

Dated: April 21, 2014.

Jared Blumenfeld,

Regional Administrator, Region IX.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R8-ES-2014-0011;
4500030113]

Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To Reclassify *Astragalus Jaegerianus* as a Threatened Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 12-month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to reclassify *Astragalus jaegerianus* (Lane Mountain milk-vetch) as a threatened species under the Endangered Species Act of 1973, as amended (Act). After review of the best available scientific and commercial information, we find that reclassification of *Astragalus jaegerianus* is not warranted at this time. However, we ask the public to submit to us any new information that becomes available concerning the threats to the species or its habitat at any time.

DATES: The finding announced in this document was made on May 2, 2014.

ADDRESSES: This finding is available on the Internet at <http://www.regulations.gov> at Docket Number FWS-R8-ES-2014-0011. Supporting documentation we used in preparing this finding is included in the docket at <http://www.regulations.gov> and available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road Suite B, Ventura, CA 93003. Please submit any new information, materials, comments, or questions concerning this finding to the above street address.

FOR FURTHER INFORMATION CONTACT: Stephen P. Henry, Acting Field Supervisor, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003; telephone 805-644-1766; facsimile 805-644-3958. If you use a telecommunications device for the deaf (TDD), please call the Federal

Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. On June 4, 2012, we published in the **Federal Register** a 90-day finding, which determined that the petition to reclassify Lane Mountain milk-vetch from endangered to threatened contained substantial scientific or commercial information and that the petitioned action may be warranted. Section 4(b)(3)(B) of the Act (16 U.S.C. 1531 *et seq.*) requires that, for any petition to revise the Federal Lists of Endangered and Threatened Wildlife and Plants, we make a finding within 12 months of the date of receipt of the petition. We must publish these 12-month findings in the **Federal Register**.

The basis for our action. Under the Act, we can determine that a species is an endangered species or threatened species based on whether we find that it is in danger of extinction throughout all or a significant portion of its range now (endangered) or likely to become endangered in the foreseeable future (threatened). As part of our analysis, we consider whether it is endangered or threatened because of the factors outlined in section 4(a)(1) of the Act. We consider the same factors in delisting or downlisting a species.

Finding. This document constitutes our 12-month finding that the petitioned action to reclassify Lane Mountain milk-vetch from endangered to threatened is not warranted based on the review of the best available scientific and commercial information. It further constitutes our review pursuant to section 4(c)(2) of the Act.

Previous Federal Actions

Lane Mountain milk-vetch was listed as endangered in 1998, and a critical habitat rulemaking was completed in 2005 (63 FR 53596; October 6, 1998 and 70 FR 18220; April 8, 2005). In 2011, we revised the critical habitat rulemaking by designating approximately 14,069 acres (ac) (5,693 hectares (ha)) of land in 2 units located in the Mojave Desert in San Bernardino County, California (76 FR 29108; May 19, 2011). No recovery plan has been completed for Lane Mountain milk-vetch. A notice initiating a 5-year review was published for the species in 2006 (71 FR 14538; March 22, 2006), and a 5-year review was completed in 2008 (Service 2008, pp. 1-20; 74 FR 12878; March 25, 2009).

On December 21, 2011, we received a petition dated December 19, 2011, from the Pacific Legal Foundation (PLF), requesting that we reclassify the Lane

Mountain milk-vetch from endangered to threatened under the Act based on the analysis and recommendations contained in the 5-year review for Lane Mountain milk-vetch (Service 2008, pp. 1-20; PLF 2011, pp. 1-11). On June 4, 2012, we published in the **Federal Register** a 90-day finding on the petition to reclassify Lane Mountain milk-vetch as threatened or endangered, and determined that the petition presented substantial scientific or commercial information indicating that the petitioned action may be warranted and initiated a status review of the species under sections 4(b)(3)(A) and 4(c)(2)(A) of the Act (77 FR 32922). On April 24, 2013, the Pacific Legal Foundation filed a complaint for failure to complete a 12-month finding with the District Court of the Eastern District of California (*California Cattlemen's Association, et al. v. Sally Jewell, et al., No. 2:13-cv-00800-GEB-AC (E.D. Cal.)*). This challenge was resolved by an August 7, 2013, Stipulated Settlement Agreement, in which the Service agreed to submit a 12-month finding on Lane Mountain milk-vetch to the **Federal Register** on or before February 28, 2014. On November 27, 2013, the Court granted an extension to April 30, 2014, due to the Federal Government shutdown and furlough in October of 2013, and to allow full incorporation of new survey information. This document constitutes our 12-month finding on the petition to reclassify the Lane Mountain milk-vetch and our review pursuant to section 4(c)(2) of the Act.

Background

This finding is based on the Species Report for Lane Mountain milk-vetch (Species Report) (Service 2014, entire), a scientific analysis of available information prepared by a team of Service biologists from the Service's Ventura Fish and Wildlife Office, the Pacific Southwest Regional Office (Region 8), and the National Headquarters Office (Arlington, VA). The purpose of the Species Report is to provide the best available scientific and commercial information about the species so that we can evaluate whether or not the species warrants protection under the Act and if so at what level of protection.

In the Species Report, we compiled the best scientific and commercial data available concerning the status of Lane Mountain milk-vetch, including the past, present, and future threats to this species. The Species Report evaluates the biological status of the species and the threats affecting its continued existence. As such, the Species Report provides the scientific basis that informs

our regulatory decision in this document, which involves the further application of standards within the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) and policies. The Species Report (including a references cited list) and other materials relating to this finding can be found on the Ventura Fish and Wildlife Office Web site at: <http://www.fws.gov/ventura> and at <http://www.regulations.gov> at Docket No. FWS-R8-ES-2014-0011.

The reader is directed to the Species Report for Lane Mountain milk-vetch for a more detailed discussion of the biology, taxonomy, life history, distribution, current conditions, and factors affecting Lane Mountain milk-vetch (Service 2014, entire). A summary of the information included in the Species Report is provided below. The information below references the original sources of information cited in the Species Report (Service 2014, entire).

