

# 178-91

**DEPARTMENT OF THE INTERIOR****Fish and Wildlife Service****50 CFR Part 17****RIN 1018-AB73****Endangered and Threatened Wildlife and Plants; Proposed Rule for Five Plants and Morro Shoulderband Snail from Western San Luis Obispo County, 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 five plants and one land snail: *Arctostaphylos morroensis* (Morro manzanita), *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle), *Clarkia speciosa* ssp. *immaculata* (Pismo clarkia), *Eriodictyon altissimum* (Indian Knob mountainbalm), *Suaeda californica* (California sea-blite), and Morro shoulderband snail (*Helminthoglypta walkeriana*). Morro manzanita and Indian Knob mountainbalm inhabit the maritime chaparral community primarily between the cities of Morro Bay and Arroyo Grande in San Luis Obispo County, California. Chorro Creek bog thistle is restricted to seep areas in serpentine soils primarily around San Luis Obispo. Pismo clarkia is found on pockets of dry sandy soils between San Luis Obispo and Arroyo Grande. California sea-blite is restricted to the upper intertidal marsh zone around Morro Bay. The five plant taxa are threatened by one or more of the following: Residential development, road maintenance activities, competition from alien plants, recreational activities, grazing, water diversions, dredging, and perhaps stochastic (i.e., random) extinction by virtue of the small, isolated nature of the remaining populations. Morro shoulderband is limited to pre-Flandrian sand dunes at the southern end of Morro Bay and is threatened by destruction of habitat, competition with the common garden snail, and perhaps stochastic extinction. The proposal, if made final, would implement the Federal protection and recovery provisions afforded by the Act for the plants and the snail. The

Service seeks data and comments from the public on this proposal.

**DATES:** Comments from all interested parties must be received by February 21, 1992. Public hearing requests must be received by February 6, 1992.

**ADDRESSES:** Comments and materials concerning this proposal should be sent to the Office Supervisor, U.S. Fish and Wildlife Service, Ventura 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:** Dr. Steven Chambers, Office Supervisor, at the above address or at 805-644-1766 (commercial) or 983-6040 (FTS).

**SUPPLEMENTARY INFORMATION:****Background**

Morro manzanita, Chorro Creek bog thistle, Pismo clarkia, Indian Knob mountainbalm, California sea-blite, and Morro shoulderband are endemic to the western portion of San Luis Obispo County, California. Morro manzanita and Indian Knob mountainbalm occur as components of several coastal plant communities, referred to as central coastal scrub, central maritime chaparral, and coast live oak woodland by Holland (1986). Chorro Creek bog thistle is found primarily on more inland sites, near seeps associated with serpentine soils. Pismo clarkia is a component of grasslands that form a mosaic with chaparral and oak woodlands. California sea-blite is found in association with the northern coastal salt marsh community (Holland 1986) around Morro Bay. Morro shoulderband is found within the central coastal dune scrub community (Holland 1986) on the south end of Morro Bay. These communities have also been described by Holland and Keil (1990) and by MacDonald, Griffin, Hanes, Barbour and Johnson, and Mooney in Barbour and Major (1988).

The natural communities of western San Luis Obispo County have undergone a number of changes resulting from both human-caused activities and natural occurrences. The rapid urbanization of urban communities around Morro Bay, the San Luis Obispo area, and the Pismo Beach area has already eliminated the proposed plants and the snail in portions of their ranges. Starting in the 1940's, the configuration of Morro Bay itself was altered by construction of a breakwater that resulted in the connection of Morro Rock to the mainland north of the Bay, construction

of a marina, the deposition of sediments from two watersheds (Los Osos Creek and Chorro Creek), and the dredging of waterways within the Bay (Gerdes *et al.* 1974). Since 1935, the spit that envelops the southern portion of the Morro Bay has also been displaced 90 feet landward as a result of windblown sand into the interior of the Bay (Josselyn *et al.* 1989). Further urban development and other anthropogenic activities such as recreation, grazing, and utility construction threaten the remaining occurrences of these plants and the snail.

#### Discussion of the Six Species Proposed for Listing

Morro manzanita (*Arctostaphylos morroensis*) was first described by Albert E. Wieslander and Beryl O. Schreiber in 1939 (Wieslander and Schreiber 1939) based on a specimen collected in Hazard Canyon, south of Morro Bay, which is now within the boundaries of Montana de Oro State Park. This name has been conserved by McMinn (1939), Abrams (1951), Munz (1968), and Hoover (1970).

