State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet. (NGVD)	
				Existing	Modified
Maps are available for inspection at the Midland County Engineer's Office, 2145 East Highway 80, Midland, Texas. Send comments to The Honorable Jeff Norwood, Midland County Judge, County Courthouse, 200 West Wall, Midland, Texas 79701.					
Texas	Victoria County (Unincorporated Areas).	Coleto Creek	Just upstream of FM 466	*66	*66
			Approximately 1.1 miles upstream of Southern Pacific Railroad.	*90	*86
		Whispering Creek	Approximately 830 feet upstream of John Stockbauer Drive.	*112	*111
			Approximately 3,600 feet upstream of Loop 463.	*119	*118
Maps are available for inspection at the Victoria County Floodplain Administration, 2805A North Navarro, Victoria, Texas. Send comments to The Honorable Helen R. Walker, Victoria County Judge, 115 North Bridge, Room 127, Victoria, Texas 77901.					

(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance'')

Dated: March 20, 1998.

Michael J. Armstrong,

Associate Director for Mitigation.

[FR Doc. 98–8076 Filed 3–27–98; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AE80

Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for Holocarpha macradenia (Santa Cruz tarplant)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) proposes threatened status pursuant to the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*), for *Holocarpha macradenia* (Santa Cruz tarplant). It is threatened by alteration and destruction of habitat due to historical and ongoing urban and commercial development, habitat alteration due to cattle grazing, limited success of seed transplant populations, and competition from non-native plants. This proposed rule, if made final, would extend the Act's protection to this plant. The Service seeks data and comments from the public on this proposed rule.

DATES: Comments from all interested parties must be received by May 29, 1998. Public hearing requests must be received by May 14, 1998.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Ventura Fish and Wildlife Office, U.S. Fish and Wildlife Service, 2493 Portola Road, Suite B, 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: Carl Benz, Assistant Field Supervisor, Listing and Recovery, Ventura Fish and Wildlife Office (see **ADDRESSES** section) (telephone number 805/644–1766; facsimile 805/644–3958).

SUPPLEMENTARY INFORMATION:

Background

Holocarpha macradenia (Santa Cruz tarplant) was first recognized by Augustin-Pyramus de Candolle, who published the name *Hemizonia macradenia* in 1836 (Ferris 1960). In 1897, E. L. Greene referred the species to the genus *Holocarpha* with publication of the new combination *Holocarpha macradenia* (DC.) E. Greene (Ferris 1960). This name has continued to be recognized in the most recent treatment for the genus (Keil 1993).

Holocarpha macradenia, an aromatic annual herb in the aster (Asteraceae) family, is one of only four species of *Holocarpha,* all of which are restricted to California. The genus name is derived from the Greek *holos* for whole and *karphos* for chaff, referring to the scales found among the florets on the receptacle (the structure that supports the florets in the daisy-like flower head). The plant is rigid with lateral branches that arise to the height of the main stem which is 1 to 5 decimeters (dm) (4 to 20 inches (in)) tall. The lower leaves are broadly linear and up to 12 centimeters (cm) (5 in) long; the upper leaves are smaller, with rolled back margins, and are truncated by a distinctive craterform gland. The yellow flower head is surrounded from beneath by bracts that each have about 25 stout gland-tipped projections (Keil 1993). *Holocarpha macradenia* is distinguished from other members of the genus by its numerous ray flowers and its black anthers.

Historically, habitat for *Holocarpha macradenia* consisted of grasslands and prairies found on coastal terraces below 100 meters (m) (330 feet (ft)) in elevation, from Monterey County north to Marin County. In the Santa Cruz area, the gently sloping terrace platforms are separated by steep-sided ''gulches,'' whereas in the Watsonville area (Monterey County) and on the east side of San Francisco Bay, the terraces are more extensively dissected, and *Holocarpha macradenia* populations occur on alluvium derived from the terrace deposits (Palmer 1986). The soils are typically sandy clay soils; the clay component of these soils holds moisture long into the growing season. The coastal prairie habitat, found from Monterey Bay and northward, is becoming increasingly fragmented and restricted in distribution. Historically, four major factors contributed to changes in the distribution and composition of coastal prairies—the introduction of highly competitive, non-native species; an increase in grazing pressures; the elimination of annual fires; and cultivation (Heady et al.1988).

Santa Cruz tarplant is most frequently associated with grasses; non-native grasses include wild oats (*Avena fatua*), Mediterranean barley (*Hordeum hystrix*), and bromes (*Bromus* sp.). Native associates include needlegrass (*Nassela* sp.), California oatgrass (*Danthonia californica*), and herbaceous species, including other tarplants (*Hemizonia* sp.). At some locations, the plant is found with species of concern, including Gairdner's yampah

(*Perideridia gairdneri*), San Francisco popcorn flower (*Plagiobothrys diffusus*), Santa Cruz clover (*Trifolium buckwestiorum*), and the Ohlone tiger beetle (*Cicindela ohlone*) (California Natural Diversity Data Base (CNDDB) 1997).

Historically, *Holocarpha macradenia* was known from ''low dry fields about San Francisco Bay'' (Jepson 1925). Around the San Francisco Bay, herbarium collections were made from Tamalipas in Marin County in 1934; from near Berkeley, Oakland, and San Lorenzo in Alameda County as early as 1894; and from Pinole in Contra Costa County (CNDDB 1997, Specimen Management System for California Herbaria (SMASCH) 1997). All of the native San Francisco Bay area populations have been extirpated; the last remaining native population, known as the Pinole Vista population, consisting of 10,000 plants, was eliminated in 1993 by a commercial development (California Department of Fish and Game (CDFG) 1997).

By 1959, Munz (1959) also noted it from Santa Cruz County, but added that the plant was possibly extinct. However, numerous collections were made from the Monterey Bay area in Santa Cruz County in the late 1950s and early 1960s. In 1966 and 1969, Hoover made the first collections in northern Monterey County, just south of the Santa Cruz County line (SMASCH 1997). Additional populations were found in Monterey County in the subsequent decades, although the lack of specific locational information on herbarium labels makes it difficult to determine exactly how many populations occurred there. According to CNDDB, nine populations in Santa Cruz and Monterey counties have been extirpated by development (CDFG 1993). Most recently, in 1993, a population in Watsonville (known as the Anna Street site) was destroyed during construction of office buildings and a parking lot (CDFG 1995a).

Holocarpha macradenia is currently known from a total of 18 populations; 12 of these are remaining native populations, and 6 are a result of experimental seedings. Six of the native populations occur around the city of Santa Cruz. The names of the six populations are given here, followed by the population size and (in parentheses), the year of the most recent survey—Graham Hill Road, 12,000 (1994); Twin Lakes, 0 (1997); Arana Gulch, 20,000 (1997); O'Neill/Tan, 2 (1993)/0 (1997); Winkle, 0 (1994); Fairway, 1,500 (1993).

The remaining six native populations occur around the city of Watsonville, scattered from Watsonville Airport to Hall Road, eight kilometers (km) (five miles (mi)) to the south-southeast. The names of the six populations are given here, followed by the population size and (in parentheses) the year of the most recent survey—Watsonville Airport, 240,000 (1994); Harkins Slough, 15,000 (1993); Apple Hill, 700 (1995); Struve Slough, 1 (1994); Spring Hills Golf Course, 4,000 (1990); Porter Ranch, 3,200 (1993).

