

PART 8—REQUIRED SOURCES OF SUPPLIES AND SERVICES

2. Add section 8.406–8 to read as follows:

8.406–8 Reporting.

An ordering activity contracting officer, in accordance with agency procedures, shall ensure that information related to termination for cause notices and any amendments are included in PPIRS in accordance with 42.1503(f). In the event the termination for cause is subsequently converted to a termination for convenience, or is otherwise withdrawn, the contracting officer shall ensure that a notice of the conversion or withdrawal is included in PPIRS.

PART 12—ACQUISITION OF COMMERCIAL ITEMS

3. Amend section 12.403 by adding paragraph (c)(4) to read as follows:

12.403 Termination.

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(c) * * *

(4) The contracting officer, in accordance with agency procedures, shall ensure that information related to termination for cause notices and any amendments are included in PPIRS in accordance with 42.1503(f). In the event the termination for cause is subsequently converted to a termination for convenience, or is otherwise withdrawn, the contracting officer shall ensure that a notice of the conversion or withdrawal is included in PPIRS.

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PART 15—CONTRACTING BY NEGOTIATION

4. Amend section 15.407–1 by adding a new sentence to the end of paragraph (d) to read as follows:

15.407–1 Defective cost or pricing data.

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(d) * * * When the contracting officer determines that the contractor submitted defective cost or pricing data, the contracting officer, in accordance with agency procedures, shall ensure that information relating to the determination is provided for inclusion in PPIRS in accordance with 42.1503(f).

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PART 42—CONTRACT ADMINISTRATION AND AUDIT SERVICES

5. Amend section 42.1502 by adding paragraph (i) to read as follows:

42.1502 Policy.

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(i) Agencies shall promptly provide other contractor information for inclusion in PPIRS in accordance with 42.1503(f).

6. Amend section 42.1503 by removing from paragraph (a) the words “office, end” and adding “office, audit office, end” in its place; and adding paragraph (f) to read as follows:

42.1503 Procedures.

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(f) *Other contractor information.* Within 10 days after a contracting officer determines that a contractor has submitted defective cost or pricing data, or a termination for cause or default notice has been issued or any subsequent conversions or withdrawals have been issued, agencies shall ensure information related to these issues are provided for inclusion in PPIRS.

PART 49—TERMINATION OF CONTRACTS

7. Add section 49.402–8 to read as follows:

49.402–8 Reporting Information.

The contracting officer, in accordance with agency procedures, shall ensure that information relating to the termination for default notice and any subsequent conversions or withdrawals are provided for inclusion in PPIRS in accordance with 42.1503(f).

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FWS-R2-ES-2008-0110]

[MO 9221050083-B2]

Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Sacramento Mountains Checkerspot Butterfly as Endangered with Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 12-month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce our 12-month finding on a petition to list the Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*) as an endangered species and to designate critical habitat under

the Endangered Species Act of 1973, as amended (Act). After a thorough review of all available scientific and commercial information, we find that listing the subspecies is not warranted at this time. We ask the public to continue to submit to us any new information that becomes available concerning the status of or threats to the subspecies. This information will help us to monitor and encourage the conservation of the subspecies.

DATES: This finding was made on September 2, 2009.

ADDRESSES: This finding is available on the Internet at <http://www.regulations.gov> at Docket Number FWS-R2-ES-2008-0110. Supporting documentation we used to prepare this finding is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, New Mexico Ecological Services Office, 2105 Osuna NE, Albuquerque, NM 87113; telephone (505) 346-2525; facsimile (505) 346-2542. Please submit any new information, materials, comments, or questions concerning this finding to the above address.

