

50 CFR Part 17

RIN 1018-AB75

Endangered and Threatened Wildlife and Plants; Proposed Rule for Seven Desert Milk-vetch Taxa from California and Nevada**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: Lane Mountain milk-vetch (*Astragalus jaegerianus*), Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*), Fish Slough milk-vetch (*Astragalus lentiginosus* var. *Piscinensis*), Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*), and triple-ribbed milk-vetch (*Astragalus tricarinatus*); and threatened status for shining milk-vetch (*Astragalus lentiginosus* var. *micans*) and Sodaville milk-vetch (*Astragalus lentiginosus* var. *sesquimetalis*). Many taxa in the genus *Astragalus*, including the seven proposed here for listing, are endemic to habitats with specific substrate or hydrologic conditions and are therefore naturally limited in distribution by the availability of habitat. Three of the taxa occur on sandy soils associated with desert dune systems, two are associated with moist alkaline flats or seeps, one occurs in desert washes, and one occurs on granitic soils within creosote bush (*Larrea tridentata*) scrub. The taxa are distributed within Inyo, Mono, Riverside, San Bernardino, and Imperial Counties within California; Mineral and Nye Counties in Nevada; and northeastern Baja California, Mexico.

The seven plant taxa are threatened by one or more of the following: grazing and trampling by livestock and feral burros, off-road vehicle (ORV) use, military training, trampling by recreational users, competition from alien plants, urban development, construction related to fisheries development, and alteration of soil hydrology. Several of the plants are also threatened with stochastic extinction by virtue of their small numbers and population size. This proposed rule, if made final, would extend the Act's protection to these plants. The Service

seeks data and comments from the public on this proposed rule.

DATES: Comments from all interested parties must be received by July 7, 1992. Public hearing requests must be received by June 22, 1992.

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

FOR FURTHER INFORMATION CONTACT: Dr. Steven M. Chambers, Office Supervisor, at the above address, or at 805-644-1766 (commercial) or 983-6040 (FTS).

SUPPLEMENTARY INFORMATION:**Background**

Astragalus jaegerianus (Lane Mountain milk-vetch), *A. lentiginosus* var. *coachellae* (Coachella Valley milk-vetch), *A. lentiginosus* var. *piscinensis* (Fish Slough milk-vetch), *A. lentiginosus* var. *micans* (shining milk-vetch), *A. lentiginosus* var. *sesquimetalis* (Sodaville milk-vetch), *A. magdalenae* var. *peirsonii* (Peirson's milk-vetch), and *A. tricarinatus* (triple-ribbed milk-vetch) occur within the deserts of California and Nevada. All of them are adapted to habitats with specific substrate or hydrologic conditions that occur as inclusions within creosote bush (*Larrea tridentata*) scrub or sagebrush (*Artemisia* spp.) dominated communities in three deserts of southwestern North America. The southernmost desert, the Sonoran (or Colorado) Desert, includes the southeastern corner of California and the Coachella Valley, and extends southward into Baja California. The Sonoran Desert occurs at elevations primarily below 610 meters (m) (2,000 feet (ft)), where a diverse mix of cacti and succulent plants comprise a significant component of the vegetation. To the north of the Sonoran Desert lies the Mojave Desert, with a transitional zone between these deserts occurring within the bounds of Joshua Tree National Monument. The Mojave Desert is primarily between 610 and 1220 m (2,000 and 4,000 ft) in elevation and is characterized by the presence of Joshua trees (*Yucca brevifolia*) scattered within creosote bush scrub. The Great Basin Desert covers most of Nevada as well as portions of Utah, Idaho, and Oregon. The southwesternmost extension of the Great Basin Desert in California extends southward along the east side of the Sierra Nevada range, where it

intergrades with the Mojave Desert in the southern Owens Valley. The Great Basin Desert occurs above 1220 m (4,000 ft) and is characterized by the dominance of sagebrush. Descriptions of Mojave and Sonoran Desert plant communities can be found in Thorne (1982), Thorne (1986), Vasek and Barbour (1988), Burk (1988), and Rowlands *et al.* (1982). The sagebrush-dominated communities of the Great Basin Desert are described by Young *et al.* (1986), and Holland and Keil (1990).

The genus *Astragalus*, in the pea family (Fabaceae), is well-represented with close to 400 species in North America. In California, the genus is best developed in the deserts and bounding desert ranges. Species are distinguished on the basis of shape and size of the pod, and its inflation, compression, and degree of development of the seprum (a partition between two halves of the pod).

The first collection of Lane Mountain milk-vetch (*Astragalus jaegerianus*) was made by Edmund C. Jaeger in 1939 "2 miles south of Jay Mine", north of Barstow, Mojave Desert. The plant was first described by Philip A. Munz (Munz 1941) based on a collection he made from the same area. He made a second collection "15 miles north of Barstow on the road to Superior Dry Lake" (Munz 1941).

