these sites (see Factor E). For example, Fort Casey State Park receives a high amount of recreational use, and the potential for overcollection is considered a genuine threat. Visitor use has increased within the last decade, and park users have been observed picking the flowering plant at Fort Casey State Park (K. Hagerman, pers. comm., 1991). Once numbering over 500 plants (Hagerman, pers. comm., 1991), the Fort Casey State Park population had significantly declined to approximately 120 individuals by 1993 (J. Gamon, pers. comm., 1994). Some taxa have become vulnerable to collection by curiosity seekers as a result of increased publicity following publication of a listing proposal.

#### C. Disease or Predation

Disease is not known to be a factor threatening *Castilleja levisecta*. Populations may have been reduced from historical levels by grazing by livestock and browsing by rabbits (Sheehan and Sprague 1984). Browsing of the tops of *C. levisecta* plants, probably by rabbits and/or deer, has been observed at the Bocker Environmental Preserve. The effect of that browsing is unknown, although presumably it could affect seed number and reproductive viability (K. Ludemann, pers. comm., 1991). Grazing by livestock and exotic feral rabbits also threatens the False Bay population (Sheehan and Sprague 1984). In 1990 and 1991 at the Forbes Point site, Klope (pers. comm., 1991) observed heavy predation on herbaceous material and seeds by rodents. Signs of predation also were noted there in 1984 and 1985 (Clampitt 1985), which may be reducing the reproductive potential at that site.

The Rocky Prairie Natural Area Preserve population of *Castilleja levisecta* has historically harbored a population of the Whulge checkerspot butterfly (*Euphydryas editha taylori*), a state sensitive species, which is a

potential seed predator. Because *C. levisecta* is not a specific host and no individual butterflies were observed at the site in 1991, the threat is probably low at this time (Mark Sheehan, pers. comm., 1991). Though several species of caterpillar were known to prey on *C. levisecta* (Sheehan and Sprague 1984, Evans *et al.* 1984), they do not currently pose a threat (R. Schuller, pers. comm., 1991).

Predation by native species is one of the natural pressures historically faced by *Castilleja levisecta*, but populations that have been reduced due to other factors are very vulnerable to decline and are less able to rebound after periods of heavy predation.

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

No legal mechanism for the protection of *Castilleja levisecta* or its habitat exists. The species is listed as endangered by the Washington Natural Heritage Program (Washington Natural Heritage Program 1990), and as a category R4 species (restricted distribution, large population) by the province of British Columbia (A. Ceska, pers. comm., 1991). Four sites are included among the Natural Heritage Program's Registry of Natural Areas (L. Smith, pers. comm., 1991). The Rocky Prairie site was acquired by the Washington Department of Natural Resources for the purpose of protection of *C. levisecta* and *Aster curtus*, a Federal category 2 candidate (R. Schuller, pers. comm., 1991). All of these designations are important because they recognize the sensitive status of the species and encourage land managers and agencies to consider the species in management plans; however, they provide no protection under the law. Therefore, changing land management priorities or inadequate funding for protection could leave the species vulnerable at many of the sites.

Except for the Rocky Prairie Natural Area Preserve population, all publicly owned *Castilleja levisecta* populations are managed for purposes other than plant preservation. Thus, when conflicts between those purposes and management of the species arise, the primary function likely will take priority.

The Rocky Prairie Natural Area Preserve population has the highest level of protection of the 10 sites. Existing on State-owned property actively managed for plant conservation, this is the only site with known efforts to eliminate non-native species, including prescribed burning and hand removal of invasive plants. Efforts by the Washington Department of Natural

Resources to eliminate the invasive *Cytisus scoparius* at this site are voluntary, and not based in governmental statutory requirements; hence, State regulatory protection is not ensured. The long-term viability of the population continues to face threats from invasion of woody species and potentially catastrophic events, such as accidental spills from the nearby highway and railroad or large, high intensity fires.