FOR FURTHER INFORMATION CONTACT: Wally “J” Murphy, Field Supervisor, New Mexico Ecological Services Office (see **ADDRESSES**). If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(B) of the Endangered Species Act (Act) (16 U.S.C. 1531 *et seq.*) requires that, for any petition to revise the List of Endangered and Threatened Wildlife that contains substantial scientific and commercial information that listing may be warranted, we make a finding within 12 months of the date of receipt of the petition on whether the petitioned action is: (a) Not warranted, (b) warranted, or (c) warranted, but the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether species are threatened or endangered, and expeditious progress is being made to add or remove qualified species from the List of Endangered and Threatened Wildlife. Section 4(b)(3)(C) of the Act requires that a petition for which the requested action is found to be warranted but precluded be treated as though resubmitted on the date of such finding, that is, requiring a subsequent finding to be made within 12 months.

We must publish these findings in the **Federal Register**.

Previous Federal Actions

On January 28, 1999, we received a petition from Mr. Kieran Suckling of the Southwest Center for Biological Diversity (now Center for Biological Diversity) requesting emergency listing of the Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*) (butterfly) as endangered with critical habitat. On December 27, 1999, we published a 90-day finding that the petition presented substantial information that listing the butterfly may be warranted, but that emergency listing was not warranted; that document also initiated a status review of the subspecies (64 FR 72300).

On September 6, 2001, we published a 12-month finding and proposed rule to list the butterfly as endangered with critical habitat (66 FR 46575). On October 7, 2004, we published a notice of availability of our draft Conservation Plan for the Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*) (Conservation Plan) (69 FR 60178), which we finalized in 2005 (Service *et al.* 2005). On November 8, 2004, we published a notice of availability of a draft economic analysis and draft environmental assessment on our proposed designation of critical habitat for the butterfly (69 FR 64710). On December 21, 2004, we withdrew the proposed rule (69 FR 76428), concluding that the threats to the species were not as great as we had perceived when we proposed it for listing.

On July 5, 2007, we received a petition dated June 28, 2007, from Forest Guardians (now WildEarth Guardians) and the Center for Biological Diversity requesting that we emergency list the butterfly as endangered and that we designate critical habitat concurrently with the listing. In a July 26, 2007, letter to the petitioners, we acknowledged the petition and responded that we intended to make a finding on whether the petition presented substantial information that the requested action may be warranted, to the maximum extent practicable within 90 days of receipt of the petition, according to the provisions of section 4(b)(3) of the Act. On October 16, 2007, we informed the petitioners that an emergency listing of the butterfly was not warranted at that time because the insect control that had been scheduled to occur had been postponed until later in the autumn when the butterfly larvae were likely to be inactive and not threatened by the insect control actions. In a December 10, 2007, letter, we

notified the petitioners that funding was available to complete the 90-day finding in fiscal year 2008. On January 3, 2008, Forest Guardians filed suit against the Service for failure to issue a 90-day finding on the petition (*Forest Guardians, et al. v. Kempthorne*, 1:08-CV-00011-RMU (D. D.C.)). On April 15, 2008, a settlement was reached that required the Service to submit to the **Federal Register** a determination of whether the petition presents substantial information indicating that the petitioned action of listing the butterfly may be warranted.

On December 5, 2008, we published a 90-day petition finding for the butterfly in the **Federal Register** (73 FR 74123). We found that the petition presented substantial information indicating that listing the subspecies may be warranted, and we initiated a review of the subspecies' status within its range. This notice constitutes our 12-month finding for the petition to list the butterfly as endangered with critical habitat.

Species Information

The Sacramento Mountains checkerspot butterfly is a member of the brush-footed butterfly family (Nymphalidae). The adults have a wingspan of approximately 5 centimeters (cm) (2 inches (in)), and they are checkered with dark brown, red, orange, white, and black spots and lines. Larvae are black-and-white banded with orange dorsal bumps and black spines. Larvae reach a maximum length of about 2.5 cm (1 in) (Pittenger and Yori 2003, p. 8). The taxon was described in 1980 (Ferris and Holland 1980).