Lane Mountain milk-vetch is a wispy perennial that is somewhat woody at the base, with stems 3 to 5 decimeters (dm) (11.8 to 19.7 inch (in)) long growing in a zigzag pattern. Leaves have 7 to 12 silvery linear leaflets 5 to 25 millimeters (mm) (less than 1.0 in) long. The flowers are clay-colored to purple, or lighter with veins of a deeper color. Seedpods are pencil-shaped, linear, smooth, and 1.6 to 2.5 mm (0.6 to 1.0 in) long. This milk-vetch is unusual in that it grows within and is supported by branches of low-growing desert shrubs. Sightings made by Mark Bagley and Mary DeDecker indicate that the plant grows on low ridges of white decomposed granite, but not on other adjacent soil types (California Department of Fish and Game (CDFG) 1991). All currently known populations of Lane Mountain milk-vetch occur on Federal lands managed either by the Bureau of Land Management (Bureau) or the Department of Defense.

After the initial collections in 1939 and 1941, the plant was not seen again until it was rediscovered by Bagley, DeDecker, and John Chesnut in 1985; a total of 87 plants were counted (Bagley 1986). Bagley discovered two additional populations of Lane Mountain milk-vetch, totalling 42 individuals, in 1989

within 5 miles of where the two historic sites were located. Surveys conducted in 1991 resulted in locating a total of six individuals (Rutherford and Bransfield 1991, Bransfield *in litt.* 1991). Lane Mountain milk-vetch is threatened by ongoing military activities, as well as a pending proposal to expand the National Training Center at Fort Irwin onto adjacent Federal lands managed by the Bureau. It is also threatened with stochastic extinction by virtue of its restricted distribution and small population size. Sheep grazing may be a minor threat, as there are two ephemeral sheep grazing allotments on Bureau lands within the range of the plant.

The species *Astragalus lentiginosus* was first described by David Douglas in 1834 based on a specimen collected in the "subalpine ranges of the Blue Mountains [Oregon] of North-West America" (Abrams 1944). The epithet *lentiginosus* means "freckled" and refers to the mottled seed pod. Rydberg (1929) transferred out a number of taxa, including *Astragalus lentiginosus*, to the genus *Cystium*. However, this name was not widely accepted, and Abrams (1944), Barneby (1945), Jaeger (1941), and Munz (1974) continued to recognize *lentiginosus* under the genus *Astragalus*.

Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *cochellae*) was first described by Rupert Barneby in Shreve and Wiggins (1964) based on a collection made by Alice Eastwood in 1913 near Palm Springs, Riverside County. The specimen had previously been identified as *Astragalus lentiginosus* var. *coulteri* by Barneby in the description of that taxon in 1945.

Coachella Valley milk-vetch is an erect winter annual or short-lived perennial 20 to 30 centimeters (cm) (7.8 to 11.8 in) tall and covered with white-silky hairs. The flowers are deep pink-purple, in a loose or dense 13 to 25-flowered raceme; the pods are strongly inflated, with leathery valves inflexed to form a complete septum.

The Coachella Valley milk-vetch is found on open sandy dunes and sandy flats within the creosote bush scrub community. The plant's distribution is restricted to the Coachella Valley, in Riverside County, between Cabazon and Indio. Less than 20 occurrence of Coachella Valley milk-vetch are currently known. Five of these are located within the Coachella Valley Preserve, which is jointly managed by the Bureau, CDFG, the Service, and The Nature Conservancy (TNC); these localities are being monitored annually. Two occurrences are on lands owned by the Agua Caliente Indian Reservation; one is on land owned by Southern

California Edison (SCE), and the remaining occurrences are on private lands. The primary threat to the Coachella Valley milk-vetch is habitat destruction due to continuing urban development in the Coachella Valley. Other threats include development of wind energy parks and recreational activities, particularly off-road vehicle use. The small size of the populations, particularly in drought years, leaves the Coachella Valley milk-vetch vulnerable to extinction from stochastic events. Surveys for the plant in 1987, a drought year, resulted in the location of less than 300 individuals (Barrow 1987a). Annual monitoring of 1 population showed a drop from 209 individuals in 1979 to 2 individuals in 1982 (CDFG 1991).

Shining milk-vetch (*Astragalus lentiginosus* var. *micans*) was first collected by Munz and John C. Roos at the lower slopes of sand dunes at the southeast end of Eureka valley, Inyo County, in 1954, and described by Barneby 2 years later (Barneby 1956). The plant is an erect white-silky perennial with a hardened base; the leaves range from 4.5 to 9.5 cm (1.8 to 3.7 in) long, and consist of 11 to 17 leaflets. The flowers are lavender to pale purple and arranged in loose, 20 to 35-flowered racemes; the pods are stiffly papery, inflated, and often angled upward to a distinct beak.

Shining milk-vetch is found at the base of open sand dunes within creosote bush scrub. The plant is restricted to two dune systems in Eureka Valley approximately 10 miles apart; the Eureka Dunes and the Saline Sand Spur. At Eureka Dunes, shining milk-vetch is associated with plicate coldenia (*Coldenia plicata*) as well as with two taxa endemic to that site and which are currently federally listed as endangered: Eureka dunegrass (*Swallenia alexandrae*) and Eureka Dunes evening primrose (*Oenothera avita* ssp. *eurekaensis*). Several specimens of milk-vetch that were collected in Nye County, Nevada, in 1988 were tentatively identified as *Astragalus lentiginosus* var. *micans*, but the final determination has not been made (Teri Knight, Director of Science, TNC, Nevada, pers. comm., 1991).

