

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1010-A273

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Two Plants, *Arenaria paludicola* (Marsh Sandwort) and *Rorippa gambellii* (Gambel's Watercress)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) determines endangered status pursuant to the Endangered Species Act of 1973, as amended (Act) for two plants: *Arenaria paludicola* (marsh sandwort) and *Rorippa gambellii* (Gambel's watercress). *Arenaria paludicola* was historically known from swamps and freshwater marshes in four counties in California, as well as Washington State. The sole extant population occurs at Black Lake Canyon in San Luis Obispo County, California. *Rorippa gambellii* once occurred in five California counties, as well as Mexico; today only three populations remain, all in San Luis Obispo County, California. These two species and their coastal wetland habitats are threatened primarily by urban development, alteration in hydrology, competition with alien plant species, and stochastic (random) extinction by virtue of the small number of individuals and populations that remain. This rule implements the protection and recovery provisions afforded by the Act for these plants.

EFFECTIVE DATE: August 3, 1993.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Ventura Field Office, 2140 Eastman Avenue, suite 100, Ventura, California 93003.

FOR FURTHER INFORMATION CONTACT: Cari Benz at the above address (telephone 805/644-1766 or 818/904-6040).

SUPPLEMENTARY INFORMATION:**Background**

Arenaria paludicola and *Rorippa gambellii* are both historically known from swamps and freshwater marsh habitats primarily along the Pacific Coast of North America. *Arenaria paludicola* once ranged from Washington to San Bernardino County, California, and *Rorippa gambellii* from

San Luis Obispo County to San Diego, California, and near Mexico City. The wetland habitats upon which they depend have been vanishing at a rapid rate due primarily to urbanization and conversion to agriculture.

In San Luis Obispo County, a series of small freshwater marshes associated with active to partially stabilized beach dunes extends a distance of 5 miles from Oceano south to the Oso Flaco Lakes area. Just inland from this "dune lakes" area lies the Nipomo Mesa, a broad mesa comprised of old Oceano sands deposited 40,000 years ago, and bisected by Black Lake Canyon. Pockets of freshwater marsh habitat in Black Lake Canyon and the dune lakes area harbor a unique flora that includes remnant populations of *Arenaria paludicola* and *Rorippa gambellii*.

Arenaria paludicola (marsh sandwort) was first described by A. Kellogg in 1863 under the name *Alsine palustre*, based on a specimen collected near Fort Point, San Francisco (Kellogg 1863). In 1876, Sereno Watson made the new combination *Arenaria palustris*, not realizing that the name had been published by Gay in 1845 in reference to a different species (Abrams 1944). Robinson noticed the duplication of names and, in his treatment of Alsineae (one of three tribes recognized within Caryophyllaceae at the time), renamed the plant *Arenaria paludicola* (Robinson 1894).

This slender perennial herb of the pink family (Caryophyllaceae) roots at the nodes of procumbent stems. The species bears small inconspicuous flowers from May through August. The singularly borne flowers in the axils of narrow opposite leaves and the smooth and angled stem separate this species from others in the genus.

Historically, the species was known from four counties of coastal California, as well as in the State of Washington, from sea level to 1,476 feet (0 to 450 meters) (Morey 1990). The Service recently contracted the Natural Heritage Program in the State of Washington to conduct a status survey for *Arenaria paludicola* in that State. The review of historical specimens revealed that all but one of the specimens had been misidentified. Field surveys conducted in 1990 focused on the area from which the one historical specimen of *A. paludicola* was located, as well as from other potential sites along the coast of Washington. No extant sites of this plant were found as a result of the surveys (Gamon 1991).

In California, historical locations were known from the Counties of San Francisco, Santa Cruz, San Luis Obispo, and San Bernardino. These populations

have been eliminated due to urbanization and associated impacts such as encroachment by non-native plants and off-road vehicle activity. The only known extant location is in a small marshy area of Black Lake Canyon on the Nipomo Dunes Mesa in southwestern San Luis Obispo County. Associated species include *Epipactis gigantea* (stream orchis), *Sparganium* sp. (bur-reed), *Carex* sp. (sedges), *Juncus* sp. (rushes), and *Rorippa gambellii*. The site is in private ownership. This population was first reported in 1947 and rediscovered in 1984. Surveys done between 1988 and 1992 indicate that the location of the plants may shift over time, perhaps illustrating the dependence of the species on specific microhabitat conditions for successful germination and propagation. In 1988, only 10 plants were found in the Canyon, occupying an area less than 55 square feet (5 square meters) (Morey 1990). Although only three plants were located at the site in 1992, the existence of other pockets of suitable habitat in Black Lake Canyon and the adjacent dune lakes area holds promise that other populations may still be found.