The butterfly inhabits meadows within the mixed-conifer forest (Lower Canadian Zone) at an elevation between 2,380 to 2,750 meters (m) (7,800 to 9,000 feet (ft)) in the vicinity of the Village of Cloudcroft, Otero County, New Mexico. The adult butterfly is often found in association with the larval food plants *Penstemon neomexicanus* (New Mexico penstemon) and *Valeriana edulis* (valerian) and adult nectar sources, such as *Helenium hoopesii* (sneezeweed). *Penstemon neomexicanus* is a narrow endemic species (Sivinski and Knight 1996), restricted to the Sacramento and Capitan Mountains of south-central New Mexico.

Adult butterflies are known to lay their eggs only on *Penstemon neomexicanus* (Service *et al.* 2005, p. 10), although the larvae feed on both *P. neomexicanus* and *Valeriana edulis* (Service *et al.* 2005, p. 11). After hatching, larvae feed on host plants and, during the fourth or fifth instar (the

period between molts in the larval stage of the butterfly), enter an obligatory and extended diapause (maintaining a state of prolonged inactivity), generally as the food plants die back in the autumn from freezing. Some larvae may remain in diapause for more than one year, depending on environmental conditions. During diapause, larvae probably remain in leaf or grass litter near the base of shrubs, under the bark of conifers, or in the loose soils associated with pocket gopher (*Thomomys bottae*) mounds (Service *et al.* 2005, p. 10). Once the larvae break diapause, they feed and grow through three or four more instars before pupating (entering the inactive stage within a chrysalis) and emerging as adults. Diapause is generally broken in spring (March and April), and adults emerge from the chrysalis in summer (June and July).

We do not know the extent of the historical range of the butterfly due to limited information collected on this taxon prior to the time it was formally acknowledged as a new subspecies (Ferris and Holland 1980). The current known range of the butterfly is restricted to the Sacramento Mountains and is bordered on the north by the Mescalero Apache Nation lands, on the west by Bailey Canyon at the mouth of Mexican Canyon, on the east by Spud Patch Canyon, and on the south by Cox Canyon (U.S. Forest Service (USFS) 2009a, pp. 1 and appendices; Service *et al.* 2005, p. 12). The potential range of the butterfly to the east and west is likely restricted because the nonforested areas are below 2,377 m (7,800 ft) in elevation, and the butterfly does not occur below this elevation (Service *et al.* 2005, p. 9).

The USFS estimates that there are about 1,093 hectares (ha) (2,700 acres (ac)) of suitable butterfly habitat on USFS (560 ha (1,385 ac)) and private lands (532 ha (1,315 ac)) (USFS 2004a, 2008a, p. 18). Of this, about 60 to 70 percent, or roughly 647 to 769 ha (1,600 to 1,900 ac), might be occupied in a given year (USFS 2004a, p. 2; 2009b, p. 2). These estimates are the best and most recent information we have regarding the range and distribution of the butterfly.

Overview of Survey Data

Larval and adult abundance surveys have been conducted for the butterfly since 1998 (USFS 2009a; Pittenger and Yori 2003). Many surveys have been ad hoc and not based upon rigorous methodology. Often, individuals were tallied along transects or during chance encounter surveys. The USFS has also established and monitored larval plots

since 1999 (USFS 2009a). Analysis of these coarse surveys for larvae provide only relative comparisons of mean abundance between years. These ad hoc estimates of abundance are based upon total larval counts. This type of abundance estimate, frequently known as an index to abundance, is known to be biased low (that is, the estimate is always lower than the true population number) (White *et al.* 1982, p. 32; Pollock *et al.* 1990, pp. 30-32). Thus, these data document presence or absence on specific plots through time, but are of little use in determining population trends of the butterfly. This is, in part, because from 1999 to 2003, larval tents that were found on one sampling day were not marked, so they may have been recounted on a subsequent sampling day (USFS 2004b, pp. 10-11).