Species Biology

Lane Mountain milk-vetch is a herbaceous perennial member of the pea family (Fabaceae) (Wojciechowski and Spellenberg 2012, pp. 729–752). It is a slender, diffuse plant, 12 to 27.5 inches (in) (30 to 70 centimeters (cm)) tall, with straggling, freely branched stems that arise from a buried root-crown, or caudex with a long tap root (Barneby 1964, p. 485). The leaves have 7 to 15 silvery linear leaflets and are light-gray or greenish in color. The flowers are cream to purple with veins of a deeper color. Fruits are pencil-shaped pods, 0.6 to 1 in (16 to 25 cm) long and hold 2 to 14 seeds (see Service 2014, *Species Description*).

Distribution

Lane Mountain milk-vetch is restricted in distribution to a small portion of the central Mojave Desert north of Barstow in San Bernardino County, California at elevations of 3,000–3,800 feet (ft) (900–1,200 meters (m)) (Wojciechowski and Spellenberg 2012, p. 742). Four disjunct population areas of Lane Mountain milk-vetch have been identified prior to and since listing (Goldstone, Montana-Brinkman, Paradise Valley, and the Coolgardie Mesa populations). Based on extensive surveys of the suitable habitat within the area, no other populations of Lane Mountain milk-vetch are expected to exist outside the four identified population areas (Charis 2002, pp. 45–50; Charlton 2007, pp. 29–30).

Habitat Characteristics

Lane Mountain milk-vetch occurs mostly on gentle slopes and low ridges comprised of shallow, coarse granitic substrates where the parent rock material is close to the surface or exposed (Bagley 1999, p. 3; Charis 2002, p. 40; Rundel *et al.* 2005, p. 34). Habitats with these characteristics are patchily distributed across the range where Lane Mountain milk-vetch occurs. The vegetation community at Lane Mountain milk-vetch sites is typically a diverse mix of woody shrub species with a higher percent cover and density than adjacent vegetation communities (Prigge *et al.* 2000, p. 10; Prigge *et al.* 2011, p. 185). These sites tend to have a low density of creosote bush (*Larrea tridentata*) and a high degree of shrubs compatible with Lane Mountain milk-vetch (Huggins *et al.* 2012b, pp. 4–5). The distribution of Lane mountain milk-vetch and the other shrubs are indirectly controlled by the soils and soil characteristics within this plant community (second order edaphic endemism) (Prigge *et al.* 2011, p. 185; Huggins *et al.* 2012b, p. 4).

Lane Mountain milk-vetch has a unique relationship with the shrubs within the mixed desert scrub community where it is found. This relationship is often known as a nurse-protégé interaction (Gibson *et al.* 1998, p. 81; Flores and Jerado 2009, p. 911; McCalley and Sparks 2009, p. 837) and appears to provide benefits to both the Lane Mountain milk-vetch and the nurse shrubs (see Service 2014, *Nurse shrubs and influence on microclimate and microhabitat of Lane Mountain milk-vetch*).

Information Regarding the Species at the Time of Listing to the 2008 5-Year Review

The primary threats to the known populations of Lane Mountain milk-vetch at the time of listing were habitat loss that was likely to occur from recreational off-highway vehicle (OHV) use, mining, and changes in fire frequency and associated fire suppression activities; stochastic events; small population size; and the inadequacy of regulatory mechanisms (63 FR 53604–53609; October 6, 1998). Another threat identified at the time of listing was military training activities planned at Fort Irwin (63 FR 53605, and 53613–53614; October 6, 1998).

On July 10, 2008, the 5-year review was completed for Lane Mountain milk-vetch and recommended that the species be reclassified from endangered to threatened. This recommendation was based on the discovery of

additional occurrences of Lane Mountain milk-vetch since listing and partly on the future implementation of management and conservation actions identified in recently approved land management plans (Service 2008, pp. 1–20). A recovery plan for the Lane Mountain milk-vetch has not been completed, so measurable recovery criteria have not been developed for the species.

Two major changes in land ownership/land use designation occurred between listing and the 5-year review. The first occurred in 2002, when lands containing one of the four known populations of Lane Mountain milk-vetch (Montana-Brinkman population) and a majority of lands for a second population (Paradise Valley population) were transferred from the Bureau of Land Management (BLM) to the Department of Defense as part of the Fort Irwin Military Land Withdrawal Act of 2001 (Public L. 107–107, title 29, section 2901, et seq., 115 Stat. 1335). This legislation withdrew approximately 118,674 ac (48,026 ha) of land, previously owned by the BLM, from appropriation and transferred jurisdiction and interests in those lands to the Secretary of the Army for military use. On March 15, 2004, the Service completed a biological opinion on the proposed addition of training lands at Fort Irwin (Service 2004 (1–8–03–F–48), pp. 1–73). To limit the military training effects on Lane Mountain milk-vetch, the Army committed to place the Goldstone population (1,283 ac (519 ha)) and a portion of the Paradise Valley population (3,634 ac (1,471 ha)) off-limits to all military training activities. The remainder of Lane Mountain milk-vetch population lands on Fort Irwin would be subject to some level of disturbance through military training activities (approximately 6,619 ac (2,679 ha)) from complete habitat loss to moderate or low levels of disturbance. The second land ownership/land use designation occurred in 2005, with the completion of the West Mojave Plan process by the BLM, which designated two areas containing the species as Areas of Critical Environmental Concern (ACEC) on BLM land (the entire Coolgardie Mesa population and approximately 10 percent of the Paradise Valley population) (BLM (West Mojave Plan) 2005, p. 2–108).