The Eureka Dunes are within an Area of Critical Environmental Concern (ACEC) on Federal lands managed by the Bureau. The Bureau has taken a number of measures—including signing and increasing ranger patrols—to protect this site from illegal off-road activity, which had been a popular recreational activity in the area until 1979. Nevertheless, because of the limited distribution of the population and the limited resources the Bureau can

direct towards monitoring the site, illegal off-road vehicle activity remains a threat. Other threats to shining milk-vetch include competition with the alien plan Russian thistle (*Salsola iberica*).

Fish Slough milk-vetch (*Astragalus lentiginosus* var. *piscinensis*) was first collected by DeDecker in 1974, and described by Barneby 3 years later (Barneby 1977). The plant is a prostrate perennial covered with stiff appressed hairs, with few branching stems that are up to 1 meter (m) long, and leaflets reduced to only two pairs laterally with a greatly elongated terminal leaflet longer than the leaf-stalk. The lavender flowers are arranged in loose but short 5 to 12-flowered racemes; the pods are papery, strongly inflated with complete septum, and contract to an incurved beak.

Fish Slough milk-vetch is restricted to a 10-mile stretch of alkaline flats paralleling Fish Slough, a desert wetland ecosystem, in Inyo and Mono Counties, California. A recent study noted that the plant seems to be restricted to seasonally moist alkaline flats which support a *Spartina-Sporobolus* association, and is absent from nearby lower, wetter alkali habitats (Ferrer 1991a). Most of the plants are found in three concentrations near the northern end of its range, but scattered individuals are found farther downstream as far as McNally Canal. Surveys conducted over nearly a 10-year period identified 8 populations totalling about 700 plants on lands managed by the Bureau and by the Los Angeles Department of Water and Power (DWP). Fish Slough milk-vetch is threatened with alternation and destruction of habitat resulting from construction related to fisheries enhancement activities, off-road vehicle activity, discing for agricultural purposes, livestock grazing, predation by rabbits, and possibly groundwater pumping (Ferrer 1991b).

Sodaville milk-vetch (*Astragalus lentiginosus* var. *sesquimetalis*) was first collected by W.H. Shockley in 1882 near Sodaville, Mineral County, Nevada, and described by Per Axel Redberg as *Cystium sequimetalis* in 1929 (Barneby 1945). The genus *Cystium*, however, was not recognized by other botanists, and in 1945, Barneby placed the plant as a variety of *lentiginosus* in the genus *Astragalus*. The plant is a prostrate perennial with straw-colored stems up to 8 dm (31 in) long and covered with silky hairs; the leaflets are 6 to 18 mm (0.2 to 0.7 in) long. The light purple flowers have white silky calyces 7 to 8 mm (0.3 in) long, arranged on 6 to 12-flowered racemes; the pod is moderately

inflated, 1.6 to 2.6 cm (0.6 to 1.0 in) long, with an upwardly curved beak.

After its initial discovery, Sodaville milk-vetch was not seen again until 1977 when it was relocated by Margaret Williams at the type locality in Mineral County (Barneby 1977). A second location was also discovered by Williams in 1973 at Big Sand Spring, Inyo County, California, approximately 75 miles south of the type locality. A third location, near Cold Spring, Nye County, was discovered in 1980 by Arnold Tiehm (Nevada Natural Heritage Program 1991). The plant is restricted to powdery clay saline soils adjacent to springs. Typical alkaline seep species, such as seepweed (*Suaeda torreyana*), saltgrass (*Distichlis spicata*), and alkali ivesia (*Ivesia kingii*), are common associates.

The sizes of the Sodaville and Cold Spring populations in Nevada have not been estimated since 1978 and 1980, respectively; at that time, each was estimated to comprise several hundred plants. These two sites are on privately-owned parcels adjacent to Bureau lands and are threatened by habitat alteration and destruction resulting from off-road vehicle activity, and commercial development and associated roadside activity. Big Sand Spring is on Federal lands managed by the Bureau as an ACEC. The size of the population at Big Sand Spring was reduced to several hundred individuals in the early 1980's, but has increased since 1985 when an enclosure was constructed to eliminate grazing by feral burros and livestock. The site, however, is still threatened with habitat alteration and predation resulting from grazing by feral burros and livestock. Sodaville milk-vetch is also threatened with stochastic extinction due to small population size and numbers of individuals.

Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) was first described as *A. peirsonii* by Munz and Jean P. McBurney in 1932. The type was collected by Munz and Charles L. Hitchcock "from sand dunes between Holtville and Yuma" in Imperial County, and named after amateur botanist Frank W. Peirson (Barneby 1964). In 1944, Barneby recognized *A. peirsonii* as a junior synonym of *A. niveus*, but then later described both as varieties of *Astragalus magdalenae* after studying additional collections (Barneby 1958). Peirson's milk-vetch is a stout, short-lived perennial reaching 2 to 7 dm (7.9 to 27 in) high; stems and leaves are covered with fine silky hairs; leaves are 5 to 15 cm (2.0 to 5.9 in) long, with 8 to 12 small oblong leaflets. The flowers are dull purple, arranged in 10 to 17-

flowered racemes; the pods are 2 to 3.5 cm (0.8 to 1.4 in) long, inflated, with a triangular beak. The variety *peirsonii* is separated from two other varieties of *Astragalus magdalenae* on the basis of the number of leaflets, the length of the peduncles, and the diameter of the pods. With a length of 4.5 to 5.5 mm (less than 0.2 in), Peirson's milk-vetch has the largest seeds of any *Astragalus* in North America (Barneby 1964).