In addition, confounding factors (such as weather, observer bias, varying effort), limited replication (one sample per meadow per year), and sampling errors limit the applicability of those factors in evaluating the butterfly's status (see USFS 2009a). Moreover, in some years, the USFS also conducted ad hoc surveys of adult butterflies (USFS 2009a). Adult and larval surveys were not conducted at randomly selected locations and may not correspond to the butterfly population rangewide. The larval plots (areas that are permanently marked and annually surveyed) are located within 10 meadows but are only about 223 square (sq) m (2,400 sq ft). Our review of the data from the larval plots found that the small scale of survey plots does not relate meaningfully to the demographics of the butterfly. For example, the USFS did not detect larvae within 6 of 10 plots in 2008, but adults were observed within the four meadows where larvae were not found on the plots, confirming the continued occupancy by the subspecies (USFS 2009a). Had we relied upon the larval plot data, we would have inaccurately concluded that the butterfly was absent from the meadows. Moreover, the disparity among survey methods, effort, and the data collected make it difficult to assess the butterfly population not only in occupied meadows, but also rangewide. Thus, the low numbers of butterflies observed during dry years, low survey effort, and spatial variability of food plants make it difficult to evaluate any historical trends or to make predictions about future population trends.

The rangewide population size of the butterfly remains unknown because comprehensive surveys are logistically difficult and, therefore, have not been conducted. As noted above, limited

surveys have been conducted only in small parts of its range. An assessment of population trends using these data would not be accurate, unless we could demonstrate that these limited data are representative of the overall population. We expect detecting overall trends will be difficult for this species, given data limitations, the cost of comprehensive surveys; and the likelihood of natural, annual, and spatial variations.

The USFS has been conducting presence-or-absence surveys since 1998 to estimate the range of the butterfly (USFS 2009a). The known range of the butterfly has not been expanded since 2004 (USFS 2009a). Although we do not have standardized monitoring data to evaluate whether the butterfly's population is increasing, stable, or declining on a gross scale, our observations indicate that neither the range of the butterfly, nor its persistence within general localities has decreased. Based on the best available information, we find that the butterfly continues to persist within the same general localities (USFS 2009a; Service 2009; Pittenger and Yori 2003; McIntyre 2005, 2008; Ryan 2007, pp. 11-12). The USFS and Service will continue to survey and monitor the butterfly population, although we intend to refine the techniques used to improve the quality and applicability of the data collected (USFS 2009a, p. 1).

For more information on the butterfly, refer to the September 6, 2001, proposed rule (66 FR 46575); the November 1, 2005, Conservation Plan (Service *et al.* 2005); and the December 21, 2004, withdrawal of the proposed rule (69 FR 76428). Some of this information is discussed in our analysis below. The Conservation Plan (Service *et al.* 2005) with the Village of Cloudcroft, Otero County, USFS, and the Service was developed to identify and commit to implementing actions to conserve the butterfly.

Summary of Factors Affecting the Species

Section 4 of the Act (U.S.C. 1533 *et seq.*) and implementing regulations (50 CFR part 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. In making this finding, we summarize below the information regarding the status and threats to the butterfly in relation to the five factors provided in section 4(a)(1) of the Act. Under section 4(a)(1) of the Act, we may list a species on the basis 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. In making this 12-month finding, we have considered all scientific and commercial information received or acquired up to the publication of the 2004 withdrawal of the proposed rule (69 FR 76428; December 21, 2004) and any information received after that finding, including information in response to the most recent 90-day finding (73 FR 74123; December 5, 2008). The petitioners provided additional comments and information on the butterfly during the comment period for the 90-day finding. We reviewed and incorporated this information where appropriate. Our evaluation of this information is presented below.

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

Under Factor A, we considered whether the Sacramento Mountain checkerspot butterfly is threatened by the following: Private property development, recreational impacts; habitat-altering projects in relation to roads, powerlines, and other small-scale impacts; livestock grazing; catastrophic wildfire and fire suppression; noxious weeds.