The Fort Casey population is also on publicly owned land, the Fort Casey State Park. Although present managers are employing limited protective measures, the plant is vulnerable to picking (see Factor B) and stochastic events due to the population's small size.

The Forbes Point population occurs on Federal land, on Whidbey Island Naval Air Station. The Department of Defense is currently participating in the Washington Registry of Natural Areas Program. A Navy staff biologist has undertaken measures to evaluate the population's status. Efforts have also been made to eradicate some invasive alien species. However, funding for more aggressive means of protecting the plant, such as fencing to preclude rodent predation and human trampling, has not been available. Signs have been erected designating the site as a research area, but there is no enforcement against public use of this site, which receives considerable foot traffic associated with a popular beach area nearby (M. Klope, pers. comm., 1991).

The populations of *Castilleja levisecta* at Ebey's Landing and the Bocker Environmental Preserve are also listed on the Washington Registry of Natural Areas. Ebey's Landing is on private property surrounded by the Ebey's Island Historic Reserve. The Bocker Environmental Preserve, owned by Seattle Pacific University, is currently managed as a natural area used for education purposes, and no active management to retain grassland habitat exists. Although *C. levisecta* is considered in the current management of the Historic Reserve, the area is not managed specifically for the plant, and the population is threatened by predation and invasion of woody species. The West Beach and False Bay populations of the species are on private property and receive no legal protection.

The *Castilleja levisecta* populations in Canada also receive no regulatory protection. Legislation to protect endangered species has been proposed to the British Columbia government, but currently no Federal or Provincial law protects sensitive species. Trial Islands, offshore from the city of Victoria, is

designated as an Ecological Reserve by the British Columbia Ministry of Parks. The small population at Alpha Islet also is located within a designated Ecological Reserve. However, this designation does not require specific management recommendations for the plant. Because this designation is an administrative one, it could potentially be reversed by administrative decision, and the site could be used for other purposes (M. Sheehan, pers. comm., 1990).

The third Canada population of *Castilleja levisecta*, at Beacon Hill Municipal Park, is unprotected. The population consists of fewer than 10 plants and occurs in a portion of the park that receives heavy recreational use (A. Ceska, pers. comm., 1991).

In summary, no comprehensive management plan exists for *Castilleja levisecta*, and protection and recovery efforts have not been coordinated among population sites. Therefore, regulatory mechanisms are not adequate to ensure the continued existence of this species.

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

Grassland habitat has historically been maintained by periodic fires that prevented encroachment of woody plant species (Sheehan and Sprague 1984). Fire suppression in recent years has led to invasion of grasslands by native species such as *Pseudotsuga menziesii*, *Rosa* sp., and *Berberis aquifolium*. Encroachment by non-native species such as *Cytisus scoparius* and *Hiracium pilosella* also occurs. These species are naturally invasive and tend to become the dominant species in areas where they occur, competing with *Castilleja levisecta* for space and nutrients.

Interspecific competition is a serious threat to the continued existence of *Castilleja levisecta*. Loss of grassland habitat due to invasion of woody species threatens the plant at the Rocky Prairie Natural Area Preserve (R. Schuller, pers. comm., 1991), Bocker Environmental Preserve (K. Ludemann, pers. comm., 1991), Ebey's Landing (Jim Larson, Chief, Division of Natural Resources, National Park Service, pers. comm., 1991), West Beach (Laura Smith, Associate State Director, The Nature Conservancy, pers. comm., 1991), and Forbes Point (M. Klope, pers. comm., 1991) sites. *C. levisecta* cannot survive under a closed canopy, and species such as *Pseudotsuga menziesii*, *Rosa* sp., *Berberis aquifolium*, and the non-native *Cytisus scoparius* overtop *Castilleja levisecta*. Those species may also outcompete *C. levisecta* for root space and nutrients (Sheehan and Sprague 1984). The species appears to be unable

to compete successfully against species that tend toward monoculture (J. Gamon, pers. comm., 1990).