During our 5-year review process, we became aware of additional threats to those previously identified at the time of listing. These included the effects of infrequent recruitment, predation, dust, genetic isolation, competition with nonnative species, habitat fragmentation, and the potential for

energy development. We also reconfirmed our concerns related to military training activities and upgraded our concerns related to increased OHV and mining activities and the effects of changes in the fire regime for the species. Although our review heightened awareness of additional concerns and, in some cases, highlighted the severity of the threats, we recommended reclassification for Lane Mountain milk-vetch to threatened based partly on the establishment of conservation areas by the Army and BLM and the future management of these areas by the two agencies (Service 2008, pp. 14–15).

Information Regarding the Species Since the 2008 5-Year Review

In review and development of the information regarding the threats facing Lane Mountain milk-vetch as described in the Species Report and in conducting our status review for this 12-month finding, we have raised our level of concern regarding some threats and identified additional threats facing Lane Mountain milk-vetch. We have raised our level of concern regarding the effects of increased OHV activities on those populations of Lane Mountain milk-vetch on BLM lands, private lands, or lands recently acquired by the Department of Defense outside the National Training Center at Fort Irwin. We have also identified the effects of climate change and drought on the species and its habitat as a major concern and threat to the species or its habitat.

In addition to threats information, we also received additional population status and trend data and information on recruitment and survival (see Service 2014, *Demography and Population Trends*). These threats and population status and trend data are discussed in detail in the Species Report (Service 2014, pp. 39–111) and are summarized below in our statutory analysis.

Statutory Analysis and Application of Section 4 of the Act

Section 4 of the Act (16 U.S.C. 1533) and implementing regulations (50 CFR part 424) set forth procedures for listing species, reclassifying species, or removing species from listed status. A species may be determined to be an endangered or threatened species because of any one or a combination of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D)

the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

Determining whether the status of a species has improved to the point that it can be downlisted or delisted requires consideration of whether the species is endangered or threatened because of the same five categories of threats specified in section 4(a)(1) of the Act. For species that are already listed as endangered or threatened, this analysis of threats is an evaluation of both the threats currently facing the species and the threats that are reasonably likely to affect the species in the foreseeable future following the delisting or downlisting and the removal or reduction of the Act's protections.

A species is an “endangered species” for purposes of the Act if it is in danger of extinction throughout all or a significant portion of its range and is a “threatened species” if it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The word “range” in the “significant portion of its range” phrase refers to the range in which the species currently exists at the time of the status review. For the purposes of this analysis, we first evaluate the status of the species throughout all its range, then consider whether the species is in danger of extinction or likely to become so in any significant portion of its range.

The Act requires that the Secretary determine whether a species is endangered or threatened because of any of the five factors enumerated in 16 U.S.C. 1533(a)(1). Our discussion of the threats is contained in the Species Report (see Service 2014, Overview of Factors Affecting the Species). In the Species Report, we present detailed discussions of the current and future potential threats to the Lane Mountain milk-vetch, discussions which are summarized in this document. Here, we now consider how those threats are categorized under each of the five factors affecting the species and determine whether it is an endangered or threatened species.

Below, we summarize the information in the Species Report of the potential current and future threats to Lane Mountain milk-vetch and categorize them by each factor. The threats categorized by factor include: Military Training Activities (Factors A and E); OHV Activities (Factors A and E); Effects of Climate Change (Factors A and E); Competition with Nonnative Plants and Fire (Factors A and E); Mining Activities (Factors A and E); Predation (Factor C); Inadequacy of

Existing Regulatory Mechanisms (Factor D); Dust (Factor E); Genetic Isolation (Factor E); and Small Population Size (Factor E). The full description of these threats is documented in the Species Report (see Service 2014, Overview of Factors Affecting the Species).

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

Military Training Activities

The same potential military training activities that affect Lane Mountain milk-vetch habitat can also affect Lane Mountain milk-vetch individual plants. While these impacts to the species fit under Factor E (Other Natural or Manmade Factors Affecting its Continued Existence), they are included here in the Factor A discussion for ease of analysis.

Three of the four populations of Lane Mountain milk-vetch occur entirely or almost entirely on Fort Irwin. Military training and operations activities (see Service 2014, *Military Training and Operations Activities*) planned for Fort Irwin's Western Expansion Area may result in the loss of a substantial number of Lane Mountain milk-vetch plants and areas of habitat from both direct and indirect impacts (BLM *et al.* 2005, Chapter 4, p. 73; Army 2003, Chapter 5, pp. 22–27). More than 6,660 ac (2,695 ha) of habitat containing Lane Mountain milk-vetch plants out the 11,567 ac (4,681 ha) that occur on Fort Irwin would be directly affected by military training and operations activities (Army 2003, Chapter 5, p. 25); this represents 31.2 percent of populations and habitat for the species, and 57 percent of the populations and habitat within the Fort Irwin boundary (Service 2014, *Military Training and Operations Activities*). Moreover, the Army reports that, in high use areas, frequent and intense training activities could ultimately impact, and cause the loss of, up to 100 percent of the habitat and individuals of Lane Mountain milk-vetch of the Brinkman Wash-Montana Mine population (Id.). The Army has completed an Integrated Natural Resources Management Plan and consulted with the Service on future training activities (Fort Irwin INRMP 2005). As part of the Army's conservation measures for Lane Mountain milk-vetch, the Goldstone population and a portion of the Paradise Valley population are in designated conservation areas. These conservation measures have placed 20.5 percent of the known Lane Mountain milk-vetch plants and habitat into Conservation Areas that are off-limits to the direct impacts of military training and

operations activities. These areas would not be directly affected by military training and operations, but plants and their habitat could be adversely affected by indirect impacts of military activities. A third area within a portion of the Brinkman Wash-Montana Mine population would be subject to restricted use. Direct and indirect impacts include the crushing or uprooting of Lane Mountain milk-vetch plants and nurse shrubs; crushing and burying milk-vetch seeds; disturbing soils; altering surface hydrology; promoting aeolian (wind) erosion and/or deposition of sand and dust; and degrading or disrupting ecological relationships with predators, seed dispersers, pollinators, and competitors (invasive nonnative species). Cumulatively, these activities can result in long-term adverse impacts to Lane Mountain milk-vetch populations through increases in fire frequency, size, and intensity; changes in vegetation types including loss of nurse shrubs; fragmentation and reduction/loss of connectivity between populations; reduced gene exchange or genetic isolation, and reduced population persistence or greater vulnerability to random events (Army 2003, Chapter 5, p. 26).