Development

The petitioners assert that, although development within the Village of Cloudcroft decreased following the September 6, 2001, publication of the proposed rule to list the butterfly (66 FR 46575), development has nonetheless continued and, combined with other threats to the butterfly, remains significant. The petitioners correctly note that, as passed, the amended Otero County Subdivision Ordinance of 2005 will expire on July 1, 2011 (Otero County 2005, p. 2). The ordinance requires that, for any new subdivision to be developed within potential butterfly habitat, a survey be conducted for the butterfly, its habitat, and its larval host plant *Penstemon neomexicanus*. If the survey is positive for the presence of the butterfly or its habitat, the developer is required to submit plans to address wildfire control, avoidance of destruction of the butterfly and its habitat, and, if avoidance is not possible, relocation of butterflies and restoration of destroyed habitat. The ordinance also contains a section on enforcement, penalties, and remedies. The amendment to the subdivision ordinance was not in place when we

made our withdrawal of the proposed listing rule in 2004, so we did not rely on it when we concluded that development was not a significant threat to the butterfly. The Village of Cloudcroft has received no permit applications for new subdivisions since the ordinance became effective in 2005, although one survey was conducted within potential habitat and found no butterflies present (J. McIntyre, pers. comm., 2009). The lack of development may be because the area has experienced water shortages in recent years (Friederici 2007, p. 1). In fact, water was so scarce that the Village of Cloudcroft was forced to haul water in recent years and subsequently installed the nation's first reuse system, where treated wastewater is combined with incoming water to produce water for household use (Kurland 2007). The petition presents information on these issues that was previously submitted in comments on the draft Conservation Plan (69 FR 60178; October 7, 2004), draft environmental assessment (69 FR 64710; November 8, 2004), and draft economic analysis (69 FR 64710; November 8, 2004) for the butterfly. The draft environmental assessment and draft economic analysis did not contemplate effects of the then-future ordinance.

In our 2004 draft economic analysis, we found that approximately 8 to 10 new homes had been constructed annually since 2000 within the boundary of the proposed critical habitat designation of approximately 140 sq kilometers (km) (54 square miles (mi)) in the vicinity of the Village of Cloudcroft (Service 2004). Based upon this trend of 8 to 10 new homes annually, over the next 20 years, approximately 160 to 200 new residential projects may be built within the boundary of the then-proposed critical habitat for the butterfly. However, not all of these new residential projects would be located within areas that contain butterfly habitat. The economic analysis assumed that 55 to 69 of the landowners would conduct butterfly surveys because they would be located within areas that were proposed as critical habitat and that provide butterfly habitat. Our draft economic analysis estimated that butterflies would be found in 8 to 24 of those 55 residential project areas surveyed. Our draft economic analysis also estimated that the median lot size of these developments was 0.14 ha (0.34 ac), indicating that up to 3.4 ha (8.2 ac) of occupied butterfly habitat may be affected by residential and commercial development activities (for a detailed

discussion, see Service 2004). In the 2001 proposed rule, we described an additional 4 ha (10 ac) of impacts from a private (residential) development on the east side of the Village of Cloudcroft. Thus, we continue to estimate that about 2 percent of the suitable occupied butterfly habitat on private lands (7.4 of 314 ha (18 of 777 ac), using the USFS (2004a, p. 2) estimate of occupied acres on private lands) may be subject to development. It is likely that a small but unknown number of butterflies may be taken through development actions. Nevertheless, we do not believe that this level of impact is a significant threat to the butterfly. The discussion of residential and commercial development in the withdrawal for the butterfly (69 FR 76428; December 21, 2004) is still the best available information that we have. As such, we have no reason to believe that residential and commercial development will threaten the butterfly in the future.

Off-Highway Vehicles

In our 2004 withdrawal of the proposed rule, we evaluated increased efforts by the USFS to reduce off-highway vehicle (OHV) use in Bailey Canyon and campgrounds where the butterfly occurs, and we analyzed information on the extent and nature of off-road impacts to the butterfly and its food plants. We concluded that the specific actions (fencing, signs, and barriers) the USFS had taken to reduce OHV impacts appeared to be effective, that only a small proportion of occupied habitat would be impacted annually by continuing OHV use, that the magnitude of the impact is low, and that OHV use does not significantly threaten the butterfly (69 FR 76428; December 21, 2004). As detailed below, we find this continues to reflect the best available information.