Control of invasive species and the prevention of conversion of habitat is difficult. Some efforts have been made to remove interspecific competitors mechanically or by hand at the population sites of *Castilleja levisecta*. However, the practice is expensive, labor intensive, and dependent upon volunteer workers and discretionary efforts by land managers (Sheehan and Sprague 1984; R. Schuller, K. Hagerman, and M. Klope, pers. comm., 1991). At the Rocky Prairie Natural Area Preserve site, volunteers associated with The Nature Conservancy and the Washington Department of Natural Resources have made efforts to control *Cytisus scoparius*, but it still remains a threat.

The *Castilleja levisecta* habitat at four of the Whidbey Island population sites (Fort Casey State Park, Forbes Point, Bocker Environmental Preserve, and West Beach) are also threatened with the succession of tree and shrub communities. If left unchecked, encroachment of *Rosa* sp. will soon eliminate the population at the West Beach site (L. Smith, pers. comm., 1991). Clappitt (1985) noted the encroachment of several other aggressive plants, specifically *Rubus* sp. (blackberry), *Vicia* sp. (vetch) and *Trifolium* sp. (clover) onto *C. levisecta* habitat at Forbes Point. Invasive shrubs are succeeding in competition with *C. levisecta* at the Bocker Environmental Preserve site. Numbering over 1,200 individuals in 1984, by 1993 the population had declined significantly to 273 individuals (J. Gamon, pers. comm., 1994).

In 1985, approximately 10 percent of the *Castilleja levisecta* population at the Rocky Prairie Natural Area Preserve site was burned when a prairie fire was started by sparks from an adjacent railroad line. Abundance of *C. levisecta* at the burned site was initially reduced by about 85 percent within the burned area. Monitoring in subsequent years has shown a slow recovery of numbers; in 1991 the population was up to about 50 percent of its pre-fire density. Experimental burning has since been used at that site to study the effects of fire on *C. levisecta*, which is ongoing with no conclusive results as yet (R. Schuller, pers. comm., 1991). While fire may temporarily reduce the abundance of *C. levisecta*, it may also promote the plant over time by maintaining open prairie habitat that would otherwise become shrub and forest lands through natural succession.

Trampling by recreationists threatens the plant at several locations. The few plants that occur at the Beacon Hill Municipal Park site in Victoria are located in a heavily used area of the park. A cross country ski event in 1991 apparently damaged the existing clump of plants (A. Ceska, pers. comm., 1991). The Forbes Point site on Whidbey Island is accessible to the public; clam diggers have been observed walking through the *Castilleja levisecta* site (M. Klope, pers. comm., 1991).

The isolation and small sizes of *Castilleja levisecta* populations make the species vulnerable to extirpation from stochastic (i.e., random) events. Because of the disjunct distribution of the plant, recolonization of a population following a catastrophic elimination is unlikely. Genetic variability is also reduced in small, isolated populations, and the chances of adapting to environmental change is less likely.

Adjacent land use activities also threaten the species' survival. Conversion of surrounding habitat to later successional stages and conversion to development eliminate refugia, and limit the ability of *Castilleja levisecta* to recolonize areas beyond the existing sites. Threats from a railroad line, a highway, and a residential area bordering the Rocky Prairie site include catastrophic fire and chemical spills. Digging by domestic dogs from nearby subdivisions has destroyed habitat within the enclosure at Rocky Prairie (R. Schuller, pers. comm., 1991). Road maintenance adjacent to the West Beach site may have destroyed that population (S. Erickson, *in litt.*, 1991).

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the preferred action is to list *Castilleja levisecta* as threatened. Threats to *C. levisecta* include habitat destruction and modification through succession of prairie and grassland habitats to shrub and forest lands; development of property for industrial, residential and agricultural use; low potential for expansion and refugia due to constriction of habitat; recreational picking; predation; absence of legal mandates for protection of the plant or its habitat; interspecific competition with native and exotic woody species; and stochastic events due to the small size of the populations and limited number of individuals.