This handsome shrub of the heath family (Ericaceae) reaches 1.5 to 4 meters (m) (5 to 13 feet (ft)) high. Morro manzanita has oblong to ovate leaves that are grey-green to olive-green and 2.5 to 4 centimeters (cm) (1 to 1.5 inches (in)) long, with petioles 2 to 6 millimeters (mm) (0.08 to 0.20 in) long. The white to pinkish flowers are 5 to 8 mm (0.2 to 0.3 in) long and form orange-brown fruits 8 to 13 mm (0.3 to 0.5 in) in diameter. Morro manzanita is distinguished from other manzanitas in the area by the following characters: The bark of the trunk is a shaggy grey to brown and the leaf blades are cuneate to rounded or truncate at the base, with the lower surface paler and usually somewhat tomentose (bearing short, wooly hairs). Occasional specimens of Morro manzanita have exhibited an auriculate (ear-shaped appendage) leaf base and a leaf petiole short to lacking—characters more representative of the rare Arroyo de la Cruz manzanita (*Arctostaphylos cruzensis*). Recent work by Holland *et al.* (1990) has clarified the distinctness of the taxon and its relation to Arroyo de la Cruz manzanita.

The distribution of Morro manzanita has been tied to the presence of soils derived from ancient sand dunes, referred to as Baywood fine sands, which were deposited during the Pleistocene epoch when sea levels 300 feet lower than current levels allowed large volumes of sand to blow inland into the Los Osos Valley. Over half of the area covered by Baywood fine sands have been subject to urban

development, primarily by the communities of Los Osos, Baywood Park, and Cuesta-by-the-Sea on the south and east sides of Morro Bay. The total number of individuals of Morro manzanita was recently estimated to be 2,000 (McLeod 1991).

Chorro Creek bog thistle (*Cirsium fontinale* var. *obispoense*) is one of two rare subspecies of *Cirsium fontinale*, which was first described by Edward L. Greene in 1898 as *Cnicus fontinalis*. Six years later, he transferred the plant to the genus *Carduus*, and in 1901 Jepson transferred the plant to the genus *Cirsium*. In 1938, J.T. Howell described the var. *obispoense* based on plants collected at Chorro Creek 2 years earlier (Abrams and Ferris 1960).

Chorro Creek bog thistle is a rugged short-lived perennial herb of the aster family (Asteraceae). First year plants form a rosette that reaches up to a meter (3.3 ft) in diameter; in the second or third year, the plant produces a branching stalk up to 2 m (6.6 ft) in height and bearing numerous heads of whitish to pinkish-lavender tinged flowers. It is separated from other thistles that occur in the area on the basis of its nodding flower heads and glandular hairs on the leaves.

Chorro Creek bog thistle is restricted to open seep areas on serpentine soil outcrops. It is known from only eight locations; seven are to the south and west of San Luis Obispo, and one is 30 miles to the northwest near San Simeon. The type locality was surveyed for Chorro Creek bog thistle in 1985; the thistle was not located and is assumed to be extirpated, probably by cattle grazing (Rocco 1981). Extant populations are threatened by grazing and proposed water diversions, and may also be declining due to several years of drought conditions. At the time of the last surveys in 1986, the total number of individuals numbered less than 3,000 (Friedman 1987).

Indian Knob mountainbalm (*Eriodictyon altissimum*) was first collected on Indian Knob by Philip V. Wells in 1960, and was described by him 2 years later (Wells 1962). This diffusely branched evergreen shrub of the waterleaf family (Hydrophyllaceae) reaches a height of 2 to 4 m (6.6 to 13 ft). The sticky leaves are long (6 to 9 cm (2.4 to 3.5 in)) and narrow (2 to 4 mm (0.08 to 0.20 in)); the lavender flowers (1.1 to 1.5 cm (0.4 to 0.6 in) long) are arranged in coiled clusters, and produce numerous tiny (0.4 mm (0.02 in) long) seeds. As with other fire-adapted chaparral plants, Indian Knob mountainbalm produces new growth primarily from rhizomatous suckers. Only one other narrow-leaved

*Eriodictyon* occurs in southern California; *E. angustifolium* occurs in the New York Mountains in the eastern Mojave Desert.

Indian Knob mountainbalm occurs within coastal maritime chaparral and oak woodlands and co-occurs with Morro manzanita in several locations. Vanderwier (1987) did a detailed study of the chaparral and woodland communities at the type locality for Indian Knob mountainbalm. Only six stands are known, which range from the south end of Morro Bay to Indian Knob, between San Luis Obispo and Arroyo Grande. Because the rugged character of the terrain in the Irish Hills (between Morro Bay and Indian Knob) has precluded extensive botanical surveying, there is the possibility that other strands of Indian Knob mountainbalm may occur in this area. With the discovery of an extension of the stand at Indian Knob 2 years ago, the largest known stand comprises 350 individuals (Lynn Dee Oyler, Botanical Consultant, pers. comm., 1991). Currently, the total number of individuals of Indian Knob mountainbalm is less than 600 (Bittman 1985; Oyler, pers. comm., 1991).