The 90-day finding noted that we had no additional information on the increase in OHV use since our withdrawal of the proposed rule to list the butterfly in 2004 (73 FR 74123). The petitioners presented some additional information during the open comment period. They claim that the butterfly will not be considered in the forthcoming travel management regulations (described below) until it is listed, a candidate, or proposed for listing, and section 7 consultations are required for activities that may affect the species (WildEarth Guardians 2009, p. 7). Additionally, they believe that OHV use is a growing activity on the Lincoln National Forest (Forest) since 2004, based on a 2007 monitoring report from

the Forest (WildEarth Guardians 2009, p. 7; USFS 2008b, pp. 9-10).

We previously recognized that OHV use was increasing on the Forest, and that impacts were occurring on about half of the occupied butterfly habitat (225 ha (555 ac)) (69 FR 76428; December 21, 2004; USFS 2004a). In 2004, we found that fencing, signs, and monitoring by law enforcement personnel had stopped OHVs from entering butterfly habitat on USFS lands, and very little habitat disturbance can be attributed to OHVs in a given year (69 FR 76440). We also noted that the USFS is revising its travel management regulations to designate a system of existing roads and trails and to regulate or prohibit certain motor vehicle uses (69 FR 42381; July 15, 2004, and 69 FR 76428; December 21, 2004). In November 2005, the USFS issued the Travel Management Rule for designation of routes and areas for motorized vehicle use (36 CFR 212.56). The rule requires that the USFS designate a system of roads, trails, and areas for motor vehicle use by vehicle class and, if appropriate, by time of year (70 FR 68264; November 5, 2005). The directives establishing agency policy and standard processes to follow were recently finalized (December 9, 2008; 73 FR 74689). As part of this effort, the Forest inventoried and mapped dispersed recreation sites (USFS 2008b, p. 2). The current policy on the Forest permits driving vehicles up to 91 m (300 ft) from either side of an open, authorized road or trail to camp or picnic (USFS 2009c, p. 1). In some areas, the Forest found that user-created roads had expanded beyond the 91-m (300-ft) distance currently allowed under the Forest Plan (USFS 2008b, p. 2). Through the travel management process, the Forest intends to restrict the current distance to 30 m (100 ft) (USFS 2009d, p. 1) and will produce new maps to reflect that. Once the designation of existing roads and trails that are open for motor vehicle use is complete, the Forest will prohibit motor vehicle use off the designated system. Still, this Rule will not increase the agency's budget or the number of law enforcement officers. However, the designation of a system of roads and trails will enhance enforcement by substituting a regulatory prohibition for closure orders and providing for a standardized motor vehicle use map supplemented by signage (70 FR 68270; November 9, 2005). This process should be complete during fiscal year 2009 (USFS 2009e, p. 5). We agree that some individual butterflies or their food plants may be killed or injured by

OHVs. However, we believe the revised travel management regulations will further reduce the impact of motorized vehicles on the butterfly and its habitat by providing a consistent policy that can be applied to all classes of motor vehicles, including OHVs. We have considered the information presented by WildEarth Guardians, including the travel analysis report on the Lincoln National Forest (USFS 2008a, entire document), and conclude that OHVs are not a significant threat to the butterfly now or in the future.