Rorippa gambellii (Gambel's watercress) was first described by Sereno Watson as *Cardamine gambellii* in 1876, using specimens collected by Gambel near Santa Barbara, Santa Barbara County. O. E. Schulz placed the plant in the genus *Nasturtium* in 1933. However, Munz chose to recognize the placement of the taxon in the former genus in his publication on California flora (Munz 1959). Recent work by Al-Shehbaz and Rollins (1988) pointed out the inconsistency in the features historically used to distinguish the genera *Cardamine* and *Rorippa*, including flower color, presence of median nectaries, and seed coat pattern. They consequently combined several species of *Cardamine* into *Rorippa*, including *Rorippa gambellii*.

Rorippa gambellii, a member of the mustard family (Brassicaceae), is an herbaceous perennial that characteristically roots from the stem nodes of a horizontal rootstock. The species produces dense inflorescences of white flowers from April through June. The narrow fruits with seeds arranged in one row (rather than two) and the more angular and sharply toothed leaflets distinguish this species from the more common non-native *Rorippa nasturtium-aquaticum*.

Rorippa gambellii is found in freshwater or brackish marsh habitats at the margins of lakes or along slow-flowing streams, from 20 to 60 feet (6 to 18 meters) in elevation. The species requires a permanent water source.

Associated species include *Typha* sp. (cattail), *Sparganium* sp., and *Scirpus* sp. (bulrush). At the Black Lake Canyon site, *R. gambellii* co-occurs with *Arenaria paludicola* (Wickenheiser 1989).

The species was reported historically from about a dozen locations in southern California, including interior wetland areas of San Diego, San Bernardino, and Los Angeles Counties, as well as coastal wetland areas of San Luis Obispo and Santa Barbara Counties (Wickenheiser and Morey 1990) and from near Mexico City in the Valley of Mexico (Wickenheiser 1989). Historic populations in San Bernardino and San Diego Counties have been extirpated due to habitat alteration. Apparently two individuals were observed in Barka Slough on Vandenberg Air Force Base, Santa Barbara County, in 1980 (Dial 1980). However, surveys by Price (1989) were unsuccessful in relocating the plant. In San Luis Obispo County, populations near Small Twin Lake and Oceano Beach have been extirpated.

The three known extant populations of *Rorippa gambellii* occur in San Luis Obispo County at Black Lake Canyon, Oso Flaco Lake, and Little Oso Flaco Lake. Oso Flaco Lake and Little Oso Flaco Lake are on lands owned by the California Department of Parks and Recreation (DPR) (Pismo Beach State Vehicle Recreation Area); the portion of the Recreation Area containing the lakes is closed to recreational vehicles and is being managed by The Nature Conservancy. These three sites are within four aerial miles of each other. The total number of individuals counted during surveys in 1989 resulted in a total count of fewer than 1,000 individuals (Wickenheiser and Morey 1990). In 1992, the number of individuals in Black Lake Canyon had increased to approximately 1,000, up from the 100 individuals observed in 1989 surveys (CNDD8 1992). The other two populations at Oso Flaco Lake and Little Oso Flaco Lake could not be relocated, but difficulties in surveying the thickly vegetated lake margins may have obscured the populations.

Arenaria paludicola and *Rorippa gambellii* face threats from alteration of hydrology, competition with encroaching eucalyptus trees (*Eucalyptus globulus*), urban development, and stochastic extinction due to the small number of individuals and populations that remain.

Previous Federal Action

Federal government actions on one of these two 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 in the United States. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975.