The other six extant populations of *Holocarpha macradenia* are a result of experimental seed transplants in Wildcat Regional Park in the east San Francisco Bay area. The names of the six populations are given here, followed by the population size; surveys were most recently completed in 1997—Big Belgum, 148; Big Belgum West, 51; Upper Belgum, 22; Mezue, 5,000'7,000; Fowler, 22; Upper Havey, 17 (Olsen et al. 1997).

Holocarpha macradenia is threatened primarily by historic and current habitat alteration and destruction caused by residential development. Destruction of habitat may also result from recreational development, airport expansion, and agriculture. Even where occupied habitat has been set aside in preserves, conservation easements, and open spaces, the plant suffers secondary impacts from that development, such as casual use by residents, children, and pets, the inadvertent introduction of non-native species into tarplant habitat, and changes in hydrology resulting from adjacent residential use. Santa Cruz tarplant is also threatened by competition with non-native species including a variety of grass species, French broom (*Genista monspessulana*), eucalyptus (*Eucalyptus* sp.), acacia (*Acacia decurrens, A. melanoxylon*), and artichoke thistle (*Cynara cardunculus*) that are favored by historic disturbances such as cattle grazing. This species is also threatened by naturally occurring events due to the small numbers of individuals and limited area occupied by many of the populations.

Previous Federal Action

Federal action on this plant began when the Secretary of the Smithsonian Institution, as directed by section 12 of the Act, prepared a report on those native U.S. plants considered to be endangered, threatened, or extinct in the United States. This report (House Doc. No. 94–51), was presented to Congress on January 9, 1975, and included *Holocarpha macradenia* as endangered. On July 1, 1975, the Service published a notice in the **Federal Register** (40 FR 27823) accepting the report as a petition within the context of section 4(c)(2) (now section 4(b)(3)) of the Act and of the Service's intention thereby to review the status of the plant taxa named therein. On June 16, 1976, the Service published a proposed rule in the **Federal Register** (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to section 4 of the Act. *Holocarpha macradenia* was included in the June 16, 1976 **Federal Register** document.

In 1978, amendments to the Act required that all proposals over two years old be withdrawn. A 1-year grace period was given to those proposals already more than 2 years old. Subsequently, on December 10, 1979, the Service published a notice (44 FR 70796) of the withdrawal of the portion of the June 16, 1976, proposal that had not been made final, along with four other proposals that had expired. The Service published an updated notice of review for plants on December 15, 1980 (45 FR 82480). This notice included *Holocarpha macradenia* as a category 1 candidate (species for which data in the Service's possession was sufficient to support proposals for listing).

On February 15, 1983, the Service published a notice (48 FR 6752) of its prior finding that the listing of *Holocarpha macradenia* was warranted but precluded in accordance with section 4(b)(3)(B)(iii) of the Act as amended in 1982. Pursuant to section 4(b)(3)(C)(i) of the Act, this finding must be recycled annually, until the species is either proposed for listing, or the petitioned action is found to be not warranted. Each October from 1983 through 1990 further findings were made that the listing of *Holocarpha macradenia* was warranted, but that the listing of this species was precluded by other pending proposals of higher priority.

Holocarpha macradenia continued to be included as a category 1 candidate in plant notices of review published September 27, 1985 (50 FR 39526), February 1, 1990 (55 FR 6184), and September 30, 1993 (58 FR 51144). Upon publication of the February 28, 1996 notice of review (61 FR 7596), the Service ceased using category designations and included *Holocarpha macradenia* as a candidate. Candidate species are those for which the Service has on file sufficient information on biological vulnerability and threats to support proposals to list them as threatened or endangered. The 1997 notice of review, published September 19 (62 FR 49398) retained *Holocarpha macradenia* as a candidate, with a listing priority of 2.

The processing of this proposed rule conforms with the Service's final listing priority guidance published in the **Federal Register** on December 5, 1996 (61 FR 64475), and extended on October 23, 1997 (62 FR 55268). The guidance clarified the order in which the Service processed rulemakings during fiscal year 1997. The guidance called for giving highest priority (Tier 1) to handling emergency situations, second highest priority (Tier 2) to resolving the conservation status of outstanding proposed listings, and third priority (Tier 3) to new proposals to add species to the lists of threatened and endangered plants and animals. This proposed rule constitutes a Tier 3 action. The 1997 listing priority guidance remains in effect pending the publication of the Final Listing Priority Guidance for FY 1998/FY 1999.

Summary of Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement 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). These factors and their application to *Holocarpha macradenia* are as follows:

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

Urbanization has been responsible for severely reducing the extent of coastal prairie habitat that supports *Holocarpha macradenia.* All native populations of *Holocarpha macradenia* have been extirpated from Alameda, Contra Costa, and Marin counties around the San Francisco Bay (CDFG 1997a). Habitat for the last naturally occurring population in the San Francisco Bay area, near Pinole in Contra Costa County, was converted to a shopping center in 1993 (CDFG 1997a, CNDDB 1997). The only populations that persist in this area are six populations that were transplanted as seed into Wildcat Canyon Regional Park in Contra Costa County.

Since *Holocarpha macradenia* was listed as endangered by the State of California in 1979, the (CDFG) has been tracking the status of its populations. Because locality information on historical collections is often general, it is difficult to assess the total number of historical populations. However, CDFG has determined that the plant has been extirpated from nine locations around the Monterey Bay since 1979 (CDFG 1993, CNDDB 1997). Most recently, a population at what was referred to as the Anna Street site in Watsonville was destroyed sometime after a 1992 survey, during construction of office buildings and a parking lot (CDFG 1995a, CNDDB 1997).

In the last four years, increasing concern over the loss of tarplant habitat and populations have led certain permitting agencies to require conservation of remaining habitat during review of development projects. Because of this, the rate of habitat destruction has been slowed. However, direct impacts and alteration through secondary effects of development threaten the remaining habitat and populations. In many cases, historical alteration of habitat has been exacerbated by current human activities. A detailed description of the 12 remaining native sites is given here. Because the six seed transplant sites in Contra Costa County are not sites where the plant was known to be native, the threats to those sites are discussed under ''Factor E.''

The Graham Hill Road site is owned by the Cowell Foundation. An Environmental Impact Report (EIR) was approved by the County of Santa Cruz in 1996 for a development that comprises 52 residences, a fire station, a common area, a park, and an equestrian facility and trails on a 170-acre parcel (Environmental Science Associates 1996). The developer has proposed to include 0.5 acre of occupied tarplant habitat and 10 acres of coastal prairie habitat within a 17-acre conservation easement. In addition to Santa Cruz tarplant, other species of concern occur here, including Gairdner's yampah, San Francisco popcorn flower, and Santa Cruz clover. In 1994, there were five colonies of tarplant, occupying less than one acre of habitat. One colony supported 10,000 individuals and the other four collectively supported 2,000 individuals. To date, the development has not proceeded because the developer has been unable to negotiate a necessary sewage treatment connection with the City of Scotts Valley. The property and attendant EIR are currently for sale. French broom has invaded the coastal prairie habitat and is considered a threat to all four of the plant species of concern, including Santa Cruz tarplant (Environmental Science Associates 1995). *Holocarpha macradenia* is threatened on this site by development, competition with non-native plants, and vulnerability to naturally occurring events due to the small extent of occupied habitat (also see Factor E).