Because many of the sites are designated as preserves or afforded some level of protection through current management efforts, the species is not

currently in danger of extinction. However, because the species' distribution is much reduced from historic records, and the current sites face threats from the factors listed above, *Castilleja levisecta* is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The species therefore fits the definition of threatened as defined by the Act. Critical habitat is not being proposed for this species for reasons discussed in the Critical Habitat section of this rule.

#### Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat concurrently with determining a species to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for this species. Such a determination would result in no known benefit to *Castilleja levisecta*. As discussed above under Factor B in the Summary of Factors Affecting the Species, *C. levisecta* is vulnerable to taking. Publication of precise maps and critical habitat descriptions in the **Federal Register** would be likely to increase the degree of threats from taking and vandalism, and would increase enforcement problems. All involved parties and landowners have been notified of the importance of the species' habitat. Protection of its habitat will be addressed through the recovery and section 7 consultation processes. Therefore, the Service finds that designation of critical habitat for *C. levisecta* is not prudent at this time, because a designation would increase the degree of threat from vandalism, collecting, and other human activities, and because it is unlikely to aid in the conservation of this species.

#### 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 activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. Recovery efforts encourage communication and cooperative efforts among various land managers and owners. The Act provides for possible land acquisition and cooperation with the State and requires that recovery actions be carried out for all listed species. That would encourage protection and recovery efforts at Rocky Prairie Natural Area Preserve and Fort

Casey State Park, sites owned by the State of Washington. The protection required by Federal agencies and prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, 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 informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is subsequently listed, section 7(a)(2) requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to 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. The population of *Castilleja levisecta* at Forbes Point occurs on Federal land at Whidbey Island Naval Air Station. Any Federal actions there would be subject to section 7 requirements.

The Act and implementing regulations found at 50 CFR 17.71 and 17.72 set forth a series of general prohibitions and exceptions that apply to all threatened plants. With respect to *Castilleja levisecta*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, would apply. These prohibitions, in part, make it illegal with respect to any endangered or threatened plant 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 this species in interstate or foreign commerce; remove and reduce to possession the species from areas under Federal jurisdiction; maliciously damage or destroy any such species on any area under Federal jurisdiction; or remove, cut, dig up, damage, or destroy any such endangered or threatened plant on any other area in knowing violation of any State law or regulation or in the course of any violation of a State criminal trespass law. Seeds from cultivated specimens of threatened plant species are exempt from these prohibitions provided that a statement of "cultivated origin" appears on their

containers. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered and threatened plant species under certain circumstances. It is anticipated that few trade permits would ever be sought or issued because the species is not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Room 420C, Arlington, Virginia 22203-3507 (703/358-2104).

**Public Comments Solicited**

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule are hereby solicited. Comments particularly are sought concerning:

- (1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to this species;
- (2) The location of any additional populations of this species and the reasons why any habitat of this species should or should not be determined to be critical habitat as provided by section 4 of the Act;
- (3) Additional information concerning the range, distribution, and population size of this species; and
- (4) Current or planned activities and their possible impacts on this species.

The final decision on this proposal will take into consideration the comments and any additional information received by the Service, and such communications may lead to a final regulation that differs from this proposal. The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be received within 45 days of the date of publication of this proposal. Such requests must be made in writing and sent to the Field Supervisor, Boise Field Office (see ADDRESSES section).

**National Environmental Policy Act**

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

**References Cited**

Clampitt, C. 1985. Report: Census of *Castilleja levisecta* population at Forbes Point. Prepared for L. Smith, The Nature Conservancy, Washington Field Office, Seattle, Washington. 4pp.  
 Evans, S., R. Schuller, and E. Augenstein. 1984. A report on *Castilleja levisecta* Greenman at Rocky Prairie, Thurston County, Washington. Unpubl. Report to The Nature Conservancy, Washington Field Office, Seattle, Washington. 56pp.  
 Greenman, J.M. 1898. Some new and other noteworthy plants of the Pacific Northwest. Bot. Gaz. 25:261-269.  
 Heckard, L.R. 1962. Root parasitism in *Castilleja*. Bot. Gaz. 124:21-29.