The USFS reported the quantity of land currently in use as Forest roads and within the habitats of species that are potentially affected by the presence of roads (USFS 2008a, p. 18). One category of data reported is "acres of habitat lost to road." The Forest estimated that 51 ha (126 ac) of Forest-wide roads occurred in meadows within the range of the butterfly's habitat. The petitioners claim that this amount of occupied butterfly habitat has been lost to road construction and believe that this loss may be even more significant to the survival of the butterfly than the amount of private lands impacted by development. This category is a simple calculation based upon the total miles of roads that traverse meadow habitat of the butterfly multiplied by the average road width. That is, 119 km (74 mi) of roads multiplied by an average road width of 4.2 m (14 feet), equaling 51 ha (126 ac), traverse butterfly habitat (USFS 2008a, p. 18). While the estimate is new information, we previously recognized that roads have been historically constructed within meadows likely occupied by the butterfly. Therefore, we do not consider these existing roads a new threat because none was constructed since our 2004 withdrawal (69 FR 76428; December 21, 2004). After reviewing this information, we affirm that the OHV use and road construction do not present a current or foreseeable future threat to the butterfly.

Camping

As noted above, the existing policy on the Forest for the past 20 years has been to allow motorized travel anywhere within 91 m (300 ft) of either side of an open road or trail on USFS lands to reach a dispersed camp site (USFS 2008a, p. 27). On current motorized trails, use is limited to vehicles that are less than 127 centimeters (50 inches) wide (USFS 2008a, p. 22). The Forest gathered data in July 2007 to locate as many dispersed camping sites as possible (USFS 2008a, pp. 27-28). They recorded 477 dispersed camping sites on the entire Sacramento Ranger District, but did not report how many

were within meadows occupied by the butterfly or other habitat types (USFS 2008a, p. 27). Nevertheless, to address this situation, the Forest intends to limit driving to those dispersed camping sites within 30 m (100 ft) of an open, authorized road or trail through the Travel Management Rule process that will be finalized in Fiscal Year 2009 (USFS 2009c; p. 1; 2009d, p. 1). This action would prohibit the use of a motorized vehicle to access 305 of the 477 of the dispersed camping sites on the Sacramento Ranger District that are currently beyond the 30-m (100-ft) distance (USFS 2008a, p. 27). This change will lessen the chances of individual butterflies and their food plants being harmed from these activities. We believe this process will further protect butterflies and food plants from deleterious effects of motorized vehicles and camping.

In our 2004 withdrawal of the proposed rule, we discussed increased efforts by the USFS to reduce impacts to the butterfly from dispersed camping and camping at established campgrounds. Although the petitioners acknowledge that the USFS has taken measures to reduce recreational impacts to the butterfly at established campgrounds, they claim that increased camping can result in harm to the butterfly. We have no information to indicate that camping has increased since 2004 in habitats occupied by the butterfly. The USFS reduced capacity within Deerhead Campground by 20 percent and intends to reduce the capacity of Sleepygrass Campground by 12 percent (removal of 21 campsites, 27 picnic locations, and 8 toilets) within occupied butterfly habitat by 2012 (USFS 2005a, p. 5; 2008c, pp. 13-14). Since 2004, they have also reduced the amount of disturbance within occupied butterfly habitat in Black Bear, Slide, Aspen, and Deerhead campgrounds (USFS 2005a, pp. 2-4; 2009a; 2009b, p. 1). These actions have included restricting access to occupied butterfly habitat, and surveying and moving larvae in three campgrounds prior to capital improvements that redesigned camping facilities to reduce the number of campers and remove picnic tables (Service 2005; 2005b, p. 11; USFS 2003, 2009a). Similar improvements to butterfly habitat within Sleepygrass Campground have not yet been initiated but will likely be initiated this year and be completed by 2012 (USFS 2008c, p. 14; 2009d, p. 1). When the project within Sleepygrass Campground is complete, all eight of the campgrounds that contain occupied butterfly habitat will have improved, thereby resulting in

significantly fewer impacts to the species than in 2001. We are not aware of any information that supports the contention that camping-related impacts to the butterfly or its habitat have increased or are likely to do so in the foreseeable future. We do not believe that camping-related activities will result in significant population-level impacts to the butterfly. Therefore, we do not consider disturbance related to camping or campgrounds to be a threat to the butterfly now or in the foreseeable future.