Peirson's milk-vetch occurs on slopes and hollows of windblown dunes in the Sonoran Desert. Of the taxa included in this proposal, *Astragalus magdalenae* var. *peirsonii* potentially has one of the widest distributions, which, according to Shreve and Wiggins (1964) and Munz (1974) ranges from Borrego Valley in eastern San Diego County to Yuma on the California-Arizona border, and south into northeastern Baja California. The plant, however, has not been seen in Borrego Valley since 1959; surveys in 1978 failed to detect it there (Spolsky 1978). Another historic location, west of the Salton Sea, cannot be confirmed. Peirson's milk-vetch is currently known to occur along the north and west flanks of the Algodones Dunes extending into northeastern Baja California. The Algodones Dunes are primarily on Federal lands managed by the Bureau. The primary threat to Peirson's milk-vetch is the alteration of habitat from off-road vehicle activity. The plant is also threatened with stochastic extinction due to the limited size of its populations. Surveys for the plant on the Algodones Dunes were done in 1978 and 1990. While the techniques used in the two surveys do not permit direct comparison, they indicate a downward trend in population size (Westec 1977, Ecos 1990).

Triple-ribbed milk-vetch (*Astragalus tricarinatus*) was first described by Asa Gray in 1876, based on a specimen collected by Charles C. Parry at Whitewater, Riverside County (Abrams 1944). In 1927, Rydberg renamed the plant *Hamosa tricarinata*. This name has not been recognized by other botanists, however, who continue to recognize the plant as *A. tricarinatus* (Jaeger 1941, Jepson 1936, Shreve and Wiggins 1964, Munz 1974). Triple-ribbed milk-vetch is short-lived perennial, reaching 20 to 40 cm (7.9 to 15.7 in) in height, with leaves 3.5 to 7 cm (1.3 to 2.7 in) long and silvery strigose on the upper surface. The flowers are white or pale cream-colored, arranged in loose 6 to 17-flowered racemes. The pod is narrow and 2 to 4 cm (0.8 to 1.6 in) long, and distinctly three-ribbed or cordate in cross section.

Triple-ribbed milk-vetch is known from only four sites in the Coachella Valley, occurring either on sandy and gravelly soils of dry washes, or on decomposed granite or gravelly soils at the base of canyon slopes (Barrows 1987b). Two sites are within an area which is designated as an ACEC by the Bureau, and also jointly managed as a Preserve by the Bureau and TNC. In 1984, one of these sites that had supported less than 10 plants was bulldozed during maintenance of a pipeline. Only one plant was observed in the same site in 1987, and none have been at either of the two sites since then (Barrows 1987b). The type locality (Whitewater Canyon) was surveyed in 1987, with no plants being found. A fourth population was discovered by Jon Stewart in 1985 near Aqua Alta Canyon at the south end of the Coachella Valley, but the plant has not been seen at this site since then. While no living plants of triple-ribbed milk-vetch are currently known, the long viability of other legume seeds holds out the likelihood that the plant will reappear with favorable climatic conditions in future years. Two of the historic sites receive protection by their inclusion in the Preserve, but the other two sites are currently unprotected, and are threatened by habitat destruction due to off-road vehicle activity.

In addition to specific threats mentioned for each of these taxa, possibly all have experienced a reduction in population size owing to a series of drought years in southern California. Population sizes may expect to increase in climatically favorable years, but only if seed production is maintained at some critical level.

Previous Federal Action

Federal action on these 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. In that document, *Astragalus jaegerianus* was considered to be endangered, and *A. lentiginos* var. *micans* was considered to be threatened. 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. 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. *Astragalus jaegerianus* and *A. lentiginosus* var. *sesquimetalis* were 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 portion of the June 6, 1976, proposal that had not been made final, along with four other proposals that had expired.

The Service published an updated notice of review of plants on December 15, 1980 (45 FR 82480). This notice included *Astragalus jaegerianus*, *A. lentiginosus* var. *coachellae*, *A. lentiginosus* var. *micans*, *A. lentiginosus* var. *piscinensis*, *A. lentiginosus* var. *sesquimetalis*, and *A. magdalenae* var. *peirsonii* as Category 1 taxa. Category 1 taxa are those for which the Service has on file substantial information on biological vulnerability and threats to support preparation of listing proposals. On November 28, 1983, the Service published in the Federal Register a supplement to the Notice of Review (48 FR 53640), in which *A. jaegerianus*, *A. lentiginosus* var. *micans*, and *A. magdalenae* var. *peirsonii* were included as Category 2 candidates. Category 2 taxa 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. The plant notice was again revised on September 27, 1985 (50 FR 39526), and on February 21, 1990 (55 FR 6184). In both of these notices, all four varieties of *Astragalus lentiginosus* were included as Category 1 candidates, while *A. jaegerianus* and *A. magdalenae* var. *peirsonii* were included as Category 2 candidates. *Astragalus tricarinatus* was included in the February 21, 1990, notice for the first time as a Category 2 candidate. *Astragalus jaegerianus* and *Astragalus magdalenae* var. *peirsonii* are being included in this proposal on the basis of new information gathered during surveys performed during 1990 and 1991 that have resulted in their elevation to a Category 1 status. *Astragalus tricarinatus* is being included in this proposal after a review of existing information indicated that the species should be elevated to a Category 1 status and that listing may be warranted.