The Twin Lakes site is owned by the California Department of Parks and Recreation (CDPR). The site has been fragmented by an access road for park vehicles and several hiking paths. The population occupies less than 1 acre and has declined as follows—120 individuals in 1986, fewer than 10 in 1994, 1 in 1996, and 0 in 1997. The decline has been attributed to competition from French broom and non-native grasses (CDFG 1995a; G. Gray, ecologist, CDPR, pers. comm. 1997). In the last three years, CDPR has made progress in removing broom from the site. They also have experimented with management actions that would enhance habitat for *Holocarpha macradenia* through mowing, raking, simulating cattle hoof action with wood blocks, and burning. The population, however, has continued to decline. In 1997, CDPR committed significant funding to continue with experimental management actions (G. Gray, pers. comm. 1997). *Holocarpha macradenia* is threatened on this site by competition with non-native plants, and vulnerability to naturally occurring events due to the small population size and small extent of occupied habitat (also see Factor E).

The Arana Gulch population is on a 63-acre parcel of land owned and managed by the City of Santa Cruz (City). In the late 1980s, the population comprised about 100,000 individuals. Grazing by cattle was terminated in 1988, and over the next few years, population sizes decreased due to competition with non-native grasses. In 1993, the population was down to 133 individuals, and in 1994, no individuals were seen. In 1994, the City acquired the parcel from a private landowner. The City entered into a Memorandum of Understanding (MOU) with CDFG in 1997 to focus on management actions that would enhance the four colonies, which cover approximately 5 acres within a 17-acre management area (CDFG 1997b). Management actions begun in 1995 included mowing, raking, hoeing, and mechanical scraping of the habitat. In 1997, when the population comprised about 20,000 individuals, the highest density of tarplant was on a portion of the habitat that had accidentally burned (K. Lyons, consultant, pers. comm. 1997). The City is proposing to construct a bicycle path that would bisect the management area (Brady and Associates, Inc. 1997). Direct impacts to occupied Santa Cruz tarplant habitat would be avoided, but secondary impacts associated with increased recreational use may make management more difficult. *Holocarpha macradenia*

is threatened on this site by development and competition with non-native plants (also see Factor E).

The O'Neill/Tan Ranch population straddles the boundary of two parcels.

The O'Neill Ranch property is owned by the County Redevelopment Agency (CRA). In 1996, the County approved development of the 100-acre property into a county park. The tarplant is located in the upper reaches of the park where past recreational use has consisted of occasional hiking. A park management plan is currently being developed, and will include the population of tarplant in a 15-acre conservation easement which is zoned for ''passive recreation.'' The plan may recommend fencing around 1 acre of tarplant habitat in lieu of trying to restrict hikers to designated trails (S. Gilchrist, CRA, pers. comm. 1997). Although the site receives light use currently, development of the Tan property will allow easier access to a larger number of people. The County hopes to establish a cooperative management strategy with the developers to address management of this population. The size of the *Holocarpha macradenia* population has fluctuated since 1979 as follows—between 100 to 200 plants (1979); 0 (1984); 0 (1985); 170 (1986); 0 (1990); 170 (1991) and 2 (1993) (Brady and Associates 1995). Santa Cruz clover and Gairdner's yampah are two sensitive species that occur with the tarplant at this site.

The size of the *Holocarpha macradenia* population on the Tan parcel is difficult to determine, as historic surveys did not count individuals separately from those on the O'Neill parcel. However, because the total number of individuals in the entire population has never been larger than 200, it can be inferred that the Tan parcel supported only a portion of these. In 1996, only one tarplant individual was seen (Val Haley, consultant, in litt. 1997); in 1997 no individuals were seen (K. Lyons, pers. comm. 1997). The coastal prairie habitat on this parcel also supports Gairdner's yampah and Santa Cruz clover, both species of concern.

The 106-acre Tan property is privately owned, and was approved for development of 28 residential units in 1997. The habitat mitigation plan for the development calls for the inclusion of approximately 0.4 acres that support tarplant in a 10.5-acre conservation parcel that will be managed by the homeowner's association (HRG 1996). The plan also includes management prescriptions for the conservation parcel, including mowing, weed control, fencing, and removal of invasive non-native plants. Invasive non-native plants in the vicinity of the tarplant include French broom, rattlesnake grass (*Briza* sp.), and eucalyptus (HRG 1996). *Holocarpha macradenia* is threatened on the combined O'Neill/Tan site by development, competition with non-native plants, and vulnerability to naturally occurring events due to the small population size and small extent of occupied habitat (also see Factor E).

The Winkle Avenue site is privately owned. Part of the tarplant population at this site was destroyed by two phases of a residential development in 1986, and part of the remaining parcel was placed in a ''temporary open space easement'' (Strelow Consulting 1997). However, the remaining 58-acre parcel is now also being proposed for development of 21 residential units (Parsons Engineering Science, Inc. 1997). Approval by the County of Santa Cruz is pending; the planning department will recommend that the development be limited to 10 residential units, with the remaining 11 lots to be placed in a preservation easement (K. Tschantz, County of Santa Cruz Planning Department, pers. comm. 1997, CDFG in litt. 1997). In 1993, the tarplant population consisted of approximately 100 plants covering 174 square feet (Parsons Engineering Science, Inc 1997); in 1994, none were seen (CDFG 1995). In addition to development, the population on this site has been subject to competition with French broom and non-native grasses. This site also supports populations of the Ohlone tiger beetle and Gairdner's yampah, both species of concern. *Holocarpha macradenia* is threatened on this site by development, competition with non-native plants, and vulnerability to naturally occurring events due to the small population size and small extent of occupied habitat (also see Factor E).

The Fairway Drive site is privately owned. In 1989, the 30-acre parcel supported a population of approximately 5,000 plants on less than one acre. At the time, the site was considered a ''well preserved fragment of native grassland'' that supported native bunchgrasses (California oatgrass and purple needlegrass (*Nassella pulchra*)) as well as several species of concern, including Gairdner's yampah and San Francisco popcorn flower (CNDDB 1997). Grazing by horses ceased in that year. In 1993, the population was approximately 1,500 plants (CDFG 1995a, Greening Associates 1995); the decline has been attributed to cessation of grazing. Several woody non-native species, including French broom, acacia, pampas grass (*Cortaderia jubata*), and eucalyptus (*Eucalyptus globulus*), have invaded the grasslands and are rapidly spreading. In 1996, the County approved a lot split into four parcels, with the condition that the coastal terrace prairie habitat be placed in a preservation easement of approximately 15 acres, and a management plan be developed and implemented (K. Tschantz, pers. comm. 1997). *Holocarpha macradenia* is threatened on this site by competition with non-native plants and by its vulnerability to naturally occurring events due to small population size and small extent of occupied habitat (also see Factor E).