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) (now section 4(b)(3)) of the Act and its intention thereby to review the status of the plant taxa named therein. 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. *Arenaria paludicola* was included in the July 1, 1975, **Federal Register** document as a threatened species. General comments received in response 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 *Rorippa gambellii* as a Category 1 species, and *Arenaria paludicola* as a Category 2 species. Category 1 species are those taxa for which the Service has in its possession enough information on biological vulnerability and threats to support a proposal to list; whereas, 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 on September 27, 1985 (50 FR 39526). *Arenaria paludicola* and *Rorippa gambellii* were included in both of these revisions as Category 2 species. On February 21, 1990 (55 FR 6184), the plant notice was again revised, and *Arenaria paludicola* and *Rorippa gambellii* were both included as Category 1 species.

Section 4(b)(3)(B) of the Act 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. That was the case for *Arenaria paludicola* 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 *Arenaria paludicola* was warranted but precluded by other higher priority listing actions.

On September 30, 1991, the Service published in the **Federal Register** (56 FR 49446) a proposal to list *Arenaria paludicola* and *Rorippa gambellii* as endangered. This proposal was based primarily on information supplied by reports from the Natural Diversity Data Base and observations of botanists. The comment period originally closed on November 29, 1991. A **Federal Register** notice reopening the comment period for 30 days was published on June 8, 1992 (57 FR 24221), to receive additional information. That comment period closed on July 8, 1992.

Summary of Comments and Recommendations

In the September 30, 1991, proposed rule (56 FR 49446) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. A 60-day comment period closed on November 29, 1991. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Comments were received from three California State agencies (The Resources Agency, California Department of Parks and Recreation, and California Department of Fish and Game), and from the County of San Luis Obispo during and prior to the opening of the comment period.

A **Federal Register** notice reopening the comment period from June 8 to July 8, 1992, was published on June 8, 1992 (57 FR 24221), to receive additional information. A newspaper notice was published in the San Luis Obispo County Telegram-Tribune on June 17, 1992, inviting general public comment on the proposed rule. Six comments were received subsequent to the June 8, 1992, publication, including three from the general public and three from conservation organizations. A total of 11 comments from 10 parties were received. Seven commenters, including the California Department of Fish and

Game, The Resources Agency, California Native Plant Society, The Nature Conservancy, Center for Plant Conservation, and two other commenters supported the listing of the species. The California Department of Parks and Recreation and the County of San Luis Obispo provided additional information that has been incorporated into this rule. One commenter opposed the proposed listing; the four issues raised and the Service's response to each are summarized as follows:

Issue 1: The commenter felt that little benefit would be derived from listing species whose extinction appeared imminent.

Service Response: The Endangered Species Act of 1973, as amended, directs the Service to list species that are in danger of extinction throughout all or a significant portion of their ranges. *Arenaria paludicola* and *Rorippa gambellii* are both in danger of extinction throughout their range and, therefore, meet the definition of endangered species under the Act. Benefits to listing under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. The likelihood of imminent extinction is a reason to list a species, rather than a reason against such a decision.

Issue 2: The commenter felt that the property rights of private landowners would be compromised by a Federal listing since this would lead to land confiscation.

Service Response: Listing of *Arenaria paludicola* and *Rorippa gambellii* under the Endangered Species Act will trigger the protective measures under section 9 of the Act, prohibiting the collection, destruction or damaging of these species on any area if it is in violation of any State law (see the "Available Conservation Measures" section of this rule for a complete discussion). In addition, the Act requires that Federal agencies insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species, or destroy or adversely modify its critical habitat, if any is designated. Any activity on private land that requires Federal involvement (such as a section 404 permit under the Clean Water Act) and that may affect these species would have to be reviewed by the Service to ensure that the continued existence of the species would not be jeopardized.

Listing under the Act does not imply that private land would be "confiscated" without compensation. Recovery planning for the two subject plants may include recommendations for land acquisition or easements

involving private landowners. These efforts would be undertaken with the cooperation of the landowner. In the majority of cases, private landowners are not precluded from utilizing their land in the manner originally intended.

Issue 3: The commenter believed Vandenberg Air Force Base may harbor suitable habitat for *Arenaria paludicola*, and wanted to know why a survey for the plant has not been conducted there.