Hitchcock, C.L., and A. Cronquist. 1978. Flora of the Pacific Northwest. Univ. of Washington Press, Seattle.  
 Sheehan, M., and N. Sprague. 1984. Report on the status of *Castilleja levisecta*. Unpubl. Report submitted to the U.S. Fish and Wildlife Service, Portland, Oregon. 82pp.  
 Washington Natural Heritage Program. 1990. Endangered, threatened and sensitive vascular plants of Washington. Department of Natural Resources. Olympia. Second printing. 52pp.

**Authors**

The primary author of this proposed rule is Alison Beck Haas, Boise Field Office (see ADDRESSES section).

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

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

**Proposed Regulation Promulgation**

Accordingly, the Service hereby proposes 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. Section 17.12(h) is amended by adding the following, in alphabetical order under the family Scrophulariaceae, to the List of Endangered and Threatened Plants:  
**§ 17.12 Endangered and threatened plants.**  
 \* \* \* \* \*  
 (h) \* \* \*

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Scrophulariaceae—Snapdragon family:						
<i>Castilleja levisecta</i> .....	Golden paintbrush .....	U.S.A. (WA, OR), Canada (B.C.).	T	.....	NA	NA



Dated: April 25, 1994.

Mollie H. Beattie,

Director, U.S. Fish and Wildlife Service.

[FR Doc. 94-11257 Filed 5-9-94; 8:45 am]

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50 CFR Part 17

RIN 1018-AC50

84-94

**Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for Three Insects From the Santa Cruz Mountains of California**

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

**SUMMARY:** The U.S. Fish and Wildlife Service (Service) proposes endangered status pursuant to the Endangered Species Act of 1973, as amended (Act), for the Mount Hermon June beetle (*Polyphylla barbata*) Zayante band-winged grasshopper (*Trimerotropis infantilis*), and Santa Cruz rain beetle (*Pleocoma conjugens conjugens*). These three insects are located in Santa Cruz County, California, and are threatened by urban development, recreational use, sand mining, agricultural activities, and alteration of natural fire frequency. This proposal, if made final, would implement the Federal protection and recovery provisions of the Act for these three species.

**DATES:** Comments from all interested parties must be received by July 11, 1994. Public hearing requests must be received by June 24, 1994.

**ADDRESSES:** Comments and materials concerning this proposal should be sent to the Field Supervisor, U.S. Fish and Wildlife Service, Ventura Field Office, 2140 Eastman Avenue, suite 100, Ventura, California 93003. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:** Ms. Judy Hohman at the above address (telephone 805/644-1766).

**SUPPLEMENTARY INFORMATION:**

**Background**

The Mount Hermon June beetle (*Polyphylla barbata*), Zayante band-winged grasshopper (*Trimerotropis infantilis*), and Santa Cruz rain beetle (*Pleocoma conjugens conjugens*) are endemic to restricted sandstone deposits in the Santa Cruz Mountains, Santa Cruz County, California. The Santa Cruz Mountains are a relatively young range composed of igneous and metamorphic rocks overlain by thick

layers of sedimentary material uplifted from the ocean floor and ancient shoreline zone (Caughman and Ginsberg 1987). These Miocene marine terraces, referred to as the Santa Margarita formation (Marangio and Morgan 1986), persist as pockets of sandstones and limestones that are geologically distinct from the volcanic origins of the mountain range. Soils that formed from these sandstone deposits occur in scattered pockets covering about 3,240 hectares (ha) (8,000 acres (ac)) (Marangio and Morgan 1986), and are referred to as the Zayante series (USDA Soil Conservation Service 1980). Pockets of Zayante soils are deep, coarse-textured and poorly developed, and occur in three clusters in the Santa Cruz Mountains. The largest cluster is in the vicinity of the communities of Ben Lomond, Felton, Mount Hermon, and Olympia, and the city of Scotts Valley. A second cluster is in the Bonnie Doon area, and the third, which is the smallest, is in the vicinity of the community of Corralitos (Marangio 1985).