Around the city of Watsonville, six native populations of Santa Cruz tarplant are scattered from Watsonville Airport to Hall Road, eight kilometers (km) (five mi) to the south-southeast. The Watsonville Airport site, owned by the City of Watsonville, supports the largest population of Santa Cruz tarplant. In 1993, the population was estimated to be 459,000 plants; in 1994, it was estimated to be 240,000 plants (CNDDB 1997). Portions of the 37-acre site are grazed, and other portions are mowed several times between late spring and late summer. This management appears to have benefitted the Santa Cruz tarplant by reducing competition from non-native species. In 1994, the City released an initial study for proposed clay mining and a 20-year airport expansion plan. Both activities would potentially reduce tarplant habitat (Denise Duffy & Associates 1994). Since then, the proposal to mine clay has been removed from consideration due to permitting complications. CDFG has been working with City representatives to formalize an agreement to use ongoing management activities to enhance tarplant habitat, but a final agreement has not been reached. CDFG has also been working with City representatives to develop a strategy to phase airport expansion over a number of years so that loss of tarplant habitat would be minimized. *Holocarpha macradenia* is threatened on this site by development and competition with non-native plants (also see Factor E).

The Harkins Slough site is privately owned. In 1993, the population consisted of about 15,000 plants in two colonies, one covering 1 acre, and the other 0.1 acre in size. Cattle grazing was discontinued in 1990. Current uses of the property include fava bean production. Due to limited access to the property, the current status of the population is unknown. In anticipation of developing residences and a golf course, the owners requested that the

property be annexed to the City of Watsonville in 1997. However, due to the public's concern over the loss of prime agricultural land in the area, the city council turned down the request. In 1997, CDFG approached the owners with a proposal to assist in conservation efforts; no agreements have been reached yet. *Holocarpha macradenia* is threatened on this site by vulnerability to naturally occurring events due to the small population size and small extent of occupied habitat (see Factor E) and possibly by development.

The Apple Hill site is owned by the California Department of Transportation (CALTRANS). The population used to comprise three colonies, but two were extirpated by construction of a housing development on the adjacent private property. The remaining colony occurs in a strip between the development and Highway 152; the strip has been used as a play area for local children and pets, a repository for yard waste, and as a short-cut to the local market (CDFG 1994; G. Smith, resource ecologist, CDPR, pers. comm 1997). CALTRANS had proposed moving a fence along the highway such that it would offer additional protection to the remaining colony. However, due to internal reorganization and changes in staffing within CALTRANS, this action has not been taken yet (G. Ruggerone, CALTRANS, pers. comm. 1997). The population size has fluctuated between 4,000 in 1986 down to 81 in 1994. In the most recent count in 1995, the population supported 700 individuals (CNDDB 1997). *Holocarpha macradenia* is threatened on this site by development and by vulnerability to naturally occurring events due to the small population size and small extent of occupied habitat (also see Factor E).

The Struve Slough site is privately owned. In the late 1980s, it supported one of the largest populations of Santa Cruz tarplant, occupying 4 acres and comprising 400,000 plants in 1989 (CDFG 1995). However, cattle grazing on the site was terminated in 1989, and since then, the population size has dropped precipitously. The site is now dominated by non-native wild oat (*Avena* sp.), prickly lettuce (*Picrus echioides*), and fennel (*Foeniculum vulgare*), which outcompete the tarplant (CDFG 1995). By 1993 and 1994, only one tarplant individual was observed. The Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), a federally endangered species, has also been documented from this site. An EIR for a housing development at this site was approved by the City of Watsonville in 1992. However, a requirement to add a fire road, which would cross regulated wetlands, has held up the development. A revised EIR is due to be released soon. The CDFG has expressed an interest in enlisting the property owners in conservation efforts, but no agreements have yet been reached (D. Hillyard, plant ecologist, CDFG, pers. comm. 1997). *Holocarpha macradenia* is threatened on this site by development, competition with non-native plants, and vulnerability to naturally occurring events due to the small population size and small extent of occupied habitat (also see Factor E).

The Spring Hills Golf Course (Course) site is privately owned. In 1989, Santa Cruz tarplant was observed growing in five separate colonies scattered over 13 acres in unlandscaped patches between the course's fairways. The distribution of the colonies suggests that additional habitat for the tarplant was altered by conversion to fairway. In 1989 and 1990, the largest colony supported 2,000 to 3,000 plants, and the other four colonies supported between 100 and 400 plants each (CNDDB 1997). The tarplant was last observed at this site in 1995; at that time, no population size estimates were made, but it appeared that all colonies were still present (B. Davilla, pers. comm. 1997). In 1997, CDFG approached representatives of the Course and expressed an interest in enlisting them in conservation efforts. To date, however, no agreements have been made (D. Hillyard, pers. comm. 1997). The threats to *Holocarpha macradenia* on this site are uncertain.

The Porter Ranch site is privately owned. Taylor noted that this site is unusual in that the *Holocarpha macradenia* population is primarily in the bottom of a small canyon, rather than on the adjacent terrace or upper slope (Taylor 1990). The population is scattered over approximately 10 acres. Between 1984 and 1993, population sizes fluctuated between 1,500 plants in 1984 and 43,000 in 1989 (CNDDB 1997). The most recent population estimate in 1993 was 3,200 plants. The site is grazed by cattle; apparently different patches of *Holocarpha macradenia* have been grazed with varying intensities (M. Silverstein, Elkhorn Slough Foundation, pers. comm. 1997). Morgan noted that there were fewer than 100 plants in 1996 within a cattle exclosure where there had previously been many more plants (R. Morgan, pers. comm. 1997). The owners are interested in developing management plans in conjunction with The Nature Conservancy that would address appropriate grazing levels to benefit the tarplant (CDFG 1994, M. Silverstein, pers. comm. 1997). The threats to *Holocarpha macradenia* on this site are uncertain.

In summary, development, with its associated effects, is a primary threat to *Holocarpha macradenia*. Six of the 12 remaining native populations are on privately owned lands that are currently or anticipated to be proposed for urban development (Graham Hill Road, the Tan portion of O'Neill/Tan, Winkle Avenue, Fairway Drive, Harkins Slough, and Struve Slough); 1 is on a site slated for a phased, 20-year airport expansion (Watsonville Airport); and 3 are subject to secondary effects of adjacent residential development (Arana Gulch, Twin Lakes, Apple Hill). Although 7 of the 12 sites include plans for conservation of *Holocarpha macradenia*, either through development-related mitigation, or by virtue of being on City, County, or State agency lands, the successful implementation of these plans has not been demonstrated. In particular, the size and quality of conservation areas and management actions prescribed through the environmental review process (see Factor D) may not be biologically adequate to meet the goal of long-term conservation of the species. In addition, conservation areas where *Holocarpha macradenia* populations are small in numbers, small in area, whose habitat is degraded, or that continue to receive secondary effects of adjacent human activities, become more vulnerable to extirpation from naturally occurring events (see Factor E).

B. Overuse for Commercial, Recreational, Scientific, or Educational Purposes

Overutilization is not known to be a problem for this species.

C. Disease or Predation.

Disease is not known to be a problem for this species. Predation by cattle, livestock, or other wildlife species is not known to occur, and is unlikely given that the oil glands of mature *Holocarpha macradenia* would make it unpalatable. Whether very young plants are subject to predation prior to maturation of oil glands is unknown.