Pismo clarkia (*Clarkia speciosa* ssp. *immaculata*), a member of the four o'clock family (Onagraceae), was first collected in Carpenter Canyon by Frank Lewis and Margaret Ensign Lewis in 1947. They published a monograph on the genus *Clarkia* in 1955 (Lewis and Lewis 1955) in which they described the plant for the first time. The plant is an erect or decumbent herb, with branched stems up to 5 decimeters (dm) long; the petals are white or cream-colored at the base, streaking into pinkish or reddish-lavender in the upper part and 1.5 to 2.5 cm (0.6 to 1.0 in) long. It is distinguished from the subspecies *speciosa* by its larger flowers and the pattern of petal color. In his flora of San Luis Obispo County, Hoover (1970) notes the geographical separation between Pismo clarkia and the subspecies, the latter which occurs north of San Luis Obispo from the Santa Lucia range to the Salinas River drainage.

Pismo clarkia is found on pockets of dry sandy soils, possibly ancient sand dunes, within grassy openings in chaparral and oak woodlands. The 4 extant populations are located between San Luis Obispo and Arroyo Grande and together support less than 3,000 individuals of Pismo clarkia (Myers 1987). At least one historical population has been extirpated by residential development, and extant populations are threatened by continuing

development, road maintenance activities, and possibly grazing.

California sea-blite (*Suaeda californica*) is a succulent-leaved perennial plant of the goosefoot family (Chenopodiaceae). It was first described by Sereno Watson in 1874 based on a collection made in the salt marshes of San Francisco Bay. Amos Heller published the name *Dondia californica* in 1898, recognizing the genus name that had been used by Michel Adanson in 1763; however, the name *Suaeda* has been conserved by the International Rules of Nomenclature (Abrams 1944). Philip Munz (1959) recognized several previously recognized taxa as subspecies of *Suaeda californica*. With this treatment, he described the range of California sea-blite as extending from San Francisco Bay south to Lower (Baja) California. Ferren and Whitmore (1983) noted that much of what had been identified as *Suaeda californica* in southern California and Baja California, Mexico, is a distinct taxon, which they named *Suaeda esteroa*. While both species occur in the upper intertidal zone, *Suaeda californica* is a shrub with radially symmetrical flowers belonging to the section *Limbogermen*, and *Suaeda esteroa* is an herbaceous perennial with bilaterally symmetrical flowers belonging to the section *Heterosperma*. Further study revealed that the only extant populations of *Suaeda* that resemble the type specimen of *Suaeda californica* are those that occur in the vicinity of Morro Bay. In his pending revision of the genus, Ferren will restore full species status to the taxon to *Suaeda californica*.

California sea-blite is currently known to occur at three locations, all within Morro Bay, where it is restricted to the upper intertidal zone within coastal marsh habitat. The shrubs are discontinuously distributed in a narrow band around the Bay adjacent to other marsh plants including pickleweed (*Salicornia* sp.), saltgrass (*Distichlis* sp.), rush (*Juncus acutus*), Jaumea (*Jaumea carnosa*), and the federally endangered salt marsh birds-beak (*Cordylanthus maritimus* ssp. *maritimus*). Field surveys are planned for the spring of 1992 and will include the marsh at Elkhorn Slough in Monterey Bay, the only other location considered to be potential habitat for California sea-blite left on the coast of California (Dirk Walters, Botanical Consultant, pers. comm., 1991). Currently, the known extent of California sea-blite comprises less than 500 individuals.

The Morro shoulderband (*Helminthoglypta walkeriana*) is a

member of the land snail family (Helminthoglyptidae). The Morro shoulderband was first described in 1911 as *Helix walkeriana* by Henry Hemphill (Hemphill 1911) based on collections he made "Near Morro, California"; he also described a subspecies of *Helix walkeriana*, *Helix* var. *morroensis*, from "near San Luis Obispo City" based on sculptural features in the shell (Roth 1985). Field (1930) transferred the taxon to the genus *Helminthoglypta*.

The Morro shoulderband appears to be most closely related to the surf shoulderband (*Helminthoglypta fieldi* Pilsbry, 1930), which occurs in coastal dune habitats south of the San Luis Range to Point Arguello and therefore is disjunct from the morro shoulderband. Shell features used to separate the two species include papillation over most of the body whorl, a more domed spire, and half or more of the umbilicus being covered by the apertural lip in the Morro shoulderband (Roth 1985).

The Morro shoulderband co-occurs with another helminthoglyptid snail, the Big Sur shoulderband (*Helminthoglypta umbilicata* Pilsbry, 1897). Its more globose shape and incised spiral grooves distinguish the Morro shoulderband from this species (Roth 1985). The brown garden snail (*Helix aspersa*) also occurs with the Morro shoulderband, but has a marbled pattern on its shell that distinguishes it from the Morro shoulderband, which has a single, narrow band.