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. This was the case for *Astragalus jaegerianus*, *Astragalus lentiginosus* var. *micans*, and *Astragalus lentiginosus* var. *sesquimetalis*, because the 1975 Smithsonian report had been accepted as a petition. On October 13, 1983, the Service found that the petitioned listing of these species was warranted, but precluded by other pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act; notification of this finding was published on January 20, 1984 (49 FR 2485). Such a finding requires the petition to be recycled,

pursuant to section 4(b)(3)(C)(i) of the Act. The finding was reviewed in October of 1984, 1985, 1986, 1987, 1988, 1989, 1990, and 1991. Publication of this proposal constitutes the warranted finding for these species, as well as for *Astragalus lentiginosus* var. *coachellae*, *A. lentiginosus* var. *piscinensis*, *A. magdalenae* var. *peirsonii*, and *A. tricarinatus*.

Summary of Factors Affecting the Species

Section 4 of the Endangered Species Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal Lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). The threats facing these seven taxa are summarized in Table 1.

The factors and their application to *Astragalus jaegerianus* Munz (Lane Mountain milk-vetch), *Astragalus lentiginosus* Dougl. var. *coachellae* Barneby (Coachella Valley milk-vetch), *Astragalus lentiginosus* Dougl. var. *micans* Barneby (shining milk-vetch), *Astragalus lentiginosus* Dougl. var. *piscinensis* Barneby (Fish Slough milk-vetch), *Astragalus lentiginosus* Dougl. var. *sesquimetalis* (Rydsg.) Barneby (Sodaville milk-vetch), *Astragalus magdalenae* Greene var. *peirsonii* (Munz & McBurn.) Barneby (Peirson's milk-vetch), and *Astragalus tricarinatus* Gray (triple-ribbed milk-vetch) are as follows:

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

All seven taxa are naturally limited in distribution owing to the specific soil and/or hydrologic conditions of the habitats in which they are found.

TABLE 1.—SUMMARY OF THREATS

	Feral burros	Cattle grazing	Alien plants	ORV activity	Military activity	Develop activity	Limited numbers	Other
<i>Astragalus jaegerianus</i>					X		X	
<i>A. lentiginosus</i> var. <i>coachellae</i>				X		X		
<i>A. lentiginosus</i> var. <i>micans</i>			X	X				
<i>A. lentiginosus</i> var. <i>piscinensis</i>		X		X		X		X
<i>A. lentiginosus</i> var. <i>sesquimetalis</i>	X	X		X		X		
<i>A. magdalenae</i> var. <i>peirsonii</i>				X			X	
<i>A. tricarinatus</i>							X	

¹ Fisheries enhancement activities, agricultural discing, predation by rabbits, and groundwater pumping.

Any loss of their habitat or range may increase the change extirpation by stochastic (i.e., random) events.

Lane Mountain milk-vetch *Astragalus jaegerianus* is currently known from two sites that are within 5 miles of the historically known type locality. One

site is located on the National Training Center (NTC) at Fort Irwin. The second site is 2 miles to the west, on Federal lands managed by the Bureau. The site

at the NTC is currently being degraded by military vehicle use (Bransfield *in litt.* 1991). The NTC is currently proposing to acquire 411 square miles of adjacent Bureau and private lands, which include the entire known and historical range of Lane Mountain milk-vetch (Bagley 1989). Lane Mountain milk-vetch is threatened by destruction of habitat by existing military training on the NTC. These threats could increase in intensity and extent if training activities also occur within the proposed acquisition area.

Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*) is currently known from about 20 sites in the Coachella Valley. Five of these sites are within the Coachella Valley Preserve that was established in 1986 to conserve habitat for the federally threatened Coachella Valley fringe-toed lizard (*Uma inornata*) as well as other taxa endemic to dune habitats in the Coachella Valley. Habitat destruction in the Valley began with the introduction of agriculture over a century ago. More recently, urban development has become the prime cause of habitat destruction through direct conversion (grading, paving, plowing); secondary impacts related to increased human activity (ORV use, introduction of alien plants, trampling); and through interference with the windblown sand transport system (TNC 1985). Without new sand, the dune systems in the Valley, and the endemic flora and fauna that depend on them, will not be maintained over a long period of time. Urban development in the Coachella Valley has already extirpated several occurrences of the milk-vetch, and several proposals for new development, including a golf course, are pending (Art Davenport, USFWS biologist, Laguna Niguel Office, pers. comm., 1991).