Grazing by cattle has altered habitat for *Holocarpha macradenia* at a number of sites (Arana Gulch, O'Neill/Tan, Watsonville Airport, Harkins Slough, Struve Slough, Porter Ranch, and all six seed transplant populations in Wildcat Regional Park). Prior to the spread of non-native annual grasses in the valleys and foothills of California, the openings between perennial grasses in grassland and oak woodland communities were probably occupied by native herbs (Barbour et al. 1993). Grazing alters the species composition of grasslands in several ways. The hooves of cattle create

sufficient soil disturbance to allow the establishment of non-native species, intensive grazing eliminates native species through selective foraging and favors the establishment of non-native species, and cattle act as dispersal vectors for non-native species (Heady 1977; Sauer 1988, Willoughby 1986). Once non-native species become established, they compete with native herbs and grasses for water, nutrients, and light. Because non-native grasses are prolific seeders, they continue to increase in abundance at the expense of the native taxa.

Once habitat for *Holocarpha macradenia* has been altered by grazing and the proliferation of non-native plants, continued grazing may be deleterious or beneficial to the persistence of the species. The effects of continued grazing on *Holocarpha macradenia* depend on many factors, including the current condition of the site, the timing, and the amount of grazing. In some cases, light to moderate grazing will remove sufficient biomass of non-native grasses to allow *Holocarpha macradenia* to persist (CDFG 1995a, CDFG 1995b). For example, a combination of mowing and grazing has probably favored the persistence of *Holocarpha macradenia* at the Watsonville Airport site. The decline of *Holocarpha macradenia* on the Struve Slough site has been attributed to the cessation of grazing (CDFG 1995a, Taylor 1990). On the other hand, heavy grazing is most likely responsible for the decline or restriction in *Holocarpha macradenia* population sizes at the Arana Gulch, Tan, and portions of the Porter Ranch sites (CNDDB 1997, CDFG 1995a), as well as one of the seed transplant populations (Big Belgum) in Wildcat Canyon Regional Park (CDFG 1995b).

Because cattle grazing has frequently resulted in increasing the abundance of non-native species, competition with these non-natives is typically a problem. Additional discussion on this issue is found under Factor E of this rule.

D. The Inadequacy of Existing Regulatory Mechanisms

The CDFG Commission listed *Holocarpha macradenia* as an endangered species in 1979 under the California Native Plant Protection Act (CNPPA) (Div. 2, chapter 10 sec. 1900 et seq. of the CDFG Code) and the California Endangered Species Act (CESA) (Division 3, Chapter 1.5 sec. 2050 et seq.). Although the ''take'' of State-listed plants has long been prohibited under the CNPPA, Division 2, Chapter 10, section 1908 and the CESA, Division 3, Chapter 1.5, section 2080, in the past these statutes have not provided adequate protection for such plants from the impacts of habitat modification and land use change. For example, under CNPPA, after CDFG notifies a landowner that a State-listed plant grows on his or her property, the statute requires only that the landowner notify the agency ''at least 10 days in advance of changing the land use to allow salvage of such plant'' (CNPPA, Division, 2, Chapter 10, section 1913). Under recent amendments to CESA, a permit under section 2081(b) of the CDFG Code is required to ''take'' State listed species incidental to otherwise lawful activities. The amendments require that impacts to the species be fully mitigated. However these new requirements have not been tested and several years will be required to evaluate their effectiveness.

The California Environmental Quality Act (CEQA) requires a full disclosure of the potential environmental impacts of proposed projects. The public agency with primary authority or jurisdiction over the project is designated as the lead agency, and is responsible for conducting a review of the project and consulting with the other agencies concerned with the resources affected by the project. Section 15065 of the CEQA Guidelines requires a finding of significance if a project has the potential to ''reduce the number or restrict the range of a rare or endangered plant or animal.'' Species that are eligible for State listing as rare, threatened, or endangered, but are not so listed, are given the same protection as those species that are officially listed with the State or Federal governments. Once significant effects are identified, the lead agency has the option to require mitigation for effects through changes in the project or to decide that overriding considerations make mitigation infeasible. In the latter case, projects may be approved that cause significant environmental damage, such as destruction of endangered species. Protection of listed species through CEQA is, therefore, dependent upon the discretion of the agency involved.

The County of Santa Cruz recently revised its Local Coastal Program and General Plan (Santa Cruz County 1994). Under this plan, ''grasslands in the coastal zone'' are identified as one of a number of Sensitive Habitats. Uses allowed within Sensitive Habitat areas are restricted to those that are dependent on the habitat's resources unless other uses are ''(a) consistent with protection policies and serve a specific purpose beneficial to the public; (b) it is determined through environmental review that any adverse impacts on the resource will be completely mitigated and that there is no feasible less-damaging alternative; and (c) legally necessary to allow a reasonable economic use of the land, and there is no feasible less-damaging alternative.'' (Santa Cruz County 1994). The County has attempted to protect Santa Cruz tarplant during review of proposals for development that fall under their purview by establishing conservation easements volunteered by the project applicant, or preservation easements requested of the applicant by the County. To date, these include development projects at the following sites—Graham Hill Road, O'Neill, Tan, Winkle, and Fairway Drive. These easements typically set aside all or most of the occupied habitat of *Holocarpha macradenia* and provide for implementation of management plans for the attendant coastal prairie habitat. Despite these efforts, however, the easements cover small remnant acreages that represent only a fragment of the original coastal prairie habitat that used to occur in the region, and intensive management will be needed to support *Holocarpha macradenia* on these sites.

Since *Holocarpha macradenia* was listed by the State in 1979, CDFG has been tracking the status of its populations. Concern increased in the late 1980s and early 1990s when it became apparent that native populations were being destroyed by development, both in the San Francisco Bay area and the Monterey Bay area. In 1993 and 1995, CDFG hosted three *Holocarpha macradenia* recovery workshops to review the status of the species and attendant populations, and to identify needed actions to conserve the species. As a result of these workshops, CDFG developed a MOU with the City of Santa Cruz addressing management of the population at Arana Gulch, initiated discussion with the City of Watsonville regarding the development of a MOU for management of the Watsonville Airport site, provided funding for management of several populations (including those at Arana Gulch and at Wildcat Regional Park), and developed a conservation plan for the species, including a list of four priority sites to target for conservation. Efforts to enlist the four property owners to conserve the species are pending.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Three additional factors threaten the continued existence of *Holocarpha macradenia*—limited success of transplant efforts, competition with

non-native plants, and extinction caused by naturally occurring events.

In Factor A above, detailed accounts were given of the 12 remaining native populations of *Holocarpha macradenia*. The other six extant populations of *Holocarpha macradenia* are a result of experimental seed transplants. A brief summary of these transplanted populations is warranted. In 1911, Jepson referred to *Holocarpha macradenia* as being ''abundant'' in west Berkeley and Oakland (Havlik 1986). Due to loss of habitat to urbanization, Munz (1959) considered the taxon ''possibly extinct.'' Therefore, when several populations were found near Pinole and Richmond in Contra Costa County in the late 1970s and early 1980s, botanists placed a high priority on establishing additional populations to forestall extinction. Experiments were carried out to establish new populations by seeding what was thought to be appropriate habitat (Havlik 1986). Most of the transplants were done at Wildcat Canyon Regional Park, which straddles Alameda and Contra Costa counties, but several transplants were on lands owned and managed by East Bay Municipal Utility District (EBMUD).