Morro shoulderband is restricted to sandy soils of coastal dune and coastal sage scrub communities near Morro Bay. Surveys by Roth in 1985 resulted in the discovery of only six live Morro shoulderbands, while empty shells were much more numerous. While cautioning that not enough data were available to make a more accurate estimate, Roth speculated that at that time, there may have been as few as several hundred individuals in the remaining population of Morro shoulderband.

#### Previous Federal Action

Federal government actions on three of the five plants began as a result of section 12 of the Endangered Species Act of 1973, which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975, and included *Arctostaphylos morroensis* as threatened, *Eriodictyon altissimum* as endangered, and *Clarkia speciosa* ssp. *immaculata* as endangered. The Service

published a notice in the July 1, 1975, **Federal Register** (40 FR 27823) of its acceptance of the report of the Smithsonian Institution as a petition within the context of section 4(c)(2) (petition provisions are now found in section 4(b)(3) of the Act) and its intention thereby to review the status of the plant taxa named therein. The above 3 taxa were included in the July 1, 1975 notice. On June 16, 1976, the Service published a proposal in the **Federal Register** (42 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to section 4 of the Act. *Eriodictyon altissimum* was included in the June 16, 1976, **Federal Register** document.

General comments received in relation to the 1976 proposal were summarized in an April 26, 1978, **Federal Register** publication (43 FR 17909). The Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to those proposals already more than 2 years old. In the December 10, 1979, **Federal Register** (44 FR 70796), the Service published a notice of withdrawal of the June 6, 1976, proposal, 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 *Arctostaphylos morroensis*, *Clarkia speciosa* ssp. *immaculata*, and *Eriodictyon altissimum* as category 1 species, and *Cirsium fontinale* var. *obispoense* as a category 2 species. Category 1 species are those for which the Service has on file substantial information on biological vulnerability and threats to support preparation of listing proposals, while category 2 species are those for which data in the Service's possession indicate listing is possibly appropriate, but for which substantial data on biological vulnerability and threats are not currently known or on file to support proposed rules. On November 28, 1983, the Service published in the **Federal Register** a supplement to the Notice of Review (48 FR 53640); the plant notice was again revised September 27, 1985 (50 FR 39526). *Arctostaphylos morroensis* and *Eriodictyon altissimum* were included in both of these revisions as category 1 species; *Clarkia speciosa* ssp. *immaculata* and *Cirsium fontinale* var. *obispoense* were included as category 2 species. On February 21, 1990, (55 FR 6184) the plant notice was again revised, and *Arctostaphylos morroensis*, *Clarkia speciosa* ssp. *immaculata*, and *Eriodictyon*

*altissimum* were all included as category 1 species, and *Cirsium fontinale* var. *obispoense* was included as a category 2 species.

Section 4(b)(3)(B) of the Endangered Species Act, as amended in 1982, requires the Secretary to make certain findings on pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This was the case for *Eriodictyon altissimum*, *Arctostaphylos morroensis*, and *Clarkia speciosa* ssp. *immaculata*, because the 1975 Smithsonian report had been accepted as a petition. In October of 1983, 1984, 1985, 1986, 1987, 1988, 1989, and 1990, the Service found that the petitioned listing of the above 3 taxa was warranted but precluded by other higher priority listing actions. Publication of this proposal constitutes the final finding for the petitioned action.

The portion of this proposal to list *Suaeda californica* (California sea-blite) is largely based on scientific and commercial information on the species, unpublished reports by Ferren, unpublished reports from the California Department of Fish and Game (CDFG) (1991), and information gathered from several botanists, including Mr. Dirk Walters and Mr. Malcolm McLeod.

A reevaluation of the existing data on the status of *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle) and threats to its continued existence provides sufficient information to support proposing this species for listing as endangered.

The Service entered into a contract with the Sierra Club Foundation, San Francisco, California, to investigate the status of California land snails. A final report dated August 25, 1975, contained data indicating that several of the snails studied were imperiled species in need of protection. On April 28, 1976, the Service proposed endangered or threatened status for 32 land snails in the **Federal Register** (41 FR 17742); this proposal included the Morro shoulderband (under the common name "banded dune snail") as endangered. The proposed rulemaking that included proposed endangered status for the Morro shoulderband was withdrawn for procedural reasons on December 10, 1979 (44 FR 70796). This withdrawal was the result of the 1978 amendments to Act which substantially modified procedures for listing endangered and threatened species.

The Service undertook a status review of the mollusc in 1984, which resulted in the report by Roth (1985). Based on the

new information contained in the status report, Morro shoulderband appeared as a category 1 species in the May 22, 1984, **Federal Register** Animal Notice of Review (40 FR 675), and the January 6, 1989, **Federal Register** Animal Notice of Review (54 FR 573).

