

We have reviewed the petition and literature cited in the petition and evaluated that information in relation to information available to us. After this review and evaluation, we find the petition does not present substantial scientific information to indicate listing the Thorne's hairstreak butterfly may be warranted at this time. Although we will not be commencing a status review in response to this petition, we will continue to monitor potential threats and ongoing management actions that might be important with regard to the conservation of the Thorne's hairstreak butterfly across its range. We encourage interested parties to continue to gather data that will assist with the conservation of the subspecies.

#### References Cited

A complete list of all references cited herein is available, upon request, from our Carlsbad Fish and Wildlife Office (see **ADDRESSES** section above).

#### Author

The primary authors of this notice are staff from the Carlsbad Fish and Wildlife Office (see **ADDRESSES** section above).

#### Authority

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

Dated: August 1, 2006.

#### H. Dale Hall,

Director, Fish and Wildlife Service.

[FR Doc. E6-12743 Filed 8-7-06; 8:45 am]

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## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

#### Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List the Sand Mountain Blue Butterfly as Threatened or Endangered with Critical Habitat

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice of 90-day petition finding and initiation of status review.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on a petition to list the Sand Mountain blue butterfly (*Euphilotes pallelescens arenamontana*) as threatened or endangered under the Endangered Species Act of 1973, as amended (Act). We find that the petition presents substantial information

indicating that listing the Sand Mountain blue butterfly may be warranted. Therefore, with the publication of this notice, we are initiating a status review of the species, and we will issue a 12-month finding to determine if the petitioned action is warranted. To ensure that the status review of the Sand Mountain blue butterfly is comprehensive, we are soliciting scientific and commercial data regarding this species. A determination on critical habitat will be made if and when a listing action is initiated for this species.

**DATES:** The finding announced in this document was made August 8, 2006. To be considered in the 12-month finding for this petition, comments and information should be submitted to us by October 10, 2006.

**ADDRESSES:** Data, information, comments, or questions concerning this petition and our finding should be submitted to the Field Supervisor, Nevada Fish and Wildlife Office, U.S. Fish and Wildlife Service, 1340 Financial Boulevard, Suite 234, Reno, NV 89502 or via electronic mail at [sandmtblue@fws.gov](mailto:sandmtblue@fws.gov). The petition is available at [http://www.fws.gov/nevada/nv\\_species/sand\\_blue.html](http://www.fws.gov/nevada/nv_species/sand_blue.html). The petition, supporting data, and comments will be available for public inspection, by appointment, during normal business hours at the above address.

#### FOR FURTHER INFORMATION CONTACT:

Robert D. Williams, Field Supervisor, Nevada Fish and Wildlife Office (see **ADDRESSES**) (telephone 775/861-6300; facsimile 775/861-6301).

#### SUPPLEMENTARY INFORMATION:

##### Public Information Solicited

When we make a finding that substantial information is presented to indicate that listing a species may be warranted, we are required to promptly commence a review of the status of the species. To ensure that the status review is complete and based on the best available scientific and commercial information, we are soliciting information on the Sand Mountain blue butterfly. We request any additional information, comments, and suggestions from the public, other concerned governmental agencies, Tribes, the scientific community, industry, or any other interested parties concerning the status of the Sand Mountain blue butterfly. We are seeking information regarding the species' historical and current status and distribution, its biology and ecology, ongoing conservation measures for the species and its habitat, and threats to the species and its habitat.

If we determine that listing the Sand Mountain blue butterfly is warranted, it is our intent to propose critical habitat to the maximum extent prudent and determinable at the time we would propose to list the species. Therefore, we also request data and information on what may constitute physical or biological features essential to the conservation of the species, where these features are currently found, whether any of these areas are in need of special management, and whether there are areas not containing these features, which of themselves, might be essential to the conservation of the species. Please provide specific comments as to what, if any, critical habitat should be proposed for designation, if the species is proposed for listing, and why that proposed habitat meets the requirements of the Act.

If you wish to comment or provide information, you may submit your comments and materials concerning this finding to the Field Supervisor (see **ADDRESSES**).

Our practice is to make comments and materials provided, including names and home addresses of respondents, available for public review during regular business hours. We will not consider anonymous comments and we will make all comments available for public inspection in their entirety. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the address listed in the **ADDRESSES** section.