Service Response: Although a focused search for *Arenaria paludicola* has never been done on Vandenberg Air Force Base, in Santa Barbara County, a number of rare plant surveys and resource inventories have been conducted (NASA 1988, Smith 1981). Two individuals of the plant were purportedly found in Barka Slough (on the base) in 1980, but no voucher was made to confirm identification (Dial 1980). It is not certain whether suitable habitat still exists in the area. Rapid succession may be eliminating the marsh habitat there, making conditions unsuitable for the plant. In the event that *Arenaria paludicola* is found from Barka Slough or from other localities (such as the dune lakes area) in the future, it is likely that any new populations would be imperiled by the same kinds of threats that the plant faces at Black Lake Canyon, and the status of the species would not be changed.

Issue 4: The commenter included excerpts from the Black Lake Canyon Enhancement Plan (Land Conservancy of San Luis Obispo County 1992) to indicate that water drawdown from development surrounding the Canyon is not a threat because in fact the water level is rising.

Service Response: The Enhancement Plan stated that the upper and lower portions of Black Lake Canyon are supplied by two different aquifers separated by an impermeable layer called an aquitard (Land Conservancy of San Luis Obispo County 1992). Thus, while the water level in the upper half of the canyon has risen in recent years, apparently from golf course and agricultural runoff, the water levels in the lower half of the canyon, where the plant occurs, continue to drop. The dropping water levels in this portion of the canyon are probably being accelerated by the presence of planted Eucalyptus trees and from well-water drawdown. Further, any change in water level (i.e., rising or dropping) could affect the ability of *Arenaria paludicola* to survive. As indicated in the "Summary of Factors Affecting the Species" section of the rule, however, alteration of hydrology is only one of

several factors that threatens this plant with extinction.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Arenaria paludicola* and *Rorippa gambellii* should be classified as endangered species. Procedures found at section 4 of the Endangered Species Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. 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 of *Arenaria paludicola* Rob. (marsh sandwort) and *Rorippa gambellii* (S. Wats.) Roll. & Al-Shehbaz (Gambel's watercress) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The only known occurrence of *Arenaria paludicola* is threatened with habitat modification by the conversion of marsh habitat to more mesic habitats that support grass and shrub-dominated plant communities. The natural rate of succession from marsh habitat to more mesic upland habitat would normally occur over hundreds or thousands of years, but in Black Lake Canyon, the conversion is so rapid that it has been measurable over the past few decades. Aerial photographs from 1949 show the lower portion of the canyon as one wetland with open water and freshwater marsh or bog vegetation along its margins. By 1956, however, aerial photographs showed that willows had encroached into the wetlands and 30 percent of the area was covered with trees (Holland and McLeod 1992). Causes for the conversion are not entirely understood, but probably involve both short-term and long-term processes. The recently released Enhancement Plan for Black Lake Canyon discusses several of these processes, including the probable drop in the water table due to high water intake by planted eucalyptus trees, which were originally planted on adjacent Nipomo Mesa in the late 1800's and have spread throughout the lower half of the canyon. The eucalyptus has an extensive root system that can draw out soil moisture; that, coupled with the large evaporative surface of its foliage, has probably resulted in a significant drawdown of the water table compared to that which the surrounding native vegetation would have accomplished. It is uncertain to what degree the current

use of groundwater by agriculture and existing development has drawn down the water table, and, if so, which portions of the canyon have been affected. An increase in development and concomitant drilling of additional wells could potentially draw down the water table in at least portions of the canyon. At the same time, a recently approved golf course may contribute additional runoff into the upper portion of the canyon. While the complex relationship between the geology, groundwater table, and existing and future land uses of the surrounding watershed merits additional study, habitat for *Arenaria paludicola* has been greatly altered and diminished.

Another factor contributing to the accelerated rate of succession is an increase in sedimentation due to various human activities within the Black Lake Canyon watershed. Of 1,555 acres that were included in the Black Lake Canyon Enhancement Plan, over two-thirds have been developed, are in agriculture, or are covered with eucalyptus, with only one-third remaining in native vegetation. Approximately 200 ownership parcels exist within the watershed; a few larger parcels support orchards (avocado or citrus) or greenhouses and nurseries, but most are smaller parcels supporting individual homesites. A development proposal that includes 515 residential units and a golf course was recently approved for the upper portion of the watershed, and other parcels are currently being subdivided in preparation for development (Land Conservancy of San Luis Obispo County 1992). The sandy soils surrounding the canyon are susceptible to erosion, and trails created by motorcycles, off-road vehicles, horses, and pipeline easements have already created erosion channels that hasten the deposition of sediments from slopes to the bottomlands. Eucalyptus trees may also contribute to increased sedimentation in bog and pond areas by inhibiting the decay of debris because of acid tannins contained in the tree's leaves. Also, large or old trees that topple tend to destabilize the sandy slopes of the canyon, exposing unconsolidated patches of loose soil (Holland and McLeod 1992).