Predominant vegetation of the Santa Cruz Mountains consists of redwood forest (Zinke 1988) and mixed evergreen forest (Sawyer *et al.* 1988). Within the Santa Cruz Mountains, however, two unique communities are restricted to the Zayante soil series: maritime coast range ponderosa pine forest and northern maritime chaparral (Griffin 1964, Holland 1986). Maritime coast ponderosa pine forests are open park-like areas that usually contain ponderosa pine (*Pinus ponderosa*), knobcone pine (*P. attenuata*), coast live oak (*Quercus agrifolia*), and, at a few sites, the federally endangered Santa Cruz cypress (*Cupressus abramsiana*) (Griffin 1964, Holland 1986, Morgan 1983). Northern maritime chaparral, locally referred to as "silver-leaf manzanita mixed chaparral" (Marangio 1985, Marangio and Morgan 1986), is dominated by the endemic silver-leaved manzanita (*Arctostaphylos silvicola*), a candidate for Federal listing.

Both the knobcone pine and Santa Cruz cypress are dependent on naturally occurring fires at appropriate frequencies for regeneration. The association of these fire dependent species with maritime coast ponderosa pine forests indicates that fire frequency plays a role in the survival of this vegetation community. The ponderosa pines and associated trees occur in scattered to dense stands with an understory of small herbaceous plants and grasses and frequently little shrub understory. Maritime coast ponderosa pine forest may include areas lacking ponderosa pine. Local botanists refer to

maritime coast ponderosa pine forest in this area as "ponderosa pine sand parkland" (Marangio 1985, Morgan 1983) or "ponderosa pine sandhill" (California Native Plant Society 1986). Because of their disjunct distribution, ponderosa pine sand parklands have been called "biological islands" (Marangio 1985).

The Mount Hermon June beetle, Zayante band-winged grasshopper, and Santa Cruz rain beetle have very restricted ranges within the Santa Cruz Mountains. With the exception of two sightings, all known localities for the three taxa are within a 52 square kilometer (20 square mile) range on ponderosa pine sand parklands.

The Mount Hermon June beetle was first described by Cazier (1938) from Mount Hermon, Santa Cruz County, California. It is 1 of 28 species of *Polyphylla* in America north of Mexico and 1 of 15 species of the *diffRACTA* complex within the genus *Polyphylla* (Young 1988). Young (1988) recently made several nomenclatural adjustments of the genus *Polyphylla* but retained *P. barbata*. Two other species of *Polyphylla* occur in the Ben Lomond-Mt. Hermon area, *P. crinita* and *P. nigra*. *P. crinita* occurs from British Columbia, Idaho, and Montana south to California and Nevada. *P. nigra* occurs from British Columbia south to Baja California, Mexico. The Mount Hermon June beetle is distinguished from other species of *Polyphylla* by the presence of relatively dense, long, erect hairs scattered randomly over the elytra (thick leathery front wings) and short erect hairs on the pygidium (abdominal segment) (Young 1988).

The adult male Mount Hermon June beetle is a cryptic small scarab beetle with a black head, dark blackish-brown elytra clothed with scattered long brown hair, and a striped body (Borror *et al.* 1976, Young 1988). Elytral vittae are broken, often reduced to discontinuous clumps of scales but still form identifiable lines (Young 1988). Females are larger, with a black head, chestnut color clypeus (plate on lower part of face) and elytra, and golden hairs on head, thorax, and legs (Young 1988). The one adult female described was 22 x 11 millimeters (mm) (0.87 x 0.43 inches (in)) while the holotype male was 20 x 9.7 mm (0.79 x 0.38 in) (Young 1988).

The Mount Hermon June beetle requires about 2 to 3 years to mature from hatching through the adult form. Most of the life cycle is spent in the larval form. The larvae are subterranean and feed on the roots of certain grasses (Dr. Art Evans, Los Angeles County Museum of Natural History, pers.