#### Background

Section 4(b)(3)(A) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information to indicate that the petitioned action may be warranted. We base this finding on information provided in the petition and information otherwise available in our files at the time of petition review. To the maximum extent practicable, we make this finding within 90 days of our receipt of the petition, and publish our notice of this finding promptly in the **Federal Register**.

Substantial information, as defined by 50 CFR 424.14(b), is "that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted" (50 CFR 424.14(b)). If we find that substantial information was presented, we are required to promptly commence a review of the status of the species, if one has not already been

initiated under our internal candidate assessment process.

In making this finding, we relied on information provided by the petitioners and information otherwise available in our files at the time of petition review and evaluated that information in accordance with 50 CFR 424.14(b). Our process in making this 90-day finding under section 4(b)(3)(A) of the Act and section 424.14(b) of our regulations is limited to a determination of whether the information in the petition meets the "substantial information" threshold.

### Petition

On April 23, 2004, we received a formal petition, dated April 23, 2004, from the Center for Biological Diversity, Xerces Society, Public Employees for Environmental Responsibility, and the Nevada Outdoor Recreation Association requesting that the Sand Mountain blue butterfly (*Euphilotes pallescens arenamontana*) known only from Sand Mountain, Nevada, be listed as threatened or endangered in accordance with section 4 of the Act, and that critical habitat be designated for the species concurrent with the listing. The petition is available at [http://www.fws.gov/nevada/nv\\_species/sand\\_blue.html](http://www.fws.gov/nevada/nv_species/sand_blue.html).

Action on this petition was precluded by court orders and settlement agreements for other listing actions that required nearly all of our listing funds for fiscal years 2004 and 2005. On September 26, 2005, we received a 60-day notice of intent to sue, and on January 5, 2006, we received a complaint regarding our failure to carry out the 90-day finding on the petition to list the Sand Mountain blue butterfly. On April 20, 2006, we reached an agreement with the plaintiffs to submit to the **Federal Register** a completed 90-day finding by July 28, 2006, and to complete, if applicable, a 12-month finding by April 26, 2007 (*Center for Biological Diversity et al. v. Norton, and U.S. Fish and Wildlife Service*, (CV-00023-LKK-GGH) (E.D. Cal)).

### Species Information

The Sand Mountain blue butterfly was first described as *Euphilotes pallescens* subspecies *arenamontana* by Austin in 1998 (1998, pp. 556–557). Prior to the 1998 publication, it had been considered an undescribed subspecies of *Euphilotes rita*, the name under which it was previously assigned a Federal category 2 candidate status (see Previous Federal Action section).

The Sand Mountain blue butterfly is a small, pale-blue butterfly in the family Lycaenidae. Males have a wingspan that ranges from 10.0 to 11.8 millimeters

(mm) (0.39 to 0.46 inches (in)) and averages 11.1 mm (0.44 in). The dorsum is pale bluish-violet, often whitish distally, with a narrow (0.5 mm (0.002 in)) black outer margin. There is usually a series of dots on the hindwing, but sometimes no more than a terminal line on the forewing. There is usually an indistinct pinkish to pale orange aurora of moderate width on the posterior hindwing. At the vein tips on the posterior of both wings, there are fringes of white with indistinct grey checkering. The bottom surface of the male abdomen is chalky white. Macules (patches of different coloration) are small, often nearly obsolete on the hindwing. Females have a wingspan that ranges from 10.0 to 11.9 mm (0.39 to 0.46 in) with an average of 10.9 mm (0.43 in). The female dorsum is brown to tan, and usually pale bluish-gray basally on both wings. The forewing has a faint brown cell-end bar, while the hindwing has marginal dots. The forewing apex is usually whitish. The hindwing aurora is pale orange to pale pink usually grading to nearly white distally and not strongly contrasting. The female venter and fringes are similar to those of the male (Austin 1998, p. 556).

The Sand Mountain blue butterfly is the palest of all *Euphilotes*. The ground color of both sexes is considerably paler than that of *E. pallescens* ssp. *pallescens*. The pinkish aurora is unlike any other *Euphilotes*. The pale bluish-gray wing bases of the female do not contrast with the distal area of the wing as they do on *E. pallescens* ssp. *pallescens*. The black macules of *E. pallescens* ssp. *arenamontana* tend to be smaller than those of *E. pallescens* ssp. *pallescens* (Austin 1998, p. 557).