#### Summary of Factors Affecting the Species

Section 4(a)(1) 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). These factors and their application to *Arctostaphylos morroensis* Wies. & Schreib. (Morro manzanita), *Cirsium fontinale* var. *obispoense* J. T. Howell (Chorro Creek bog thistle), *Clarkia speciosa* Lewis & Lewis ssp. *immaculata* Lewis & Lewis (Pismo clarkia), *Eriodictyon altissimum* Wells (Indian Knob mountainbalm), *Suaeda californica* Wats. (California sea-blite), and Morro shoulderband (*Helminthoglypta walkeriana*) are as follows:

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

Morro manzanita is scattered within coastal maritime chaparral and oak woodland communities, ranging from the northeast side of Morro Bay to the south end of Montana de Oro State Park, a distance of less than 10 miles. The distribution of Morro manzanita around Morro Bay has been tied to the distribution of Baywood fine sands (ancient wind-blown beach sands) that are also habitat for the endangered Morro Bay kangaroo rat. Approximately half the habitat for Morro manzanita is owned and managed by the State of California (Montana de Oro State Park) but is still subject to alteration. Groves of non-native *Eucalyptus* trees that were planted in the early 1900's are encroaching on nearby stands of Morro manzanita (Holland *et al.* 1990). Park management plans call for removal of at least portions of the *Eucalyptus* groves (California Department of Parks and Recreation 1988), but to date these plans have not been initiated. A current proposal to install a trans-Pacific telephone cable will likely extirpate Morro manzanita within Hazard Canyon (Army Corps of Engineers (ACOE) 1991). The remaining habitat for Morro manzanita is in private ownership on lands that surround the communities of

Morro Bay, Baywood Park, and Los Osos. Expansion of these communities has already extirpated Morro manzanita habitat, and much of the remaining habitat is slated for residential development (LSA Associates 1990, Keil 1990, Holland 1990, San Luis Obispo County 1991) and sewage treatment ponds (Morro Group 1989).

Indian Knob mountainbalm, like Morro manzanita, is scattered within coastal maritime chaparral and oak woodland communities, primarily near Morro Bay. Five of six extant stands occur within a few square miles of each other, from the south side of the community of Los Osos to the north end of Montana de Oro State Park. Each of these stands comprises less than 50 plants. A sixth stand is found 15 miles to the southeast on Indian Knob, between San Luis Obispo and Arroyo Grande; at 350 individuals, it comprises the largest stand. Two of the Morro Bay stands are on lands owned and managed by Montana de Oro State Park, and co-occur with Morro manzanita in Hazard Canyon. Portions of these two stands may be extirpated by the installation of a trans-Pacific telephone cable (ACOE 1991). Other stands in the Morro Bay area occur on private land and are threatened by residential development. One stand occurs on a parcel that is used by the community of Los Osos to evaporate sewage sludge and apparently is being closely monitored by local botanists (Bittman 1985). Surface mining of tar sands was proposed for the Indian Knob area several years ago (Vanderwier 1987). While the proposal is currently not being pursued, there may be economic incentive to do so in the future. Currently, the parcel is being grazed by livestock. As with other members of this genus, Indian Knob mountainbalm is thought to be adapted to surface disturbance, specifically to periodic fire within the chaparral community. Field botanists have noted that most stands of Indian Knob mountainbalm are mature to senescent in age, and that appropriate management, including prescribed burns, may be needed to revitalize the stands (Bittman 1985).

Chorro Creek bog thistle is restricted to open seep areas in serpentine soil outcrops. Owing to its narrow habitat requirements, it probably has never been abundant. Most of Chorro Creek bog thistle is distributed between Morro Bay and San Luis Obispo. One of the two largest populations is found on Pennington Creek, a tributary of Chorro Creek, on lands managed as a biological reserve by California Polytechnic University, San Luis Obispo. Despite the

University's objective to maintain the reserve in its natural state, illegal grazing from an adjacent cattle allotment apparently has occurred (V.L. Holland, Biological Sciences Department Chair, California Polytechnic University, San Luis Obispo, pers. comm., 1991). The type locality for Chorro Creek bog thistle was surveyed for the plant in 1986; no plants were found, and the population is presumed to be extirpated (Friedman 1987). The other large population is found near Laguna Lake in the upper Los Osos Valley watershed on lands partially owned by the City of San Luis Obispo. This population has been subjected to cattle grazing, and nearby urbanization has resulted in increased recreational use and an increase in alien plant species. Just recently, the city fenced off a small portion of the habitat to remove grazing pressures from the thistle (Tina Hall, The Nature Conservancy, pers. comm., 1991). Four other small populations occur within 5 miles of Laguna Lake. Two of these are remote enough that few human-induced threats currently exist, but the other two are on lands that are slated for development (Friedman 1987, Morro Group 1988). One small isolated population occurs along San Simeon Creek, approximately 30 miles northwest of the Pennington Creek population. This population occurs on private lands that are currently being grazed. Developments being proposed for adjacent parcels may remove water from the San Simeon Creek watershed (San Luis Obispo County 1991). Since Chorro Creek bog thistle depends on moisture from seeps, it would be threatened by any proposal to divert water from the watershed above the seeps.