Havlik (1989) reviewed results from the first seven years of seed transplants and discussed how habitat characteristics, including soil type, grazing pressure (cattle), and occurrence within the coastal fog belt, may have affected transplant success. Initial data suggested that populations exposed to moderate grazing pressure were larger than those exposed to low grazing pressure. From 1982 to 1986, a total of 22 seed transplants was attempted within Wildcat Regional Park and on EBMUD land. Most of the sites have been monitored annually since then. In 1989, 3 sites supported over 3,000 plants; two had over 1,000 plants; eleven had over 100 plants; 2 had over 10 plants; and 4 had no plants.

By 1993, 1 site (referred to as Mezue) supported a population of 6,400 plants; 4 had fewer than 300 plants; 2 had fewer than 100 plants; 10 had no plants; and 3 sites could not be relocated (CDFG 1994). By 1997, the Mezue site supported between 5,000 and 7,000 plants; 1 had fewer than 300 plants; 4 had fewer than 100 plants; and 7 had no plants. Most of the remaining sites were not checked since previous multiple-year monitoring indicated that plants had disappeared from those sites.

Although the information gathered from these seed transplant trials has been valuable for understanding the life history of the plant and how it responds to various types of management, the limited success of establishing viable populations means that these transplant sites have a limited value for maintaining the viability of the species compared to the native populations. The seeded populations of tarplant are threatened to some extent by competition with artichoke thistle and non-native grasses.

One of the most prevalent forms of habitat alteration occurring within the coastal prairie habitat of Santa Cruz tarplant is the conversion of the flora from one comprised primarily of native grasses to one comprised primarily of non-native grasses. As discussed in factors A and C above, the conversion of native habitats to grazing lands enhances the opportunity for non-native grasses to be introduced and disseminate into the surrounding areas. Because many non-native grasses germinate early and seed prolifically, they may quickly gain a competitive advantage over native grasses (Heady 1977, McClintock 1986). Field survey reports show that non-native grasses have become prevalent, and thus represent a potential threat, at the following sites for *Holocarpha macradenia*—Arana Gulch, Twin Lakes, Tan, Watsonville Airport, Harkins Slough, Struve Slough, Spring Hills, Porter (CNDDB 1997, Taylor 1990).

The Struve Slough site, which until 1989 supported one of the largest populations of Santa Cruz tarplant, is currently dominated by non-native species, primarily wild oat, prickly lettuce, and wild fennel. Before 1989, grazing by cattle had favored the presence of ryegrass (*Lolium multiflorum*) and quaking grass (*Briza maxima*) on the site; cattle grazing was removed in 1989. Although a seed bank for Santa Cruz tarplant still exists on the site, the plant has not been seen since 1994.

The seeded populations of tarplant are also threatened to some extent by competition with non-native species, particularly artichoke thistle and non-native grasses. This thistle, the wild variety of the edible artichoke, modifies habitat for the tarplant by virtue of its large size, its allelopathic properties (chemical inhibition of growth of other plants), and by creating shade (Kelley and Pepper, in press). Other weedy characteristics of the artichoke thistle include its ability to resprout vigorously from a perennial taproot, extended flowering, seed production, and germination seasons, and the ability to germinate and grow rapidly in a variety of environmental conditions (Kelley and Pepper, in press). Apparently, artichoke thistle was introduced to the area around Benicia, only a few miles north of the Regional Park, in the 1880s; by the 1930s, 70,000 acres in the hills around the east and north side of San Francisco Bay were infested with the artichoke thistle (Ball in Thomsen et al. 1986).

Starting in 1996, the Regional Park, with the County of Alameda, initiated an artichoke thistle removal program using herbicides. Although sites that support tarplant are a priority for artichoke thistle removal, the abundance of artichoke thistle in adjacent areas facilitates reestablishment into already treated areas.

Non-native grasses also occur with tarplant at the six seed transplant sites. All six sites are also grazed by cattle. If non-native grasses become too abundant, they outcompete the tarplant. Cattle grazing decreases the abundance of non-native grasses; however, at one of the sites (Big Belgum), an increase in cattle grazing was thought to be the cause of a declining tarplant population (CDFG 1995b).

French broom is another non-native species that threatens *Holocarpha macradenia*. French broom is very aggressive, spreads rapidly, and easily colonizes disturbed areas such as roadsides and recently cleared land. Like artichoke thistle, French broom can eventually form dense thickets that displace native vegetation (Habitat Restoration Group (HRG) n.d.). French broom occurs at the following sites that support *Holocarpha macradenia*—Arana Gulch, Graham Hill Road, Twin Lakes, Tan, and Fairway Drive (CDFG 1997, HRG 1996).

So much of the coastal prairie habitat that supports *Holocarpha macradenia* has been altered, fragmented, or destroyed that most of the remaining habitat supports only very small populations, both in numbers of individuals and in acreage. Species with few populations and individuals are vulnerable to the threat of naturally occurring events causing extinction in several ways. First, the loss of genetic diversity may decrease a species' ability to maintain fitness within the environment, often manifested in depressed reproductive vigor. Secondly, species with few populations or individuals may be subject to forces that affect their ability to complete their life cycle successfully. For example, the loss of pollinators may reduce successful seed set. Thirdly, random, natural events, such as storms, drought, or fire could destroy a significant percentage of a species' individuals or entire populations. Also, the restriction of certain populations to small sites increases their risk of extinction from naturally occurring events. Of the 12

native sites, the Watsonville Airport site is the largest, supporting 200,000 to 400,000 plants on 37 acres. The Struve Slough site formerly supported 400,000 individuals on 4 acres, but had declined to a single individual in 1994. The Spring Hills Golf Course site supports up to 3,500 plants on 13 acres. The Porter Ranch site used to support 43,000 plants on 10 acres, but the population had declined to fewer than 100 plants in 1996. The Arana Gulch site supported 20,000 plants on 5 acres in 1997. The remaining seven native sites support approximately 1 acre or less of occupied habitat; of these, at least two (Twin Lakes, Tan) had no plants in 1997. Of the 6 seed transplant sites in Wildcat Canyon Regional Park in the east San Francisco Bay area, 1 supported a population of 6,000 to 7,000 individuals, and the remaining 5 supported between 17 and 148 individuals. Olsen estimates that each of these sites covers 1 to 3 acres, and that the total area of all six sites is between 10 and 20 acres (B. Olsen, biologist, EBRPD, pers. comm. 1997).

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this taxon in determining to propose this rule. Based on this evaluation, the preferred action is to list *Holocarpha macradenia* (Santa Cruz tarplant), as threatened. This species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range due to habitat alteration and destruction resulting primarily from urban and commercial development, invasion of its habitat by non-native vegetation due to cattle grazing, limited success of seed transplant populations, competition with non-native plants, and vulnerability to naturally occurring events due to low numbers of individuals. Although a few of the remaining native populations are on City, County, or State-owned lands, most of them are on private lands. Conservation efforts to date have shown that this species may be maintained by applying intensive management techniques. These efforts will be most effective on sites where acreage of remaining habitat is large, support naturally large populations, and are secure from threats. Although conservation efforts have been prescribed as part of mitigation for a number of development projects, the small acreage, small population sizes, and physical proximity of threats lessen the chance that such efforts will lead to secure, self-sustaining populations at these sites. Therefore, the preferred action is to list *Holocarpha macradenia* as threatened. Critical habitat is not being proposed for *Holocarpha macradenia* for the reasons discussed below.