Based on the best available information, including the discussion contained in the Species Report, we conclude that military training and operations activities are ongoing and currently threaten the habitat or range of Lane Mountain milk-vetch through destruction, modification, or curtailment.

Mining Activities

The same potential mining activities that affect Lane Mountain milk-vetch habitat can also affect Lane Mountain milk-vetch individual plants. While these impacts to the species fit under Factor E (Other Natural or Manmade Factors Affecting its Continued Existence), they are included here in the Factor A discussion for ease of analysis.

Portions of BLM lands adjacent to Fort Irwin are designated as the Coolgardie Mining District and are currently subject to ongoing mining activities. Most of the Coolgardie Mesa population and a small portion of the Paradise Valley population of Lane Mountain milk-vetch occur on BLM lands. The impacts to Lane Mountain milk-vetch (see Service 2014, *Mining Activities*) and its habitat from past and current mining activities include the establishment of mining camps or staging areas. The effects to Lane Mountain milk-vetch plants and habitat include habitat fragmentation, soil

surface disturbance from placement and use of mining equipment, direct uprooting of Lane Mountain milk-vetch plants and nurse shrubs or burial from side casting, and soil compaction and disturbance resulting in a disruption of soil microbial activity and nutrient cycling from repeated foot and vehicle traffic in confined areas. Additional impacts from mining activities to ecological processes include altered surface hydrology, increased wind erosion of soil and dust deposition, disruption of pollination systems, and the spread of invasive nonnative plant species. These impacts contribute to changes in vegetation type; increases in fire frequency, size and intensity; fragmentation and reduction/loss of connectivity; reduced gene exchange; and reduced population persistence.

Due to historical mining activities, the Coolgardie Mesa area has been laced with exploratory mine pits and mining activities both large and small. These activities have resulted in disturbance of the soil surface and structure. Soil crusts that form on soil surfaces in southwestern deserts, including the Mojave Desert, are assemblages of symbiotic algae, cyanobacteria, bacteria, lichens, and mosses. These soil crusts are highly susceptible to degradation from the frequent and large-scale disturbance activities, and recovery of the soil's complex structure and function will likely take centuries rather than decades. Restoration of the area to suitable conditions for the Lane Mountain milk-vetch and nurse shrubs will take even longer. Because of the nature of the impacts (e.g., destruction of soil structure and disruption of soil function), it is unlikely that the Lane Mountain milk-vetch or its nurse shrubs will become established at casual use mining sites in the future. Prior to transfer of lands containing a portion of Brinkman-Montana Wash and all of the Paradise Valley population from BLM to the Department of Defense, these areas were also subject to mining activities and may still be available for mineral rights exploration and development (Service 2014, *Mining Activities*; Service 2013c, attachment).

Current mining activities include "casual use" mining activities conducted by individuals and mining clubs on BLM lands. Under BLM regulations (43 CFR part 3809), "casual use" mining is defined by the excavation of mining pits and soil surface disturbance that are limited to the use of non-mechanized tools and encompass an area of less than 5 ac (2 ha). In addition, the West Mojave Plan states that dry wash sluicing is considered "casual use" and a plan of

operations is not required unless operators drive off existing routes, dig up perennial plants, or use mechanized earth-moving equipment. Casual use mining also cannot result in the direct destruction of perennial woody vegetation (BLM *et al.* 2005, chapter 4, p. 278).

The Coolgardie Mesa population and the portion of the Paradise Valley population on BLM lands are classified as Areas of Critical Environmental Concern (ACECs). To reduce threats to and help manage for the Lane Mountain milk-vetch and its habitat outside Fort Irwin, the Army purchased most of the private land within the boundaries of BLM's West Paradise and Coolgardie Mesa Conservation Areas. While BLM identified specific land management prescriptions for mining activities in these areas, casual use mining is not a discretionary action and is not subject to permits or authorizations. BLM requires no permit and does not conduct direct management oversight for casual use mining activities, and as a result, there is no mechanism for monitoring and reporting the location and extent of compliance with the BLM's regulations, or monitoring the direct and indirect impacts to Lane Mountain milk-vetch and its habitat. Under casual use, the excavation of mining pits and soil surface disturbance degrade Lane Mountain milk-vetch habitat and impact Lane Mountain milk-vetch plants and seeds and nurse shrubs directly and indirectly. Other management prescriptions that would reduce the threats from mining and surface disturbance that have not yet been implemented include withdrawal of lands within the ACECs from mineral entry and acquiring private lands from willing sellers within the ACECs.

Based on the best available information, including the discussion contained in the Species Report, we conclude that mining activities are ongoing and currently threaten the habitat or range of Lane Mountain milk-vetch through destruction, modification, or curtailment.

Off-Highway Vehicle (OHV) Activities

The same potential OHV activities that affect Lane Mountain milk-vetch habitat can also affect Lane Mountain milk-vetch individual plants. While these impacts to the species fit under Factor E (Other Natural or Manmade Factors Affecting its Continued Existence), they are included here in the Factor A discussion for ease of analysis.