A series of below average rainfall years has resulted in a reduced base flow within Black Lake Canyon, which may already have altered the hydrological regime for the plant. It is probable that the drilling of new water wells will also have an effect on the hydrology of the canyon. One occurrence of *Rorippa gambellii* co-occurs with *Arenaria paludicola* at Black Lake Canyon and is threatened by

the same alteration of hydrologic regime discussed above.

The habitat for *Rorippa gambellii* at Oso Flaco Lake is threatened with modification of habitat due to encroachment of sand from adjacent dunes. Efforts to revegetate dunes that had been previously denuded by off-road vehicle activity have been marginally successful, but are continuing (Wickenheiser 1989; DPR in litt. 1992). At Little Oso Flaco Lake, habitat for *Rorippa gambellii* is threatened by the lack of a permanent water source. This site's water source is made available in part by agricultural activities in adjacent farmlands, and may fluctuate on a seasonal and annual basis.

B. Overutilization for commercial, recreational, scientific, or educational purposes. Although these species are not presently sought after by collectors, they are vulnerable to taking, because of their limited distribution. The increased public attention that may be brought to bear as a result of this rule could potentially increase the desirability of these species, thereby increasing the threat of collection.

C. Disease or predation. Not known to be applicable.

D. The inadequacy of existing regulatory mechanisms. Under the California Endangered Species Act (Division 3, Chapter 1.5, sec. 2050 *et seq.*), the California Fish and Game Commission has listed *Arenaria paludicola* as endangered and *Rorippa gambellii* as threatened (14 California Code of Regulations sec. 670.2). Although this statute prohibits the "take" of State-listed plants (chapter 1.5 sec. 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 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 10 sec. 1913). State law requires State agencies to consult with the Service on projects that may potentially affect federally listed plants, thereby conferring a certain measure of protection for populations located on State Parks property.

The County of San Luis Obispo has designated a portion of Black Lake Canyon as a Sensitive Resource Area (SRA), thereby restricting land use in the area. However, the boundaries of the SRA have been a subject of discussion between the County, local landowners, and environmentalists for several years,

and an amendment to the County General Plan altering the boundaries has been on hold for several years. The Black Lake Canyon Enhancement Plan was developed by the Land Conservancy of San Luis Obispo County with funds from the Coastal Conservancy in an attempt to resolve land management and planning issues surrounding Black Lake Canyon. The Plan includes recommendations to remove Eucalyptus and restore native vegetation to certain portions of the canyon. Such activities would theoretically be of benefit to *Arenaria paludicola* and *Rorippa gambellii*, but the plan has not yet been adopted by the County. The County is aware that development pressures in the Black Lake Canyon area may have adverse effects on the two plants, and have indicated that they continue to receive development applications from that part of the county (County of San Luis Obispo, in litt. 1991).

Under section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (Corps) regulates the discharge of fill into waters of the United States, including wetlands. However, no permit is necessary if the fill is less than 1 acre in size, and if the fill is between 1 and 10 acres in size, a Nationwide Permit Number 26 is issued by default within 20 days unless it is determined that an individual permit is required. Ongoing activities related to urban and agricultural use of the area that may result in fill within Black Lake Canyon may, therefore, have little to no regulation by the Corps, since these areas are typically less than 10 acres in size.

E. Other natural or manmade factors affecting its continued existence. Eucalyptus trees were planted at Black Lake Canyon several decades ago. These non-native trees are altering the habitat of *Arenaria paludicola* by increasing the amount of shade, reducing the local water availability, and possibly introducing organic compounds that inhibit growth of other species into the surrounding substrate (Morey 1990, Holland and McLeod 1992). Eucalyptus removal is scheduled to begin on a limited basis in 1993, and on an expanded basis in future years.