The Sand Mountain blue butterfly is known only from Sand Mountain, Churchill County, Nevada, where it is dependent on its host plant, Kearney buckwheat (*Eriogonum nummularre*) (Austin 1998, p. 557), a long-lived, perennial shrub with numerous branches (Reveal 2002, p. 1), that occurs in scattered locations in several western States (Welsh et al. 1987, p. 547). Kearney buckwheat typically occurs at Sand Mountain as a dominant or co-dominant with other shrubs on less active, smaller dunes around the periphery of the main dune (The Nature Conservancy 2002, p. 1). Because of the small size of the Sand Mountain blue butterfly and the frequent high winds typical of the Sand Mountain area, it is likely that adult butterflies spend most of their life sheltered within the canopy of Kearney buckwheat plants (Murphy 2006). Kearney buckwheat is the sole food source for the larvae and an

important nectar source for adults during their flight period. The butterfly has one brood from mid-July to mid-September (Austin 1998, p. 557), a period that coincides with the peak flowering period of the Kearney buckwheat (Reveal 2002, p. 2).

### Previous Federal Action

We added the Sand Mountain blue butterfly as *Euphilotes rita* ssp. to our list of candidate species as a category 2 candidate species on November 21, 1991 (56 FR 58829). A category 2 candidate species was a species for which we had information indicating that a proposal to list it as threatened or endangered under the Act may be appropriate, but for which additional information was needed to support the preparation of a proposed rule. It remained a category 2 candidate as *Euphilotes rita* ssp. in our 1994 Candidate Notice of Review (November 15, 1994; 59 FR 59020). In the 1996 Candidate Notice of Review (February 28, 1996; 61 FR 7596), we discontinued the use of category 2 candidates. The Sand Mountain blue butterfly has no Federal regulatory status under the Act.

### Threats Analysis

Pursuant to section 4 of the Act, we may list a species, subspecies, or distinct population segment of invertebrate taxa on the basis of any of the following five factors: (A) Present or threatened destruction, modification, or curtailment of habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. In making this finding, we evaluated whether threats to the Sand Mountain blue butterfly presented in the petition may pose a concern with respect to its survival. The Act identifies the five factors to be considered, either singly or in combination, to determine whether a species may be threatened or endangered. Our evaluation of these threats, based on information provided in the petition, is presented below.

#### *A. Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range*

The petition states that the Sand Mountain blue butterfly is known only from Sand Mountain in Churchill County, Nevada, where it is dependent on its larval host plant, Kearney buckwheat (*Eriogonum nummularre*) (Austin 1998). The petitioners note that while the Kearney buckwheat is widespread in Nevada and also occurs

in Utah, Arizona, and California, several reconnaissance surveys have been conducted of sand dunes within 62.5 mile (mi) (100 kilometer (km)) radius of Sand Mountain in search of populations of Kearney buckwheat large enough to support a population of the butterfly. No Kearney buckwheat plants have been observed on any of these surveys, and the surveyors concluded that if the plant were present, its population is so small that it would not provide suitable habitat for the Sand Mountain blue butterfly. The petition relies on communication from a species expert, Claudia Funari of the U.S. Bureau of Land Management (BLM) to further state that no other habitat exists within the flight range of the butterfly. In our files we have an electronic message which corroborates this claim (Funari 2004). Furthermore, information from our files indicates that butterflies of the family Lycaenidae are known to have limited dispersal distances (Arnold 1983, Peterson 1994 as cited in Peterson 1996). While in some cases they may employ a stepping-stone method of hopping to habitat patches, increasing the likelihood of dispersing further and expanding their range, the petitioners have provided substantial survey information indicating no populations of the host plant or the Sand Mountain blue butterfly occur within a 62.5 mi (100 km) radius of Sand Mountain. Thus, it is unlikely given their life history, ecology, and dispersal capabilities that the Sand Mountain blue butterfly would be found beyond this distance.

The petition claims that the Sand Mountain blue butterfly occurs only within the Sand Mountain Recreation Area (SMRA), a BLM designation that encompasses 4,795 acres (ac) (1,940 hectares (ha)), and, according to the petitioners, is about 1.0 mi (1.6 km) wide and 3.5 mi (5.6 km) long. It notes, however, that Kearney buckwheat, the larval host plant on which the butterfly depends, has a patchy distribution and much of the area is open sand. The petition includes a map as Figure 4 that shows dune shrub habitat extending onto BLM lands adjacent to the designated boundary of the SMRA (BLM 2003). The petitioners claim that the Sand Mountain blue butterfly is dependent on 1,000 ac (405 ha) of Kearney buckwheat habitat is supported by a report referenced in the petition that states that between 1,000 ac (405 ha) and 1,600 ac (647 ha) of dune shrub habitat occur inside and outside the SMRA (BLM 2004). This dune shrub habitat is comprised of 13 shrub species,

one of which is the Kearney buckwheat (BLM 2004).