OHV activity is present throughout the range of Lane Mountain milk-vetch outside the National Training Center at Fort Irwin (see Service 2014, *Off-*

highway Vehicle (OHV) Activities). This includes all of the Coolgardie Mesa population and the portion of the Paradise Valley population that occurs on BLM lands, including those areas within the ACECs. OHV activity and roads cause habitat loss, fragmentation, and degradation. In the West Mojave Plan, the BLM identified minimizing vehicle routes of travel, fencing, education, and enforcement as conservation measures to help the Lane Mountain milk-vetch and its habitat. However, activities such as fencing, signing, and closing areas have had limited success in managing access or controlling new unauthorized routes. In addition, BLM is also obligated to provide access to mining claims and mines (BLM could revisit route designations if withdrawal of lands within the ACECs from mineral entry is completed). Our review of BLM data identified an increase in OHV routes in the Coolgardie Mesa area from over 67 miles (mi) (108 kilometers (km)) in 2005 to 134 mi (216 km) in 2012. OHV activities include not only development of roads but also establishment of camping and staging areas in previously undisturbed areas. OHV use in undisturbed areas not only destroys Lane Mountain milk-vetch plants or their nurse shrubs directly, it also disturbs the soil surface leading to reduced moisture-holding capabilities and provides a means for nonnative invasive plant species, such as annual grasses (e.g. *Bromus* sp.), *Marrubium vulgare* (horehound), and *Brassica* sp. (mustard) to invade otherwise remote, intact habitats. These impacts contribute to changes in vegetation type; increases in fire frequency, size, and intensity; fragmentation and reduction/loss of connectivity; reduced gene exchange; and reduced population persistence. With ongoing reports of increases in OHV activity and creation of new roads, this increased use would continue to expand the area of impact to Lane Mountain milk-vetch plants and habitat in the Coolgardie Mesa and West Paradise Conservation Areas.

Based on the best available information, including the discussion contained in the Species Report, we conclude that OHV use is ongoing and has increased from past levels. The impacts of OHV use currently threaten the destruction, modification, or curtailment of the habitat or range of Lane Mountain milk-vetch.

The Effects of Climate Change

The impact of climate change is affecting both Lane Mountain milk-vetch habitat (Factor A) and individual plants (Factor E). Effects of climate

change on population trends is discussed under Factor E. Discussion of both of these impacts is included here in the Factor A discussion for ease of analysis.

Changes in climate can have a variety of direct and indirect impacts on species, and can exacerbate the effects of other threats. Rather than assessing the effects of “climate change” as a single threat in and of itself, we examine the potential consequences to species and their habitats that arise from changes in environmental conditions associated with various aspects of climate change. Recent climate data available for the southwestern United States show that the area is already experiencing the effects of climate change (see Service 2014, *Drought, Precipitation Patterns, and Climate Change*). The average daily temperatures for the 2001–2010 decade were the highest in the southwestern United States from 1901 through 2010 (Overpeck *et al.* 2012, p. 2) with temperatures almost 2.0 °Fahrenheit (°F) (1.1 °Celsius (°C)) higher than historic averages, with fewer cold snaps and more heat waves (Hoerling *et al.* 2012, pp. 74–92; Overpeck *et al.* 2012, pp. 4–5). Climate change models for the southwestern United States for the 21st century predict seasonal air and surface temperatures in all seasons will increase (Overpeck *et al.* 2012, p. 5), with greater warming in summer and fall than winter and spring. Droughts in parts of the southwestern United States are projected to become more frequent (Overpeck *et al.* 2012, p. 7) with a precipitation decrease westward through the Sonoran and Mojave Deserts.

Huggins *et al.* (2012b, p. 11) found that there is a strong positive relationship between Lane Mountain milk-vetch population changes and seasonal precipitation, and that these changes (population fluctuations) are controlled by the variation in the timing and amount of precipitation within and between years. In addition, nurse shrubs will also be impacted by prolonged drought conditions and die-offs of nurse shrubs have already been documented in the range of Lane Mountain milk-vetch (Huggins *et al.* 2010c, p. 1). If the models for the Southwest and Mojave Desert are correct and drought periods become longer and more frequent, we would anticipate that future climatic conditions will reduce reproduction and recruitment and elevate mortality of the Lane Mountain milk-vetch populations, favor the further spread of nonnative invasive plants and increase the frequency, spatial extent, and severity of wildfires. Additional factors

exacerbated by the effects of climate change would include increases in soil loss and dust, and the reduction of microbial activity and nutrient cycling.

Nurse Shrubs. Nurse shrubs are also likely to be impacted by the effects of climate change. Changes in vegetative land cover (including loss of woody vegetation) will be substantial with vegetation composition, diversity, and growth likely altered (Archer and Predick 2008, p. 25). Increases in temperature and decreases in precipitation as a result of climate change will lead to an increase in death of nurse shrub plants in some areas of the Southwest (Overpeck *et al.* 2012, p. 8). The loss of nurse shrubs will also likely increase as a result of climate change. Nurse shrubs benefit Lane Mountain milk-vetch in the form of structural support, attenuation from weather extremes, and in providing some protection from predators, and appear to be important to the survival and persistence of the species (Sharifi *et al.* 2010, pp. 5–6, 12, 321; Prigge *et al.* 2011, pp. 178, 181; Huggins *et al.* 2012a, p. 35). There is a substantial decrease in survival of Lane Mountain milk-vetch plants among nurse shrubs with canopies reduced by drought (Huggins *et al.* 2010a, pp. 120–128; Huggins *et al.* 2010b, pp. 1–29; Huggins *et al.* 2012c, p. 98). When canopy cover of nurse shrubs was reduced by 60 percent or more, Lane Mountain milk-vetch plants died (Huggins *et al.* 2010a, p. 125).

Nonnative Plants and Fire. Nonnative invasive plants and the associated potential for increase in wildfires affect both habitat and range of Lane Mountain milk-vetch (Factor A) as well as individual plants (Factor E). These impacts are discussed here, under the umbrella discussion of climate change, because climate change may exacerbate their effects to habitat and to individual plants. Discussion of both of these impacts is included here in the Factor A discussion for ease of analysis.