Critical Habitat

Critical habitat is defined in section 3(5)(A)of the Act as (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. ''Conservation'' means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12(a)) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. Critical habitat for Santa Cruz tarplant is determinable. Although additional information would be useful, sufficient information concerning the physical and biological features of the tarplant's habitat exists to determine critical habitat (CNDDB 1997, CDFG 1995a, CDFG 1995b, Palmer 1986).

Critical habitat can be designated for suitable, but unoccupied, habitat of listed species. There are no opportunities to do so for the Santa Cruz tarplant because sites where it historically occurred have all been rendered unsuitable. Sites where plants have been regularly seen, but not on the most recent inspection, are assumed to have viable seed banks, and cannot be considered ''unoccupied.'' Similarly, because the six seed transplant populations on park land (owned by East Bay Regional Parks District) have been at best moderately successful, the Service is unable to conclude that these sites are suitable to the plant. The transplant sites thus are not appropriate for designation as critical habitat.

Service regulations (50 CFR 424.12(a)(1)) state that designation of critical habitat is not prudent when one or both of the following situations exist—(i) the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of such threat to the species, or (ii) such designation of critical habitat would not be beneficial to the species. The Service finds that designation of critical habitat for the Santa Cruz tarplant is not prudent because it would provide no additional benefit to the species beyond that conferred by listing it as threatened. The basis for this conclusion, including the factors considered in weighing the benefits against the risks of designation, is provided below.

As discussed above, 8 out of 12 extant native populations occur predominantly on private land, and 4 are on City, County or State land. Because Santa Cruz tarplant is State-listed, activities occurring on these private and public lands are subject to State regulations. For populations that occur within Santa Cruz County outside of City limits (Graham Hill Road, O'Neill/Tan, Winkle, Fairway Drive, Harkins Slough, Struve Slough, Spring Hills Golf Course), activities are also subject to ordinances through the Local Coastal Program and General Plan. The Porter Ranch population is subject to ordinances through the County of Monterey. Because there is no Federal assistance to, or regulation of activities (i.e., a Federal nexus) on these privately owned sites, designation of critical habitat would provide no benefit to the Santa Cruz tarplant in addition to that provided by listing. Federal involvement, should it occur, would be identified without the designation of critical habitat because interagency coordination requirements (e.g. Fish and Wildlife Coordination Act and the Endangered Species Act) are already in place. Designating critical habitat would not create a management plan for the plant, establish goals for its recovery, nor directly affect areas not designated as critical habitat. Additionally, the designation of critical habitat, which does not affect private landowners, may distract these landowners from, or discourage their participation in State and local conservation programs. Landowner participation in these programs is essential to the long term conservation and recovery of the Santa Cruz tarplant. Designation of critical habitat on private land would therefore not merely provide no benefit to the tarplant, but would actually create a needless risk.

For the 4 native populations on City, County, or State lands, policies of the various agencies involved regarding protection and conservation of sensitive species apply. The Twin Lakes population is on park land owned by CDPR; the Arana Gulch population occurs on park land owned by the City of Santa Cruz. The Apple Hill

population occurs on land owned by CALTRANS. The Watsonville Airport population is owned by the City of Watsonville. In addition to these four populations, a portion of the O'Neill/Tan population occurs on park land owned by the County of Santa Cruz. All of these populations are currently recognized for conservation purposes by their managers, or progress is being made toward such recognition (as at Watsonville Airport). There is currently no Federal nexus at any of these sites. A Federal nexus could emerge at the airport if federally-funded construction is proposed, but the airport population's importance to the conservation of the species (it is the largest population in existence) assures that virtually any adverse effect at the airport would very likely jeopardize the continued existence of the Santa Cruz tarplant. Thus, designation of critical habitat at any of the publicly-owned sites would provide no additional benefit.

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 actions by Federal, State, and local agencies, private organizations, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the 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 being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) 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) 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. No Federal agency involvement has been identified at this time.

Listing of this plant as threatened will provide for the development of a recovery plan. Such a plan will bring together Federal, State, and local efforts for its conservation. The plan will establish a framework for cooperation and coordination in recovery efforts. The plan will set recovery priorities and estimate costs of various tasks necessary to accomplish them. It also will describe site-specific management actions necessary to achieve conservation and survival of *Holocarpha macradenia*.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all threatened plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.71 for threatened plants, applies. 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 to possession the species 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. Section 4(d) of the Act allows for the provision of such protection to threatened species through regulation. This protection may apply to *Holocarpha macradenia* in the future if regulations are promulgated. Seeds from cultivated specimens of threatened plant species are exempt from these prohibitions provided that their containers are marked ''Of Cultivated Origin.'' Certain exceptions to the prohibitions apply to agents of the Service and State conservation agencies.

The Act and 50 CFR 17.62, 17.63, and 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered or threatened plant species under certain circumstances. Such permits are available for scientific purposes and to enhance the propagation or survival of the species. For threatened plants, permits also are available for botanical or horticultural exhibition, educational purposes, or special purposes consistent with the purposes of the Act. It is anticipated that few trade permits would ever be sought or issued because this species is not in cultivation or common in the wild. Requests for copies of the regulations on listed species and inquiries about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Portland Regional Office, 911 NE 11th Avenue, Portland, Oregon 97232–4181 (telephone 503/231–6131, FAX 503/231–6243).

The Service adopted a policy on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is proposed for listing those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of the listing on proposed and ongoing activities within a species' range. The Service believes that, based upon the best available information, the following actions will not result in a violation of section 9, provided these activities are carried out in accordance with existing regulations and permit requirements:

(1) Activities authorized, funded, or carried out by Federal agencies (e.g., grazing management, agricultural conversions, land use activities that would significantly modify the species' habitat, wetland and riparian habitat modification, flood and erosion control, residential development, recreational trail development, road construction, hazardous material containment and cleanup activities, prescribed burns, pesticide/herbicide application, pipelines or utility line crossing suitable habitat,) when such activity is conducted in accordance with any reasonable and prudent measures given by the Service according to section 7 of the Act; or when such activity does not occur in habitats suitable for the survival and recovery of *Holocarpha macradenia* and does not alter the hydrology or habitat supporting this plant.

(2) Casual, dispersed human activities on foot or horseback (e.g., bird watching, sightseeing, photography, camping, hiking).

(3) Activities on private lands (without Federal funding or involvement), such as grazing management, agricultural conversions, wetland and riparian habitat modification (not including filling of wetlands), flood and erosion control, residential development, road construction, pesticide/herbicide application, and pipelines or utility lines crossing suitable habitat.

(4) Residential landscape maintenance, including the clearing of vegetation around one's personal residence as a fire break.

The Service believes that the actions listed below might potentially result in a violation of section 9; however, possible violations are not limited to these actions alone:

(1) Unauthorized collecting of the species on Federal lands;

(2) Application of herbicides violating label restrictions;

(3) Interstate or foreign commerce and import/export without previously obtaining an appropriate permit. Permits to conduct activities are available for purposes of scientific research and enhancement of propagation or survival of the species.

Questions regarding whether specific activities, such as changes in land use, will constitute a violation of section 9 should be directed to the Field Supervisor, Ventura Fish and Wildlife Office (see **ADDRESSES** section).