Shining milk-vetch (*Astragalus lentiginosus* var. *micans*) is restricted to two dune systems in the Eureka Valley. One dune system (Saline Sand Spur) is fairly inaccessible to human activity. The main dune system (Eureka Dunes) was a popular off-road vehicle recreational area until it was officially closed by the Bureau in 1979. Such off-road vehicle activity not only directly impacts the plants through crushing, but disturbance of the soil surface favors the establishment of plants more tolerant of such disturbance and would change the composition of the plant community over time.

Fish Slough milk-vetch (*Astragalus lentiginosus* var. *piscinensis*) is currently restricted to a 10-mile length of alkaline flats paralleling Fish Slough on

lands owned and managed by the DWP and the Bureau. The Bureau established an ACEC on these lands in 1984 to protect the federally endangered Owens pupfish (*Cyprinodon radiosus*) as well as the entire wetland ecosystem. The ACEC is jointly managed by the Bureau, the Service, CDFG, University of California Natural Reserve System (NRS), and DWP. The DWP owns the Slough itself, as well as adjacent habitat for Fish Slough milk-vetch. The California Department of Fish and Game leases a pond site from DWP as a pupfish sanctuary. Because of the availability of water and the development of wetland vegetation at Fish Slough, the area has sustained extensive human-related uses, beginning with cattle grazing in the 1860's. Ferren (1991b) has summarized impacts to botanical resources at Fish Slough, noting that those related to the development of fisheries (construction of ponds, impoundments, roads, and ditches) have been the most deleterious. Other activities that are altering and fragmenting the habitat for Fish Slough milk-vetch include off-road vehicle activity, discing for agricultural purposes, and livestock grazing. Chemical treatment of water sources for fish control purposes, and groundwater pumping in adjacent Chalfant Valley may also be affecting the hydrologic conditions of Fish Slough habitat (Pinter and Keller 1991, Ferren 1991b).

Grazing by livestock alters the composition of the plant community over time by reducing or eliminating those species that cannot tolerate trampling and by enabling those that can to increase in abundance. Other taxa that were not previously part of the native plant community may be introduced and flourish under the disturbance caused by grazing and may reduce or eliminate native taxa through competition for resources.

Sodaville milk-vetch (*Astragalus lentiginosus* var. *sesquimetalis*) is also subject to habitat alteration and disturbance due to grazing. One population, in Inyo County, is on Federal lands managed by the Bureau. In 1982, the Bureau designated 450 acres surrounding Big Sand Spring as an ACEC, primarily to protect the Owens tui chub (*Gila bicolor snyderi*) and Owens pupfish and in part to protect Sodaville milk-vetch. However, the Spring is also within a Herd Management Area for feral burros, as well as within a cattle grazing allotment. Prior to construction of an enclosure around Big Sand Spring in 1985, grazing by feral burros had substantially reduced the extent of Sodaville milk-

vetch. Within three years of erecting the enclosure, the number of individuals increased from several hundred to possibly a thousand milk-vetch (Rutherford, pers. obs, 1988). However, occasional trespass by burros has not been entirely eliminated, and the limited distribution of the Sodaville milk-vetch makes it vulnerable to continued disturbance. A second population in Mineral County, Nevada, comprises approximately 500 individuals and is located entirely on private land. The third population, also in Mineral County, comprises less than several hundred individuals and occurs primarily on parcel of private land surrounded by Bureau lands. The parcel is located near a highway junction with developing roadside services and is subject to trampling and off-road vehicle activity.

Peirson's milk-vetch is currently known only from the Algodones Dunes. Less than 20 percent of the dune system is within a Bureau-designated Wilderness Study Area, on the northern tip of the dunes. The remaining 80 percent to the south is within one of the largest off-road vehicle recreation areas in the southwest (Bury and Luckenbach 1983). Bury and Luckenbach examined the ecological impacts of ORV use on the biota of the dunes in 1977 and 1979. Their studies clearly indicated that a reduced number of individuals, number of species, cover, and volume of plant biomass was found in impacted plots as compared to undistributed plots (Bury and Luckenbach 1983). In a recent monitoring report of Peirson's milk-vetch and three other taxa endemic to the Algodones Dunes (Ecos 1990), the authors note that the stems of Peirson's milk-vetch, already brittle by the drought, were easily snapped off by passing ORV's. They also note that, though appearing dry on the surface, dune soils retain soil moisture; this moisture may be more easily dissipated once the surface of the dune has been distributed by ORV's.

Habitat for triple-ribbed milk-vetch (*Astragalus tricarinatus*) is also subject to ORV disturbance. Even though the plant has not been sighted for several years, at least two of the four historical locations are subject to such disturbance.

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

Some taxa have become vulnerable to collecting by curiosity seekers as a result of increased publicity following publication of a listing proposal. All seven taxa included in this rule occur on or near trails or roads and have the

potential of being collected or trampled. The small number of populations of all seven taxa could be extirpated with even a modest collection effort. The extremely limited number of Lane Mountain milk-vetch, and of triple-ribbed milk-vetch should plants reappear in future years from its seed bank, make them highly vulnerable to scientific collectors.