The petitioners present data in Figure 9, provided to them by BLM, that documents an increase in annual visitor use at the SMRA from about 16,000 persons in 1981 to over 40,000 persons in 2003 (BLM 2003). The petition notes that as early as 1985, motorized recreation by motorcycles, four wheel drive vehicles, three wheelers, and dune buggies accounted for over 90 percent of the total visits to the SMRA (BLM 1985). The 2003 BLM data provided by the petitioners also show an increase in route proliferation from about 20 mi (32 km) of off-road vehicle trails in 1981 to about 200 mi (320 km) in 2003. The petition includes four figures (maps) that document the proliferation of the route system based on a BLM analysis of satellite imagery from 1978, 1994, 1999, and 2002 (BLM 2003). In addition to the overall proliferation of off-road vehicle routes documented by the imagery, the maps clearly show an increase in the amount of habitat fragmentation and an expansion of the off-road vehicle route system from the more accessible southern end of the main dune into shrub habitat toward the north and northeast that had been relatively undisturbed as recently as 1994. Thus, while about 1,000 ac (405 ha) of potential butterfly habitat may remain, an estimated reduction in habitat of about 50 percent based on our visual comparison of 1978 and 2002 satellite imagery, much of this remaining habitat is highly fragmented by the extensive trail system that has been created. Furthermore, the off-road vehicle use that has led to this reduction in and fragmentation of habitat continues to this day and poses an ongoing threat to the viability of the Sand Mountain blue butterfly.

The petition also cites observations over the past 25 years noting the effects of off-road vehicles on the Sand Mountain dune shrub habitat and, in particular, on the Kearney buckwheat. These include: (1) A letter documenting the extirpation of all plant life from an area 150 ft (46 m) wide along the edge of the main dune over a period of several years (Giuliani 1977); (2) a memorandum reporting that up to half of 58 individual Kearney buckwheat plants inspected on the south side of the mountain had been crushed and broken off at the ground surface and were either dead or in the process of resprouting from the rootstocks (USFWS 1994); (3) a report to the Service from a research scientist at the University of Nevada, Reno (Brussard 1995 (cited incorrectly as Brussard 1996 in the petition)) stating that a continued decline of the Kearney

buckwheat in the overall area could call into question the continued existence of the butterfly; and (4) an assessment by The Nature Conservancy (2002) that determined the condition of the dunes to be heavily impaired due to loss of vegetative cover from recreational use and abuse. The petition notes that in this assessment, The Nature Conservancy found that running vehicles at high speeds over large perennial plants, in particular, was a significant source of stress to the Sand Mountain dune system. The petitioners note that Kearney buckwheat plants are intentionally targeted because they accumulate sand at their base, thereby forming natural jumps. We have determined that the report to the Service cited as Brussard (1995) actually states "as long as the foodplant remains as abundant as it is now in the overall dune area, we saw no particular threat to the continued existence of the butterfly." However, despite the inaccurate characterization of this letter in the petition, the statement does imply that should the abundance of Kearney buckwheat decline, a circumstance for which the petitioners have provided significant evidence, the loss of this critical foodplant would be a threat to the continued existence of the butterfly.

The petition also provides numerous citations from scientific literature that document the effects of off-road vehicles on terrestrial habitats in arid environments, including sand dunes. The effects include the elimination of a tiger beetle that was once widespread and abundant along beaches (Black and Vaughn 2003); significant reductions in the number, density, and cover of plants, including shrubby perennials (Bury and Luckenbach 1983); and direct impacts on desert vegetation (Stebbins 1995; Lathrop 1983; Lathrop and Rowlands 1983). Documentation also indicates that natural recovery rates of perennial vegetative cover damaged by off-road vehicles in arid environments can take decades and, in some cases, may require centuries (Lathrop and Rowlands 1983; Kockelman 1983; Webb and Wilshire 1983).