Nonnative invasive plant species such as *Bromus madritensis* (red brome), *Bromus tectorum* (cheatgrass), and *Schismus arabicus* and *S. barbatus* (Mediterranean grass) have increased in distribution and abundance in the Mojave Desert (see Service 2014, *Nonnative Species Are Likely to Increase in Abundance*). Although the factors relating to the invasion of nonnative plant species are independent of climate change, the effects of climate change are likely to lead to an increase in abundance and spread of nonnative species (Archer and Predick 2008, p. 26). Nonnative species can compete with desert perennials, including Lane Mountain milk-vetch and their nurse

shrubs, for scarce resources (i.e., water, nutrients) (Brooks 2000, pp. 103–105; Booth *et al.* 2003, pp. 36–48; DeFalco *et al.* 2007, pp. 302–305). Increases in abundance of nonnative species threatens Lane Mountain milk-vetch through competition for resources, resulting in reduced germination, recruitment, reproduction, and survival of the species.

The introduction and spread of nonnative annuals has also resulted in an increase in the frequency, spatial extent, and severity of wildfires in the range of Lane Mountain milk-vetch because of the increase in fine fuels they produce (Army 2003, Chapter 4, p. 14; Chapter 5, p. 7; Brooks and Matchett, 2006; p. 149). The invasion and spread of nonnative annual species provide fuel that carries fire across previously open interspaces in the desert landscape (Brooks 1999, pp. 16–17) and allow fires to burn larger areas than documented historically. Once established, nonnative invasive plant species can promote and accelerate the fire cycle in a self-reinforcing manner. Areas disturbed by fire are often quickly colonized by nonnative annual species that provide additional fuel for future fire events. The slow growth and episodic nature of recruitment of many native desert plant species constrains recovery from frequent fires that accompany the establishment of nonnative invasive grasses (Archer and Predick 2008, p. 26; Chambers and Pellant 2008, pp. 29–33). Fire in the range of the Lane Mountain milk-vetch would result in the loss of individual plants and the loss of nurse shrubs associated with and vital to the continued existence of the species. Habitats where Lane Mountain milk-vetch occurs would become more fragmented as a result of the more frequent fire events. Because there are currently no feasible means for controlling the spread of nonnative invasive plant species, we expect that wildfires will be an increasing threat to Lane Mountain milk-vetch populations and their habitat.

Based on the best available information, including the discussion contained in the Species Report, we conclude that the effects of climate change on the species and its habitat through a reduction in recruitment and plant survival, loss of individual plants and habitat including loss of nurse shrubs through increase in nonnative species, droughts, and fire, are currently ongoing and threaten the habitat or range of Lane Mountain milk-vetch through destruction, modification, or curtailment.

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

This factor was not identified at the time of listing as a threat (63 FR at 53606), nor was it considered a threat in the 5-year review (Service, 2008, p. 11). We have no information indicating that overutilization is affecting the species. We conclude that overutilization for commercial, recreational, scientific, or educational purposes is not a short-term or long-term threat to the continued existence of Lane Mountain milk-vetch.

C. Disease or Predation

At the time of listing, disease and predation were not considered threats to Lane Mountain milk-vetch (63 FR 53606–53607). The 5-year review reported several instances of predation and noted that predation of leaves, stems, seeds, and roots are now known to occur (Service 2008, pp. 11–12). Our review for this determination indicates that while some predation of Lane Mountain milk-vetch seeds, vegetative tissue, and roots is likely occurring on an ongoing but variable basis, there is no evidence that individual plants have been killed from this activity. Because Lane Mountain milk-vetch has evolved within this habitat, the species has adapted to some level of predation (Service 2014, *Predation*). We have not identified any diseases affecting Lane Mountain milk-vetch.

Based on the best available information, including the discussion contained in the Species Report, we conclude that disease is not a significant threat and predation is not a significant threat in and of itself but may contribute to being a threat when considered in combination with other threats to Lane Mountain milk-vetch. See “Combination of Threats” section below for additional information.

D. Regulatory Protections

Although regulatory mechanisms (Factor D) are in place that provide some protection to Lane Mountain milk-vetch and its habitat, some of these mechanisms have not been implemented to their fullest extent and as a result do not completely alleviate all of the direct threats currently acting on the species. For example, available population trend information has shown a continued population decline for all populations despite portions of the species range having been designated as ACECs regulated by BLM or managed by the Army as part of a conservation area. In addition, the existing regulatory mechanisms are not directed toward nor are they capable of limiting the effects

of invasive nonnative species, altered fire regimes, or the effects of climate change on the species. As a result, we have determined that the existing regulatory mechanisms are: (1) Inadequate because they have not been fully implemented; and (2) are not adequate to alleviate the major threats to the species (see Service 2014, Summary of Analysis of Existing Regulatory Mechanisms).

E. Other Natural or Human-Caused Factors Affecting Their Continued Existence

Military Training, Off-Highway Vehicle (OHV), and Mining Activities

For ease of discussion, the impacts to individuals from military training, off-highway vehicle (OHV) use, and mining activities associated with this factor are discussed above in Factor A. For a complete discussion of potential impacts to both habitat and individual plants from these activities, see Factor A discussion above.

Based on the best available information, including the discussion contained in the Species Report and our discussion above regarding Factor A, we conclude that the effects of military training, OHV use, and mining activities are factors affecting the continued existence of Lane Mountain milk-vetch under Factor E.