*Pismo clarkia* is restricted to pockets of dry sandy soils within chaparral and oak woodlands south of San Luis Obispo, between the town of Edna and Arroyo Grande. All four extant populations are located on private lands. The most recent surveys revealed that the two largest populations, each supporting about 2,000 individuals, were subject to cattle grazing and to road grading where it occurs along roadsides (CDFG 1991). A third small population from the type locality consists of less than 100 individuals and is subject to the effects of roadside traffic, road grading, and herbicide spraying. A fourth population was partially extirpated by residential development and has been reduced to about 100 individuals. Of four other historical locations, two were extirpated by residential development, and two were extirpated by undetermined causes—

most likely mowing and other secondary impacts associated with urban development (Myers 1987).

California sea-blite is discontinuously distributed around the upper intertidal zone of Morro Bay where it is concentrated in three stands. One stand is located on tidal flats within Morro Bay State Beach. A second stand, consisting of only six plants, is located within Sweet Springs Marsh. The third population is located within Montana de Oro State Park. All three stands are threatened by recreational activity on the tidal flats and erosion owing to changing hydrologic conditions in the intertidal zone. Sedimentation of the Bay from the Los Osos Creek and Chorro Creek watersheds has altered the abundance and distribution of marsh habitat on the east side of the bay. Dredging of the bay may also alter subsurface currents and affect shoreline stability. California sea-blite was collected from a fourth location just north of Morro Bay, but has not been seen there since 1929 (Ferren, pers. comm., 1991). The type locality, on Alameda Island in the San Francisco Bay, has long since been altered by urbanization as has much of coastal marsh habitat along the central California coast.

The following discussion of habitat and range of the Morro shoulderband is summarized from the report by Roth (1985). The Morro shoulderband formerly occupied primarily coastal dune scrub habitat along approximately 5 miles of dunes extending into Morro spit, at Baywood Park, San Luis Obispo, sites between Morro Bay and Cayucos, and probably along Morro Bay in the vicinity of Cuesta-by-the-Sea. The snail and its habitat have been eliminated by residential and other development from Baywood Park, Cuesta-by-the-Sea, San Luis Obispo, and the sites between Cayucos and Morro Bay. Recent evidence of living Morro shoulderbands have been found only at a few sites within 2 miles of one another in coastal dune scrub habitat. This habitat has been degraded by off-road vehicle activity and maturation of the dune vegetation.

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

Overutilization is not currently known to be a factor for the five plants, but unrestricted collecting for scientific or horticultural purposes or excessive visits by individuals interested in seeing rare plants could result from increased publicity as a result of this proposal. The Morro shoulderband's extremely limited range and numbers and its

taxonomic distinctness make it highly vulnerable to recreational or scientific collectors.

#### *C. Disease or Predation*

In efforts to control alien species of thistle, the San Luis Obispo County Agriculture Department introduced the seed-head weevil (*Rhinocyllus conicus*) to several sites in San Luis Obispo County in the early 1980's. Initial reports from field botanists indicated that the seed-headed weevils were foraging upon Chorro Creek bog thistle. However, more recent observations indicate that since the length of the flowering season of the thistle far exceeds the egg-laying period of the weevil, predation probably accounts for only a small reduction in seed availability (Charles Turner, Research Botanist, Agricultural Research Services, U.S. Department of Agriculture, pers. comm., 1991). No data exist on the effects of disease on the other plant taxa.

Grazing by livestock is believed to have caused the extirpation of Chorro Creek bog thistle at the type locality on Chorro Creek (Rocco 1981). Of eight extant sites, half are on private lands that are being grazed. *Pismo clarkia* has been subject to livestock grazing at two of the four extant locations. Unlike Chorro Creek bog thistle, however, observations of field botanists indicate that *Pismo clarkia* may be able to sustain a certain amount of grazing by livestock (Dunn in litt. 1987).

During his survey for Morro shoulderband, Hill (1974) noted that many of the empty large subadult shells contained vacant sarcophagid fly puparia, which suggested to Roth (1985) that "mortality from parasitoid infestation often occurs before *Helminthoglypta walkeriana* reaches breeding condition" (Roth 1985). Roth also documented one freshly dead snail that had been killed by a rodent.