None of these citations provides specific evidence of a direct significant threat to the Sand Mountain blue butterfly. The papers by Bury and Luckenbach (1983, pp. 211–213), Lathrop (1983, pp. 157–164), Lathrop and Rowlands (1983, pp. 138–141, 144–146), and Stebbins (1995, pp. 471–472), however, do provide documentation that off-road vehicles can damage and destroy plants, and result in significant decreases in plant numbers, density, and cover of plants, including shrubby

perennials at various sites in the western North American deserts.

The papers by Lathrop and Rowlands (1983, p. 143) and Kockelman (1983, p. 3) also provide a timeframe for understanding natural recovery rates of habitats damaged by off-road vehicle use in arid environments. Recovery of damaged vegetation is a process of critical importance to the Sand Mountain blue butterfly because it depends on the presence of its host plant, the Kearney buckwheat, on an annual basis in order to reproduce. Based on the data provided by the petitioners (BLM 2003, 2004), we estimate that the habitat on which the Sand Mountain blue butterfly depends has been reduced by as much as 50 percent over the past 25 years and that, at most, 1,000 ac (405 ha) of potential, but highly fragmented, habitat remains. These studies provide reliable documentation that even if off-road vehicle use were to be eliminated from Sand Mountain, natural recovery of the Kearney buckwheat habitat may take decades, a time frame that poses an indirect threat to the long-term viability of a species that must reproduce annually.

The petition also claims that off-road vehicles alter the hydrology of dune systems by exposing clay layers that create an impermeable barrier to the percolation of precipitation into the soil. Further vehicle impacts break the clay layer and precipitation percolates to depths where it is beyond the reach of seedlings attempting to establish (Tonenna no date). No data are provided to support this claim; therefore, we consider it speculative. The petition also claims that constant disruption of the soil surface makes it difficult or impossible for seeds to germinate. We agree the germination process would be made difficult or impossible under frequent disturbance by vehicles. The petition claims that this could be the primary reason for a reported skew in Kearney buckwheat populations at Sand Mountain toward older shrubs. The petition provides no documentation to support this claim. The persistence of some plant species may depend on episodic years of strong recruitment (Brigham and Thomson 2003, p. 154). Episodic regeneration was not found to be characteristic of several plants studied in the cold deserts of the Great Basin in which Sand Mountain is located (West *et al.* 1979, pp. 384–385). The same researchers, however, also found no correlation between plant size and plant age, and that plants that appear even-aged because of their similar size are often uneven-aged (West *et al.* 1979, pp. 386). The petitioners do

not indicate whether this critical aspect of population structure was considered.

We conclude that the petition provides substantial information to support the claim that off-road vehicle use at Sand Mountain presents direct and indirect threats to the dune shrub habitat with Kearney buckwheat on which the Sand Mountain blue butterfly depends. In particular, data provided to the petitioners by the BLM (2003) reliably documents that within the past 25 years a progressive loss of dune shrub habitat, continuing fragmentation of dune shrub habitat, and an ongoing expansion of the route system into dune shrub habitat previously considered secure for the butterfly has occurred. The data presented in the petition document that annual visitor use has more than doubled and the route system has expanded from 20 miles (32 km) to over 200 miles (320 km) over this time period. The petition presents an estimate, based on a personal communication from the BLM (Tonenna, no date), that a maximum of about 1,000 ac (405 ha) of dune shrub habitat remain, and notes that the Kearney buckwheat, on which the Sand Mountain blue butterfly depends, has a patchy distribution within the remaining, highly fragmented habitat. The petitioners also reference a report that provides reliable information indicating that at the time of the petition, an estimated 1,000 to 1,600 ac (405 to 647 ha) of dune shrub habitat remained in which Kearney buckwheat is a component (BLM 2004, p. 4). We estimate, based on the data presented in the petition (BLM 2003, 2004), about 50 percent of the dune shrub habitat may have been destroyed or altered over this 25-year time span. The off-road vehicle use that has led to this reduction in and fragmentation of habitat continues to this day and poses a significant and ongoing threat to the continued viability of the Sand Mountain blue butterfly.

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

The petition claims collection by overzealous lepidopterists is a potential threat because of the rarity of the Sand Mountain blue butterfly. While we have accepted the claim that the Sand Mountain blue butterfly occurs only at Sand Mountain, the petition does not provide any data to substantiate the claim that the species is threatened by collection.