Effects of Climate Change on Demographic and Population Trends

For ease of discussion, the impacts from climate change on the species and its habitat are discussed above in Factor A (including the effects of nonnative invasive species and fire). For a complete discussion of potential impacts to both habitat and individual plants from these activities, see Factor A discussion above. Additional effects from climate change on the species and its population trends are discussed below (see Service 2014, *Drought, Precipitation Patterns, and Climate Change*). The results from the long-term studies on the Lane Mountain milk-vetch indicate that the overall population size has substantially decreased since 1999, despite 2 years of high precipitation in 2005 and 2011, which saw increases in seedling recruitment (Rundel *et al.* 2005, entire; Huggins *et al.* 2010a, entire; Huggins *et al.* 2012b, entire). These studies determined that Lane Mountain milk-vetch does not reproduce vegetatively but depends on seeds to recruit new individuals into the population. Because of the harsh environmental conditions of the habitat, most seedlings do not survive and successful

recruitment is dependent on the timing and amount of precipitation from year to year. This decrease appears to follow a trend in lower precipitation amounts and frequency during this period as compared to past trends (Huggins *et al.* 2012b, entire). The number of mature plants were also monitored, and they also saw a decline in numbers (Rundel *et al.* 2005, entire). Huggins *et al.* (2010a, p. 120) reported about an 88 percent reduction in population size as measured by aboveground individuals in study plots within the Goldman and Brinkman-Wash populations that have been monitored since 1999. This loss of plants, when applied to the entire range of the species, would mean the number of Lane Mountain milk-vetch plants has declined from an estimated 5,723 plants in 1999 (Army 2002, p. 1) to 686 in 2009 (Huggins *et al.* 2010a, p. 123). Adult Lane Mountain milk-vetch plants have the ability to persist during a dry year by reducing or curtailing reproduction, limiting vegetative growth (resprouting) or remaining dormant as a taproot below ground until the next year. Despite these adaptations, population numbers have declined. If in the future dry years continue to outnumber wet years as they have since 2000, we expect the population size of the Lane Mountain milk-vetch to continue to decline.

Based on the best available information, including the discussion contained in the Species Report, we conclude that the effect of climate change is a factor affecting the continued existence of Lane Mountain milk-vetch under Factor E.

Dust

Several human activities cause mechanical disturbance to the soil and generate dust that affect all four Lane Mountain milk-vetch populations (see Service 2014, *Effects of Anthropogenic Dust to the Lane Mountain Milk-vetch and Its Habitat*). Past, current, and planned activities that are dust sources include military training and operations activities, mining activities, and OHV activities. Dust has been shown to increase leaf temperatures and subsequent photosynthetic rates during early spring and may require an increased amount of water for growth and successful reproduction. If this increased amount of water is not available, the Lane Mountain milk-vetch may respond by reducing plant vigor and by reducing flower and seed production or abandoning reproduction for the year.

Based on the best available information, including the discussion contained in the Species Report, we conclude that the effect of dust is a

factor affecting the continued existence of Lane Mountain milk-vetch under Factor E.

Small Population Size

Currently, each of the four populations of Lane Mountain milk-vetch are considered small populations. The impact of threats on small populations is further magnified due to their inability to respond to those threats. Small populations also face an increased likelihood of stochastic (random) extinction due to changes in demography, the environment, genetics, or other factors (Gilpin and Soule' 1986, pp. 24–34). With their limited number of individuals, little documented recruitment in 13 years, and substantial population declines, the Lane Mountain milk-vetch populations are vulnerable to extinction due to threats associated with small population size, small number of populations, or isolation between populations (see Service 2014, *Small Number of Individuals and Populations*).

Based on the best available information, including the discussion contained in the Species Report, we conclude that the effect of small population size is a factor affecting the continued existence of Lane Mountain milk-vetch under Factor E.

Genetic Isolation

Genetic isolation has been raised as an additional concern for the species based on genetic work done by researchers (see Service 2014, *Genetics* section). Two separate genetic studies (Walker and Metcalf 2008a and 2008b) found that Lane Mountain milk-vetch populations: (1) Lacked genetic variation within and between populations; (2) most likely have a low effective population size; (3) have undergone a recent population contraction or are undergoing a population contraction; and (4) have limited gene flow between populations and that the migration of genetic material occurs only between adjacent populations. These findings indicate that the number of Lane Mountain milk-vetch individuals that contribute genes to the next generation (e.g., reproduce and have successful recruitment) is small and that the entire species is susceptible to genetic drift. Small, isolated populations, such as Lane Mountain milk-vetch, that exhibit reduced levels of genetic variability have a reduced capacity to adapt and respond to environmental changes, thereby lessening the probability of long-term persistence (Barrett and Kohn 1991, p. 4; Newman and Pilson 1997, p. 361).

Based on the best available information, including the discussion contained in the Species Report, we conclude that genetic isolation is a factor affecting the continued existence of Lane Mountain milk-vetch under Factor E.

Combination of Threats

Combinations of threats working in concert with one another have the ability to negatively impact species to a greater degree than individual threats operating alone. Multiple stressors can alter the effects of other stressors or act synergistically to affect individuals and populations. When conducting our analysis about the potential threats affecting Lane Mountain milk-vetch, we also assessed whether the species may be affected by a combination of factors.

In the Species Report (see Service 2014, Overview of Factors Affecting the Species and Combination of Factors and Synergistic Impacts), we identified multiple threats that may have interrelated impacts on the Lane Mountain milk-vetch or its habitat. Habitat modification from military training, OHV use, and mining activities can lead to soil surface disturbances, which then lead to increased susceptibility to wind and water erosion, loss of moisture-holding capacity, invasion by nonnative plants, and increased fire threat. These activities likewise affect the nurse shrubs on which Lane Mountain milk-vetch depends. Predation on the plants, roots, and seeds of the species, although not observed to directly kill plants, may increase plant stress and reduce the vigor, including reproductive output of the species. The effects of climate change also are acting to elevate impacts on the species. Under current climate change conditions and projections, we anticipate that future climatic conditions will favor the further spread of nonnative invasive plants and increase the frequency, spatial extent, and severity of wildfires. Alteration of temperature and precipitation patterns as a result of climate change will also result in decreased survivorship of Lane Mountain milk-vetch by causing physiological stress on the plants and reducing reproduction or seedling establishment. These changed climatic conditions will also impact nurse shrubs associated with the Lane Mountain milk-vetch. Therefore, we find that the combination of habitat modification activities (and the threats that result from these activities) and the effects of climate change will exacerbate the overall degree of impacts that threaten the continued survival and recovery of Lane Mountain milk-vetch.