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

Under the Native Plant Protection Act (chapter 1.5 section 1900 *et seq.* of the Fish and Game Code) and California Endangered Species Act (chapter 1.5 section 2050 *et seq.*), the California Fish and Game commission has listed *Pismo clarkia* and Indian Knob mountainbalm as endangered; Morro manzanita and Chorro Creek bog thistle will be considered for State listing in the near future (Sandra Morey, botanist, Endangered Plant Program, California Department of Fish and Game, pers. comm.). Though both statutes prohibit the "take" of State-listed plants (chapter 1.5 section 1906 and section 2080), State

law appears to exempt the taking of such plants via habitat modification or land use change by the landowner. After the California Department of Fish and Game notifies a landowner that a State-listed plant grows on his or her property, State law evidently 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" (chapter 1.5 section 1913).

Morro shoulderband is not specifically protected under State or local law and is thus not specifically included in State Park management plans. Collection of this species is prohibited, however, on State Park land except by permit. This protection applies only to individuals and does not prevent the effects of indirect human disturbance, such as recreational activities, from harming this species and its habitat.

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

The introduction and invasion by alien plants of coastal sage scrub and maritime chaparral communities has adversely affected native flora and fauna, including the Morro manzanita and the Morro shoulderband. Williams and Williams (1984) tracked changes in abundance and frequency of 16 taxa in a coastal dune scrub community over a 10-year period on the sand spit of Morro Bay. They observed that differences in successional patterns in wind, lee, and ridge habitats were correlated with wind conditions, stabilization of dunes over time, and seed dispersal strategies of certain taxa. At the same time, they noted that seafig (*Mesembryanthemum chilense*) had increased in both wind and lee positions on the spit and suggested that over time seafig would supplant native species throughout the dune system.

Stands of Morro manzanita within Montana de Oro State Park are being overtopped by spreading *Eucalyptus* plantations that were planted in the early 1900's. Morro manzanita is unable to survive such encroachment, owing to reduction in available soil moisture, increased shading, and the effects of growth-inhibiting terpenes that are released from the *Eucalyptus* (Holland *et al.* 1990). The General Plan for Montana de Oro State Park (California Department of Parks and Recreation 1988) calls for the removal of exotic species, including *Eucalyptus*; however, a removal program has not yet been initiated.

As briefly mentioned above under Factor A, Chorro Creek bog thistle occurs in several areas grazed by livestock. Grazing and trampling by

livestock, coupled with mesic to hydric conditions around seeps, favors growth of alien plants, once they have become established. Unlike alien thistle taxa, it is unlikely that the Chorro Creek bog thistle is able to compete with other alien plants.

The Morro shoulderband may be experiencing competition from the brown garden snail (*Helix aspersa*). The brown garden snail, presumed to be an escapee from an adjacent golf course and housing development, has established feral populations on the spit of Morro Bay. Roth (1985) discussed several factors that may be the basis for such competition. While estivation sites and food preferences for the two snails differ, competition for shelter sites may limit the numbers of Morro shoulderband. Apparently, the coastal dune scrub community within the survey area is mature to the point that lower limbs of the large older shrubs may be too far off the ground to offer good shelter. Roth found both snails occasionally using alien seafig as well as pieces of particleboard for shelter sites and suggested that more preferred shelter sites were unavailable. Increasing development surrounding the State Parks will increase threats from this and other exotic animals and plants that disperse from developed areas.

At least several Morro shoulderband individuals have been killed as a result of controlled burning of coastal scrub that was carried out to improve habitat for the endangered Morro Bay kangaroo rat within Montana de Oro State Park. Park staff are aware of the presence of the snails and have conducted pre-burn searches for them, but have not detected any in the areas that have been burned since Roth's first reported fire-caused mortalities (Vince Cicero, Park Ecologist, pers. comm., 1991). Drought and/or heat may have contributed to egg mortality in the Morro shoulderband (Roth 1985). Other snail taxa that occur within California's areas of Mediterranean climate copulate, oviposit, and undergo an active growth phase during the rainy season. Roth found intact but desiccated *Helminthoglypta* eggs "scattered in considerable numbers" within the survey area, though the species could not be determined. Roth suggested that this represented several years' accumulation of egg deposits whose viability may have been lowered by drought and/or heat conditions (Roth 1985).

Several of the plants and the Morro shoulderband are also threatened with stochastic (i.e., random) extinction due to the small size and isolation of the remaining populations. The limited gene

pool may depress reproductive vigor, or a single human-caused or natural environmental disturbance could destroy a significant percentage of the individuals of these species. Depressed seed viability has recently been documented by Holland in some stands of Morro manzanita (Holland *et al.* 1990). Annual plants, such as Pismo clarkia, and short-lived perennial plants, such as Chorro Creek bog thistle, are subject to wide fluctuations in population numbers from year to year. Such taxa may have difficulty in maintaining a viable population size after a series of poor seed production years. While California sea-blite is a perennial plant, the low number of individuals and restricted range of the plant within the widely fluctuating hydrologic conditions in Morro Bay also subject it to stochastic extinction.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these species in determining to propose this rule. These six taxa are vulnerable to one or more of the following threats: Habitat destruction, residential development, road maintenance activities, competition from alien plants or the common garden snail, recreational activities, grazing, water diversions, dredging, and perhaps stochastic extinction. Based on the Service's evaluation of the status and threats facing these species, the preferred action is to propose endangered status for Morro manzanita, Chorro Creek bog thistle, Pismo clarkia, Indian Knob mountainbalm, California sea-blite, and Morro shoulderband.