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. The Fish and Wildlife Service will follow its current peer review policy (59 FR 34270) in the processing of this rule. 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 should or should not be determined to be critical habitat pursuant to section 4 of the Act;

(3) Additional information concerning the range, distribution, and population size of this species; and

(4) Current or planned activities in the subject area and their possible impacts on this species.

Final promulgation of the regulations on this species 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 the proposal in the **Federal Register**. Such requests must be made in writing and be addressed to the Field Supervisor (see **ADDRESSES** section).

National Environmental Policy Act

The Fish and Wildlife Service has determined that Environmental Assessments and Environmental Impact Statements, 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 of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Required Determinations

This rule does not contain collections of information that require approval by the Office of Management and Budget under 44 U.S.C. 3501 *et seq.*

References Cited

A complete list of all references cited herein, as well as others, is available upon request from the Ventura Fish and Wildlife Office (see **ADDRESSES** section).

Author

The primary author of this proposed rule is Constance Rutherford, Ventura Fish and Wildlife Office, U.S. Fish and Wildlife Service, 2493 Portola Road, Suite B, Ventura, California 93003 (telephone 805/644–1766).

List of Subjects in 50 CFR part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, 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. 4201–4205; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. Amend 17.12(h) by adding the following, in alphabetical order under FLOWERING PLANTS, to the List of Endangered and Threatened Plants to read as follows:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic Range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
*	*	*	*	*	*	*	
FLOWERING PLANTS							
*	*	*	*	*	*	*	
Holocarpha macradenia.	Santa Cruz tarplant	U.S.A. (CA)	Compositae	T	.....	NA	NA
*	*	*	*	*	*	*	

Dated: March 17, 1998.

Jamie Rappaport Clark,

Director, Fish and Wildlife Service.

[FR Doc. 98–8052 Filed 3–27–98; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018—AE85

Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for the Cowhead Lake Tui Chub

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) proposes to determine the Cowhead Lake tui chub (*Gila bicolor vaccaceps*), to be an endangered species under the authority of the Endangered Species Act of 1973, as amended (Act). The Cowhead Lake tui chub is a fish that is found only in Cowhead Slough and connected ditches within the bed of Cowhead Lake in extreme northeastern Modoc County, California. This subspecies is threatened throughout its range by a variety of human impacts, including the dewatering of Cowhead Lake, livestock grazing, agricultural activities, and by random naturally occurring events. This proposal, if made final, would implement Federal protection provided by the Act. The Service seeks data and comments from the public on this proposal.

DATES: Comments from all interested parties must be received by May 29, 1998. Public hearing requests must be received by May 14, 1998.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Field Supervisor, Sacramento Fish and Wildlife Service Office, U.S. Fish and Wildlife Service, 3310 El Camino Avenue, Suite 130, Sacramento, California 95821–6340. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Mr. Wayne S. White, Field Supervisor, at the above address (telephone 916/979–2710).

SUPPLEMENTARY INFORMATION:

Background

The Cowhead Lake tui chub was first recognized as a distinct subspecies by Hubbs and Miller (1948) and was first described by Bills and Bond (1980). The following morphological description is taken from Bills and Bond (1980) and Moyle *et al.* (1989). The Cowhead Lake tui chub is a small fish in the minnow family (Cyprinidae) approximately 85–115 millimeters (3–4.5 inches) from the nose to the middle of the tail and is distinguished from the other subspecies of tui chub by the number of gill rakers (bony projections in the gills). Coloration is silver like other subspecies of tui chub, except for a dark lateral stripe and dark speckles scattered on the cheek, operculum (area behind the eye) and lower body. The pectoral fins usually exhibit a row of melanophores (cells containing dark pigment) along the anterior rays and a few specimens have exhibited a concentration of pigment on the pelvic and anal fins. There have been no formal studies on the life history or habitat of the Cowhead Lake tui chub. The following information refers to tui chubs in general and is taken from Moyle (1976).

Tui chubs occur in a wide variety of habitats, most commonly in the weedy shallows of lakes and quiet waters in sluggish rivers. They do well in a wide variety of water conditions from warm to cold, and clear to eutrophic. In the fall they seek out deeper water and may spend winters in a semi-dormant state on the bottom of lakes. Tui chubs are opportunistic omnivores concentrating on invertebrates associated with bottom or aquatic plants (i.e., clams, insect larvae, insects, crayfish) as well as algae and plant material. Tui chub usually spawn from late April to late June; eggs adhere to plants or the bottom and hatch in 9 days. In large deep lakes, tui chubs tend to form large schools in shallow water frequently associated with beds of aquatic vegetation. In shallow lakes, with heavy aquatic growth, schooling is less noticeable. Tui chubs tend to disperse amongst the vegetation presumably as protection from predators. Tui chubs appear to be able to adapt to the severe long and short-term climatic fluctuations characteristic of the interior basins where they are most common. The family Cyprinidae in general has been successful because they have a well-developed sense of hearing, release a fear scent when injured (a warning signal to others), have pharyngeal teeth (broader diet), and exhibit high fecundity. Despite these advantages, many native minnows are declining in numbers as their environment deteriorates beyond their ability to cope with the changes or they are displaced by more aggressive introduced species.

Cowhead Lake tui chub are found in the vicinity of Cowhead Lake, a Pleistocene lake in the extreme northeastern corner of Modoc County, California, in an area known as the Modoc Plateau. The Modoc Plateau consists of molten basalt that formed approximately 70 million years ago (Young et *al.* 1988). The area is characterized by lava rims, upland plateaus, lava flows and tubes, ancient pluvial lake beds and large-volume springs, and shallow soils (Young *et al.* 1988). Volcanic rock is porous, therefore, most of the rainfall percolates through into the groundwater. Surface water is minimal, but rainfall and snowmelt in the mountains feed the groundwater, which surfaces as springs. The habitat type is sagebrush steppe, which is generally a treeless, shrub-dominated community characterized by sagebrush (*Artemesia* species) with perennial bunch grasses in the understory and some juniper pine (Young *et al.* 1988). The area is characterized by cold, harsh winters, dry summers, and low rainfall.

The lakebed of Cowhead Lake is approximately 1,100 hectares (2,700 acres) based on assessors maps (Modoc County, California, Jan. 1982), with an elevation of 1,597 meters (5,241 feet). Historically, Cowhead Lake and Cowhead Slough are thought to have been marsh habitat, based on the soil type. In its natural state the lake's water levels were probably variable. This habitat type would have retained and stored its water, slowly discharging it via Cowhead Slough to Twelvemile Creek and on into the Warner Basin (Roger Farschon, Bureau of Land Management (BLM), pers. comm., 1997a). Cowhead Slough and Cowhead Lake are fed mainly by snowmelt runoff and springs via Eightmile Creek and other smaller tributaries from the Warner Mountains. There may also be several faults at the upper end of the slough that provide subsurface flow (Sato *in litt.* 1992). Historically the lake was probably shallow and naturally dried up on occasion (Peter Moyle, University of California, Davis, pers. comm., 1997). Approximately 40 percent of the lakebed occurs on private land and 60 percent of the lakebed has unknown title based on a title search done in 1997 (Modoc County Title Co. *in litt.* 1997). The lake went dry sometime in the 1930's. Since the drought ended, and continuing up to the present day, the lake has been mechanically pumped dry so that the lakebed could be used to grow hay. There is a series of irrigation ditches, two reservoirs on nearby creeks, and a mechanical pumping system, which