Finding

An assessment of the need for a species' protection under the Act is based on whether a species is in danger of extinction or likely to become so because of any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. As required by section 4(a)(1) of the Act, we conducted a review of the status of the Lane Mountain milk-vetch and assessed the five factors to evaluate whether the species is endangered or threatened throughout all of its range. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the species. We reviewed information presented in our 2008 5-year review (Service 2008, entire), the 2011 petition (PLF 2011, pp. 1–11), information available in our files and gathered through our status review in response to this petition, and other available published and unpublished information. We also consulted with species experts from scholarly institutions and land management staff with the Army and BLM who are actively managing for the conservation of the Lane Mountain milk-vetch.

In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the exposure causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant the threat is. If the threat is significant, it may drive, or contribute to, the risk of extinction of the species such that the species warrants listing as endangered or threatened as those terms are defined by the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these factors are operative threats that act on the species to the point that the species meets the

definition of endangered or threatened under the Act.

Due to the restricted range, specialized habitat requirements, and limited recruitment and dispersal of Lane Mountain milk-vetch, populations of this species are vulnerable to currently ongoing and future threats that affect individual plants, the species' nurse shrubs, and their habitat. The primary threats to Lane Mountain milk-vetch are habitat loss and disturbance from military training, OHV use, recreational mining, and the effects of climate change. In addition, Lane Mountain milk-vetch is also negatively affected by the additive and synergistic effects due to nonnative invasive plant species and resulting changes in fire frequency and intensity, dust, reduced soil microbial activity and nutrient cycling, habitat fragmentation, small population size, and genetic isolation.

Lane Mountain milk-vetch is affected by the present destruction, modification, or curtailment of its habitat or range from military training activities, OHV use and unauthorized road development, recreational mining activities, nonnative invasive plants, modified fire regime (increased wildfire), and effects of climate change (Factor A); predation (Factor C); inadequate regulatory mechanisms (Factor D); and other natural or human-made factors affecting its continued existence (specifically, military training activities, OHV use, mining, the effects of climate change, nonnative invasive plants and fire, dust, genetic isolation, and small population size) (Factor E). Of these threats we consider military training, OHV activities, mining activities, and climate change to be the greatest threats both to the species and its habitat. We also considered the additive and synergistic effects of all the ongoing threats in combination and conclude that they are a significant concern to the species' current survival and existence and have factored them into our analysis.

In the 2008 5-year review, we recommended reclassification of Lane Mountain milk-vetch from endangered to threatened. However, since that time, we have received substantial new information about the level of threats impacting the species or its habitat and its population status and trends. The 2008 5-year review recognized the majority of threats that continue to currently affect Lane Mountain milk-vetch, but recommended reclassification because of anticipated future implementation of management and conservation measures. We anticipated the prescribed management actions would be fully implemented and

significantly abate threats to Lane Mountain milk-vetch. However, management and conservation measures prescribed for the species on BLM lands have not been fully implemented as expected or have not had the anticipated effect. For example, in the 2008 5-year review we anticipated BLM's actions would result in a decrease in OHV use, but our analysis indicates OHV use has actually increased. Other actions, such as minerals withdrawal of the ACECs on BLM lands, may take years to fully implement and we cannot predict when or to what extent future management will be implemented. Currently, we do not expect them to be fully implemented in the near future due to management priorities and funding. Thus, impacts to the Lane Mountain milk-vetch from recreational mining and OHV use have not been substantially abated and are ongoing. While the Army has designated some portions of Lane Mountain as conservation areas, portions of two populations would be directly impacted by military training and operations, and all three populations on DOD lands would be indirectly affected. Additionally, new information available since the 2008 5-year review on population trends has shown a significant decline in the estimated population size of the species at all populations despite management and conservation measures taken thus far; new information also demonstrates an increase in OHV use and increased impacts from the effects of climate change. Even if fully implemented, management and conservation measures prescribed for the species do not address some of the most substantial threats to Lane Mountain milk-vetch and its habitat, especially the effects of climate change and small population size. All populations are subject to threats from regional drought and climate change, spread of nonnative species, genetic isolation, and small population size. Based on the analysis above and as fully documented in the Species Report, we conclude that the Lane Mountain milk-vetch is in danger of extinction throughout all of its range.

Significant Portion of Range Determination

Section 3 of the Act defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range" and a threatened species as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." By all indications, Lane Mountain milk-vetch

occurs only in limited numbers within a restricted range and faces considerable and immediate threats to all its populations, which place it at risk of extinction. Aspects of the species' natural history may also contribute to and exacerbate threats and increase its vulnerability to extinction. Since immediate and ongoing significant threats to the Lane Mountain milk-vetch extend throughout its entire range, we have determined that the species is currently in danger of extinction throughout all of its range. Because threats extend throughout the entire range and are not restricted to any particular significant portion of that range, it is unnecessary to determine if Lane Mountain milk-vetch is in danger of extinction throughout a significant portion of its range. Accordingly, our assessment and determination applies to the species throughout its entire range, and we did not further evaluate a significant portion of the species' range.

Therefore, on the basis of the best available scientific and commercial

information, we find that Lane Mountain milk-vetch continues to meet the definition of an endangered species under the Act. We further find that a threatened species status is not appropriate for Lane Mountain milk-vetch because of the severity and immediacy of the threats, the restricted range of the species, and its small population size. Consequently, we are not reclassifying Lane Mountain milk-vetch. We will maintain its status as an endangered species in accordance with sections 3(6) and 4(a)(1) of the Act.

We request that you submit any new information concerning the status of, or threats to, Lane Mountain milk-vetch to our Ventura Fish and Wildlife Office (see **ADDRESSES** section) whenever it becomes available. New information will help us monitor this species and encourage its conservation.

References Cited

A complete list of references cited in this finding is available on the Internet at <http://www.regulations.gov> and upon

request from the Ventura Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this finding are the staff members of the Ventura Fish and Wildlife Office and Pacific Southwest Regional Office (see **FOR FURTHER INFORMATION CONTACT**).

Authority

The authority for this section is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: April 17, 2014.

Rowan W. Gould,

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

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