C. Disease or Predation

Disease is not known to be a factor for any of the taxa. As discussed under "Factor A," two taxa, Fish Slough milk-vetch and Sodaville milk-vetch, are subject to grazing from livestock. The Fish Slough area has been grazed by cattle since the 1860's. Allotments currently exist both on DWP and Bureau lands, but grazing on Bureau lands apparently is confined to upland areas well outside of habitat for Fish slough milk-vetch. A 1 acre enclosure was constructed at a spring on Bureau lands in the early 1980's; recent observations indicate that Fish Slough milk-vetch has increased in numbers within the enclosure. An 80-acre enclosure was constructed by DWP in 1991. However, these enclosures encompass less than 5 percent of the habitat for Fish Slough milk-vetch.

Ferren (1991a) observed milk-vetch that had been virtually stripped of leaves, flowers, and seeds adjacent to rabbit pellets, thereby implicating predation by rabbits in reducing the reproductive potential of Fish Slough milk-vetch.

The Big Sand Springs site for Sodaville milk-vetch occurs within an area designated as a Herd Management Area for feral burros as well as within a grazing allotment. Grazing by burros reduced the population of Sodaville milk-vetch to less than 500 individuals before an enclosure was constructed in 1985. While the size of the population has begun to increase over the past 5 years, the spring provides the only source of water to both cattle and burros in the area, and grazing under trespass continues to be a threat.

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 Peirson's milk-vetch and Sodaville milk-vetch as endangered. Though both statutes prohibit the "take" of State-listed plants (chapter 1.5 section 1908 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).

The southern range of Peirson's milk-vetch follows the Algodones Dunes into northeastern Baja California. The country of Mexico has laws that presumably provide protection to rare plants; however, enforcement of those laws is lacking (Joe Quiroz, TNC, Phoenix, Arizona, pers. comm., 1991).

E. Other Natural or Human-caused Factors Affecting Its Continued Existence

At least three, and possibly all, of the milk-vetch are threatened with stochastic extinction by virtue of the limited number of individuals and/or range of the existing populations. Genetic viability is reduced in small populations, making them vulnerable to extinction by a single human-caused or natural event. The potential for extirpation owing to small population size can be exacerbated by natural causes such as the recent drought. For instance, surveys performed in 1991 detected only six individuals of Lane Mountain milk-vetch (Rutherford and Bransfield 1991, Bransfield 1991). The population size is undoubtedly higher, because the plant's cryptic habit of scrambling up through other desert shrubs makes it difficult to detect. Nevertheless, such low survey results were, at least in part, a result of the recent drought.

Two other taxa are currently at precipitously low population sizes. No individuals of triple-ribbed milk-vetch have been seen since 1987 (K. Barrows, botanical consultant, pers. comm., 1991). A 1990 survey for Peirson's milk-vetch resulted in detection of a small population size at the Algodones Dunes (Ecos 1990). While complete surveys have not been done within the past several years, it is likely that the other taxa of dry-site habitats (shining milk-vetch and Coachella Valley milk-vetch) have also experienced drought-related declines in population size. Even those taxa occurring in habitats with moister soil conditions (Fish Slough milk-vetch and Sodaville milk-vetch) may be affected by recent drought conditions due to lowered groundwater tables.

Shining milk-vetch is threatened by competition from an alien plant, Russian thistle (*Salsola iberica*), at the base of the Eureka Dunes. Prior to 1979, the dunes were a popular off-road vehicle

area. Russian thistle was probably introduced to the area either by such activity or by an historical cattle grazing operation that no longer exists. Past off-road vehicle activity may have exacerbated the invasion of Russian thistle by altering the sandy soils in a manner that facilitated the spread of the thistle. The seeds of Russian thistle include a pre-differentiated spiral-shaped taproot that enables the plant to establish rooting immediately upon germination (TNC 1986). This unique seed structure, coupled with Russian thistle's prolific seed production, allow it to quickly take over disturbed sites. While Russian thistle is also autotoxic after reaching certain densities, and may even decline in unfavorable climatic years, it probably will never completely be removed from the area.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these taxa in determining to propose this rule. Based on this evaluation, the preferred action is to propose *Astragalus jaegerianus*, *Astragalus lentiginosus* var. *coachellae*, *Astragalus lentiginosus* var. *piscinensis*, *Astragalus magdalenae* var. *peirsonii*, and *Astragalus tricarinatus* as endangered; and *Astragalus lentiginosus* var. *micans* and *Astragalus lentiginosus* var. *sesquimetralsis* as threatened. Threats to the seven taxa include the following: Habitat alteration and destruction resulting from construction, urban development, off-road vehicle activity, and military training exercises; habitat degradation and predation by feral burros, livestock, and rabbits; competition from alien plants, and the potential for overcollection. The limited distributions of these taxa and their small population size makes them particularly vulnerable to extinction from stochastic events.