#### **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 at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for these species. Because the five plants face numerous anthropogenic threats (see Factor A in "Summary of Factors Affecting the Species") and the five plants occur at least in part on private land, the publication of precise maps and descriptions of critical habitat in the **Federal Register** would make these plants more vulnerable to incidents of take or vandalism and, therefore, could contribute to the decline of these species and increase enforcement problems. The proper agencies have been notified of the locations and management needs of these plants. Landowners will be



notified of the location and importance of protecting habitat of these species.

As discussed under "Summary of Factors Affecting the Species," Morro shoulderband is vulnerable to several activities, some of which could be carried out by an individual or few people (e.g., the removal of specimens for scientific or personal collections). This activity can be difficult to regulate and control because it can be done in a fairly discreet manner. Its extremely restricted range, small population size, and lack of escape mechanisms make the Morro shoulderband extremely vulnerable to extinction as a result of even a limited collection effort. The precise pinpointing of localities that would result from publication of critical habitat descriptions and maps in the *Federal Register* would increase enforcement problems because this species would be more vulnerable to collection as well as vandalism to its habitat. The California Department of Parks and Recreation is already aware of the snail's presence.

Protection of these species' habitats will be addressed through the recovery process and through the section 7 consultation process. Therefore, the Service finds that designation of critical habitat for the five plants and the Morro shoulderband is not prudent at this time, because such designation likely would increase the degree of threat from vandalism, collecting, or other human activities.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species 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. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. 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) 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 listed subsequently, 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 such a 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 Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 for endangered species set forth a series of general prohibitions and exceptions that apply to all endangered plants. 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 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; 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 plant species 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. 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 plant species under certain circumstances.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. With respect to Morro shoulderband, these prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to take (including harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt any such conduct), import or export, transport in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed wildlife species. It is also illegal to possess, sell, deliver, carry, transport, or

ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

The Act and 50 CFR 17.22 and 17.23 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits for endangered wildlife are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, for incidental take in connection with otherwise lawful activities, and economic hardship under certain circumstances.

Requests for copies of the regulations on listed plants and wildlife and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, room 432, Arlington, Virginia 22203-3507 (703/358-2104 or FTS 921-2104).

#### 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 Morro manzanita, Pismo clarkia, Indian Knob mountainbalm, California sea-blite, Chorro Creek bog thistle, and Morro shoulderband;

(2) The location of any additional populations of these species and the reasons why any habitat 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 these species; and

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

Any 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 the proposal. Such requests must be made in writing and addressed to the Office Supervisor of the Ventura 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 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).

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#### Author

The primary authors of this proposed rule are Constance Rutherford (plants) and Steven M. Chambers (snail), Ventura Office, U.S. Fish and Wildlife Service, 2140 Eastman Avenue, suite 100, Ventura, California 93003 (805/644-1766 or FTS 983-6040.)

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

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

Proposed Regulations Promulgation.

#### PART 17—[AMENDED]

Accordingly, it is hereby proposed to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

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. It is proposed to amend § 17.11(h) by adding the following, in alphabetical order, under "Snails", to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

• • • • •  
(h) \* \* \*



Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
SNAILS							
Snail, Morro shoulderband.....	<i>Helminthoglypta walkeriana</i> .....	U.S.A. (CA).....	NA.....	E.....		NA	NA

3. It is proposed to amend § 17.12(h) by adding the following, in alphabetical order under the plant families indicated.

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					
Asteraceae—Aster family:						
<i>Cirsium fontinale</i> var. <i>obispoense</i> .....	Chorro Creek bog thistle.....	U.S.A. (CA).....	E.....		NA	NA
Chenopodiaceae—Goosefoot family:						
<i>Suaeda californica</i> .....	California sea-blite.....	U.S.A. (CA).....	E.....		NA	NA
Ericaceae—Heath family:						
<i>Arctostaphylos morroensis</i> .....	Morro manzanita.....	U.S.A. (CA).....	E.....		NA	NA
Hydrophyllaceae—Waterleaf family:						
<i>Erodium altissimum</i> .....	Indian Knob mountainbalm.....	U.S.A. (CA).....	E.....		NA	NA
Onagraceae—Evening-primrose family:						
<i>Clarkia speciosa</i> ssp. <i>immaculata</i> .....	Pismo clarkia.....	U.S.A. (CA).....	E.....		NA	NA

Dated: November 19, 1991.

Richard N. Smith,

Acting Director, U.S. Fish and Wildlife Service.

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