#### *C. Disease or Predation*

The petitioners claim that diseases affecting larval host plants and butterflies, and predation by native and

introduced wildlife have affected other butterfly species with small population sizes, but provide no data to support these claims, and note that no information on the potential impacts of disease or predation to the Sand Mountain blue butterfly is available.

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

The petition claims that the BLM has failed to protect habitat for the Sand Mountain blue butterfly from excessive off-road vehicle use over the past 25 years, and cites a public comment letter on the 1978 draft SMRA which states concern over the potential impacts to the invertebrate fauna of the dune system and notes that the management plan fails to adequately take into account biological considerations (Hardy 1978).

The petition also cites a mid-1990s effort by the BLM, the Service, and others to assess the status of the Sand Mountain blue butterfly in response to a complaint that off-road vehicles were posing a threat to its existence by impacting its host plant (Austin 1990). The initial outcome of this effort was a determination that no emergency action was necessary because, during the course of the assessment, the Kearney buckwheat was found to be much more common than previously believed, particularly in the northeastern portion of the dune system. Instead, the BLM and Service decided to institute a monitoring plan in order to avoid an emergency situation in the future (BLM 1995, p. 1). The monitoring plan consisted only of establishing permanent photographic points. Due to personnel changes in both agencies, monitoring was discontinued after a few years. In recent years, the photographic points have been revisited and found to reliably document the ongoing alteration and destruction of shrub habitat (Tonenna 2006).

The petition notes that in the Spring of 2002, BLM staff recommended that some areas of Sand Mountain be closed to protect the Sand Mountain blue butterfly. As a result, a group comprised of BLM and Service staff, representatives from conservation and off-road vehicles groups, and representatives of the Fallon-Paiute Shoshone Tribe, who consider Sand Mountain sacred, proposed that 1,000 ac (405 ha) be closed to off-road vehicles while keeping the more popular off-road riding areas open. No action was taken on this proposal.

The petitioners claim that in 2003, the BLM implemented an emergency action to protect and restore the sand dune ecosystem that included the following

six main actions: (1) Continue to manage the SMRA under the existing off-road vehicle designation; (2) develop programs and practices that encourage off-road vehicle users to prevent disturbance of Kearney buckwheat habitat within and outside of the SMRA; (3) begin efforts to restore and rehabilitate disturbed Kearney buckwheat habitat within and outside of the SMRA; (4) identify existing disturbed travel routes through the Kearney buckwheat habitat to connect off-road vehicle use areas within and outside the SMRA and discontinue off-road vehicle use in habitat outside these travel routes; (5) continue scientific investigations into the Sand Mountain ecosystem, including studies of the natural history of the plants and animals, restoration techniques, and monitoring technology; and (6) initiate a revised management plan for the Sand Mountain landscape to update the current Recreation Area Management Plan, reflecting the increasing amount and variety of uses and demands of the area.

The primary claim that the petitioners make regarding this strategy is that compliance with the encouraged off-road vehicle route system is voluntary and unenforceable, and therefore ineffective in preventing further habitat decline. They cite data from a 2004 BLM report that documents noncompliance occurring throughout the area with all routes continuing to be used based on 15 weeks of compliance monitoring. Impacts to shrub vegetation continued with multiple vehicles riding through vegetation despite alternative existing routes nearby that avoid vegetation. The petitioners note that Kearney buckwheat plants are intentionally targeted because sand accumulates around the base forming natural jumps. The report states that educational efforts and increased signage are routinely ignored, and, although there does seem to have been some level of compliance as a result of the management changes, "there is still significant noncompliance that will likely continue the trend of vegetation loss and prevent the rehabilitation of the area" (BLM 2004).

We have reviewed all of the sources cited in the petition and have concluded that they provide substantial information that existing regulatory mechanisms may be inadequate to prevent the progressive decline of the habitat on which the Sand Mountain blue butterfly depends.

#### *E. Other Natural or Manmade Factors Affecting the Species' Continued Existence*

The petition claims that invasive plants, and particularly Russian thistle (*Salsola kali*), pose a threat to the Sand Mountain blue butterfly because the fuel load it produces when dry increases the potential for wildfire. The petitioners also claim that Kearney buckwheat is not adapted to resist fire, and fire could kill or seriously damage plants since wildfires have not occurred historically at Sand Mountain. An increase in Russian thistle, therefore, would increase the risk that a fire may occur and habitat for the Sand Mountain blue butterfly would be destroyed (Tonnena no date).