Because *Astragalus jaegerianus*, *Astragalus lentiginosus* var. *coachellae*, *Astragalus lentiginosus* var. *piscinensis*, *Astragalus magdalenae* var. *peirsonii*, and *Astragalus tricarinatus* 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. The Service has determined that threatened status rather than endangered status is appropriate for *Astragalus lentiginosus* var. *micans* and *A. lentiginosus* var. *sesquimetralsis*, primarily because some measures have been initiated by the Bureau to protect these species. Management activities by the Bureau, including signing, fencing, and increasing ranger patrols, have somewhat reduced the potential for

habitat destruction by off-road vehicle activity at Eureka Dunes where *A. lentiginosus* var. *micans* occurs. However, the plant's habitat still remains vulnerable to such activity through trespass, and competition with Russian thistle remains a threat to the plant. The Bureau has taken steps to reduce the degradation of habitat resulting from burro and cattle grazing by construction of an enclosure around the Big Sand Spring site, where *Astragalus lentiginosus* var. *Sesquimetralis* occurs. However, the plant's habitat still remains vulnerable to such grazing activity through trespass at this site, and the plant is still vulnerable to threats from commercial development, trampling, and off-road vehicle activity. The two sites in Nevada are currently unprotected. Because these two species appear to be likely to become in danger of extinction within the foreseeable future, they fit the definition of threatened as defined in the Act. Critical habitat is not being proposed for these taxa for reasons discussed in the "Critical Habitat" section of this proposal.

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 taxa. Such a determination would result in no known benefit to the species. The publication of critical habitat descriptions and maps required in a proposal for 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 Federal Agencies involved and local planning agencies have been notified of the location and importance of protecting these species' habitat. Protection of these species' habitat 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 a 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 40 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 ensure 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.

All seven taxa occur wholly or primarily on Federal lands managed by the Bureau. Five of the taxa are within areas designated as ACEC's, at least two are in or adjacent to grazing allotments, one is within a feral burro herd management area, and one is within a wind energy development corridor. Bureau activities that could potentially affect these taxa and their habitats include specific management activities undertaken through ACEC management plans, including ORV recreational activity at the Algodones Dunes; renewal of grazing permits; burro herd management activities; and the permitting of wind energy development and associated rights-of-way in the Coachella Valley. All of the known

habitat for *Astragalus jaegerianus* is on Federal lands managed by the Bureau and by the NTC at Fort Irwin. The NTC is proposing to acquire Bureau lands that include all of the remaining habitat for the plant for use as a military training area. Activities on BIA lands that could potentially affect *Astragalus lentiginosus* var. *coachellae* include agricultural or commercial development; specific actions have not been identified at this time.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 for endangered plants, and at 50 CFR 17.71 and 17.72 for threatened plants set forth a series of general prohibitions and exceptions that apply to all threatened or endangered plants. With respect to the five plant taxa proposed to be listed as endangered, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, would apply. These prohibitions, in part, make it illegal with respect to any endangered plant for any person subject to the jurisdiction of the United States to import or export; transport in interstate or foreign commerce in the course of a commercial activity; sell or offer for sale this species in interstate or foreign commerce; remove and reduce to possession the species from areas under Federal jurisdiction; maliciously damage or destroy any such species on any area under Federal jurisdiction; or remove, cut, dig up, damage, or destroy any such endangered plant species on any other area in knowing violation for any State law or regulation or in the course of any violation of a State criminal trespass law.

The shining milk-vetch and the Sodaville milk-vetch, proposed to be listed as threatened, would be subject to similar prohibitions (16 U.S.C. 1538(a)(2)(E); 50 CFR 17.61, 17.71). Seeds from cultivated specimens of threatened plant species are exempt from these prohibitions provided that a statement of "cultivated origin" appears on their containers. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62, 17.63, and 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered and threatened plant species under certain circumstances. It is anticipated that few trade permits would ever be sought or issued because these species are not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, room

432, Arlington Virginia 22203-3507 (703/358-2093 or FTS 921-2093).

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 these taxa;

(2) The location of any additional populations of these taxa 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 taxa; and

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

The final decision on this proposal will take into consideration the comments and any additional information received by the Service, and such communications may lead to a

final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be received within 45 days of the date of publication of the proposal. Such requests must be made in writing and addressed to the Office Supervisor of the Ventura Field Office (see ADDRESSES section).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act 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).

References Cited

A complete list of all references cited herein is available upon request from the Ventura Field Office (see ADDRESSES section).

Author

The primary author of this proposed rule is Constance Rutherford, Ventura Field 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, 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 § 17.12(h) for plants by adding the following, in alphabetical order under the plant family 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					
Fabaceae—Pea family:						
<i>Astragalus jaegerianus</i>	Lane Mountain milk-vetch.....	U.S.A. (CA).....	E	.....	NA	NA
<i>Astragalus lentiginosus</i> var. <i>cochellae</i> .	Coachella Valley milk-vetch.....	U.S.A. (CA).....	E	.....	NA	NA
<i>Astragalus lentiginosus</i> var. <i>micans</i> .	Shining milk-vetch.....	U.S.A. (CA).....	T	.....	NA	NA
<i>Astragalus lentiginosus</i> var. <i>piscinensis</i> .	Fish Slough milk-vetch.....	U.S.A. (CA).....	E	.....	NA	NA
<i>Astragalus lentiginosus</i> var. <i>sesquimetralis</i> .	Sodaville milk-vetch.....	U.S.A. (CA, NV).....	T	.....	NA	NA
<i>Astragalus magdalenae</i> var. <i>peirsonii</i> .	Peirson's milk-vetch.....	U.S.A. (CA); Mexico.....	E	.....	NA	NA
<i>Astragalus tricarinatus</i>	Triple-ribbed milk-vetch.....	U.S.A. (CA).....	E	.....	NA	NA