Because of the limited numbers of individuals and populations, and the limited amount of remaining marsh habitat for both species, *Arenaria paludicola* and *Rorippa gambellii* are subject to several types of stochastic extinction. Genetic viability is reduced in small populations, resulting in inbreeding depression and the inability to adapt to changing environmental conditions. Limited number of

individuals and populations also leave these species vulnerable to extinction and potentially unable to recover from a single human-caused or random natural event, such as flood, drought, disease, or predation.

Arenaria paludicola is known from only one location, and only three individuals were found during recent surveys. *Rorippa gambellii* is known from only three locations, with an approximate total of 1,000 individuals. The historic range of each of these two species has been much reduced by urban development, changes in the hydrology of the watershed and ensuing rapid succession, and competition with exotic species. Because of the small number of populations and individuals remaining, and the limited amount of remaining marsh habitat, any single human-caused, or random natural event, such as flood, drought, or disease, could cause the extinction of these species. *Arenaria paludicola*, with only three individuals known to be extant, is particularly vulnerable; any disturbance event could cause the extinction of the species. Because so few individuals and/or populations remain for these two species, making them extremely vulnerable to any human-caused or random natural event, the Service finds that good cause exists for this rule to take effect immediately upon publication in accordance with 5 U.S.C. 553(d)(3).

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 make this rule final. Based on this evaluation, the preferred action is to list *Arenaria paludicola* (marsh sandwort) and *Rorippa gambellii* (Gambel's watercress) as endangered, because of their limited numbers and distribution, loss of freshwater marsh habitat due to changes in the hydrological regime, competition from non-native species, and encroachment of sand from adjacent coastal dunes. Because these two plants are in danger of extinction throughout all or a significant portion of their ranges, they fit the definition of endangered as defined in the Act. For reasons discussed below, the Service is not proposing to designate critical habitat for these plant species at this time.

Critical Habitat

Section 4(a)(3) of the Act requires, to the maximum extent prudent and determinable, that the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. The Service finds that

designation of critical habitat is not presently prudent for these species. As discussed under Factor B in the "Summary of Factors Affecting the Species" section, these plants are vulnerable to taking. The publication of precise descriptions and maps required when designating critical habitat would increase the degree of threat to these plants from possible take or vandalism, and, therefore, could contribute to their decline and increase enforcement problems. The listing of species as either endangered or threatened publicizes the rarity of the plants, and, thus, can make these plants attractive to researchers, curiosity seekers, or collectors of rare plants. All involved parties and principal landowners have been notified of the location and importance of protecting these species' habitats. 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 these plants is not prudent at this time; 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)(2) of the Act requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical

habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. The Corps of Engineers, through its permitting authority under section 404 of the Clean Water Act, may become involved as a result of this listing.

Listing of these two plants as endangered will provide for the development of a recovery plan. Such a plan will bring together both State and Federal efforts for their conservation. The plan will establish a framework for cooperation and coordination among agencies in conservation 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 the two plants.

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. With respect to *Arenaria paludicola* and *Rorippa gambellii*, 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 up, dig up, damage or destroy any such endangered plants 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 Service anticipates that few trade permits would ever be sought or issued for either of the two species, because they are not common in cultivation or in the wild. 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).

National Environmental Policy Act

The 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 (46 FR 49244).

References Cited

Abrams, L. 1944. Illustrated flora of the Pacific States, Vol. II. Stanford University Press.

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Author

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List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

PART 17—[AMENDED]

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

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

2. Amend § 17.12(h) for plants by adding the following species, in alphabetical order under the families indicated, to the List of Endangered and Threatened Plants to read as follows:

§ 17.12 Endangered and threatened plants.

* * * * *
(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Brassicaceae—Mustard family:						
<i>Rorippa gambellii</i>	Gambel's watercress	U.S.A. (CA), Mexico	E	511	NA	NA
Caryophyllaceae—Pink family:						
<i>Arenaria paludicola</i>	Marsh sandwort	U.S.A. (CA, WA)	E	511	NA	NA

Dated: July 16, 1993.

Richard N. Smith,

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

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