Russian thistle is known to occur at Sand Mountain and, when dried, is highly combustible. However, the petition provides no data to support the claim that it is so widespread as to constitute a significant threat to either the Kearney buckwheat or the Sand Mountain blue butterfly. Nor does the petition provide documentation for the claim that Kearney buckwheat is not adapted to resist fire. Elsewhere in the petition, the petitioners note that Kearney buckwheat has an extensive branching caudex from a deep, woody taproot (Reveal 2002). It is at least possible that this taproot, buried beneath sand, would survive and resprout after fire, as it has been observed to do after damage to the above-ground shoots (USFWS 1994). We do not, therefore, find the petition to provide substantial information to support the claim that invasive plants and/or fire currently pose a significant threat to the Sand Mountain blue butterfly.

In addition, the petition notes that most insect populations normally experience large fluctuations in size (Ehrlich 1992; Schultz 1998), and that weather, predation, and disease may cause annual changes of an order of magnitude or more. The petition claims that these normal population fluctuations, in combination with habitat alteration or loss, can result in population extirpations (Hanski *et al.* 1995) and that, because of its extremely limited geographic area, the butterfly is extremely vulnerable to extinction.

We acknowledge that insect populations may experience normal large population fluctuation, although the petition provides no data specific to the Sand Mountain blue butterfly. We have previously, under Factor C, noted that there is no evidence to support the claim that disease or predation are threats to the butterfly. Nor is there any

evidence presented that the Sand Mountain blue butterfly population fluctuates in response to weather. We acknowledge that habitat alteration may exacerbate normal population fluctuations, and that this may make the Sand Mountain blue butterfly, a species likely to experience large population fluctuations (Murphy 2006), more susceptible to extinction. There is no evidence provided, however, that this has occurred, or is occurring, and therefore we do not find this threat to be substantial.

#### **Finding**

We have reviewed the petition and literature cited in the petition, and evaluated that information. On the basis of this review and evaluation, we find that the petition does present substantial information to indicate that listing the Sand Mountain blue butterfly may be warranted. The Sand Mountain butterfly is known only from Sand Mountain, Nevada, where it is closely associated with its host shrub, the Kearney buckwheat. Adult butterflies, which survive only a few weeks, deposit their eggs on the Kearney buckwheat, which is the only food for the larvae (caterpillars) that hatch the following spring. Larvae likely pass through several stages of molting, emerging larger each time, with each stage dependent on the availability of the food resource. The final molt results in a pupa which attaches to a twig or other surface and from which the adult emerges resource (Scott 1986, p. 21). The annual continuance of the butterfly population larvae, therefore, depends entirely upon this food.

An estimated 1,000 ac (405 ha) of dune shrub habitat remained in 2003, an estimated reduction of about 50 percent over the past 25 years. Moreover, much of this remaining habitat has been highly fragmented by over 200 miles (320 km) of off-road vehicle routes. This reduction and fragmentation of habitat correlates with a significant increase in off-road vehicle recreational use of the area over the same time period. Recreational use continues to increase, and all areas of the Kearney buckwheat habitat upon which the Sand Mountain blue butterfly depends remain open to off-road vehicle use as a result of inadequate regulatory mechanisms. The reduction and fragmentation of Kearney buckwheat habitat, therefore, represents a direct reduction in the food critical to the survival of the larvae and their subsequent emergence as reproductive adults. As the food supply diminishes, fewer larvae survive and fewer adults are produced, which in turn is likely to result in fewer eggs being deposited.

Over time this will result in smaller and smaller population levels as habitat destruction continues. Thus, there is substantial information presented in the petition that the reduction in available habitat is leading to a decrease in population that will continue over time, thus increasing the risk of extinction. Therefore we conclude that the petition has presented substantial information that listing may be warranted for this species. We will initiate a status review to determine whether listing is warranted.

The petitioners also requested that critical habitat be designated for this species. We always consider the need

for critical habitat designation when listing species. If we determine in our 12-month finding that listing the Sand Mountain blue butterfly is warranted, we will address the designation of critical habitat at the time of the proposed rulemaking.

#### References Cited

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

#### Author

The primary author of this notice is the Nevada Fish and Wildlife Office (see **ADDRESSES**).

#### Authority

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

Dated: July 28, 2006.

#### Kenneth Stansell,

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

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