Mountain Biking

In our 2004 withdrawal of the proposed rule, we acknowledged that butterfly larvae were known to occur on and adjacent to mountain bike trails, and we reviewed efforts routinely made by the USFS to address potential impacts to the butterfly, including surveys and either avoiding or moving larvae during large events, such as mountain bike races (69 FR 76428; December 21, 2004). We concluded that, while mountain biking does affect the butterfly and its food plants to some extent, it did not appear that the impacts were likely significant to the butterfly. The petitioners do not present information that impacts from mountain biking have increased in habitats occupied by the butterfly, and we have no information that such impacts have increased since 2004. Consequently, based on the best available information, we find that mountain biking is not a threat to the butterfly currently or in the foreseeable future.

Powerlines and Other Small-Scale Impacts

The petitioners discuss the impacts of powerlines and other small-scale impacts by comparing our discussion of those impacts in our 2004 withdrawal of the proposed rule (69 FR 76428; December 21, 2004) to our discussion of those impacts in our 2001 proposed rule (66 FR 46575; September 6, 2001). The USFS has committed to continuing the use of seasonal restrictions, surveying and moving larvae, or placing avoidance buffer areas around larvae to avoid or minimize impacts to the butterfly when the USFS is planning and implementing projects (USFS 2008e, p. 36; 2009a). As noted below, some temporary impacts to food plants and habitat have occurred, but we believe these restrictions have significantly reduced impacts on the butterfly. In a letter from the Forest Supervisor, the USFS expressed a commitment to measures aimed at minimizing potential impacts to the butterfly from activities within the purview of their authority as a land

management agency (USFS 2009a, p. 1). Because the USFS continues to carefully monitor and coordinate with the Service, we believe these stipulations (the use of seasonal restrictions, surveying and moving larvae, and placing avoidance buffer areas around larvae) will continue to be adequate to minimize potential impacts to the butterfly.

Since the Service's withdrawal of the proposed rule, we are aware of the following project-related impacts on USFS lands: Village of Cloudcroft waterline (2.8 ha (6.8 ac) of temporary impacts); Pines Campground water repair (0.04 ha (0.1 ac) of temporary impacts); Cox Canyon Powerline (3.1 ha (7.6 ac) of temporary impacts); mowing along Highway 82 (1.2 ha (2.9 ac) of temporary impacts), and Silver Springs Powerline (1.1 ha (2.8 ac) of temporary impacts) (USFS 2007a, p.1). These projects were all completed within the growing season and revegetated the following year with host plants (Service 2004b). We are also aware that up to about 2.8 ha (7 ac) of habitat may be temporarily impacted by a recent proposal to salvage logs (USFS 2008e, p.42). Previous monitoring found that small temporary disturbances to butterfly habitat, such as from dragging a salvaged log through a meadow occupied by the butterfly, naturally revegetated with native plants in one growing season (USFS 2002a, p. 1; Service 2004b). We have found that small-scale temporary impacts to the butterfly and its habitat do not appear to affect the viability of the species because it continues to be found in the area, although we do not know whether the butterfly population in the area is increasing or decreasing. We do not consider this level of limited take of individuals or temporary disturbance of habitat to be a significant threat to the butterfly. In our withdrawal, we acknowledged that, although some restrictions were likely to be placed on ground-disturbing projects (such as when constructing a new powerline), the nature of these impacts and the recognition that adjacent habitat will remain intact enabled us to conclude that the activity represented only a limited threat to the species (69 FR 73428). We believe this is still the best available information. The current level of impact is not a threat to the butterfly. We have no information or reason to believe that this level of impact will increase in the foreseeable future.

Cattle Grazing

The petitioners claim that livestock grazing continues to threaten butterfly habitat. In our 2004 withdrawal of the

proposed rule, we found that, because the USFS is managing allotments for medium-intensity grazing, the effects on the butterfly and its habitat would be minimal and would not result in the butterfly population being compromised (69 FR 76428). We concluded that the current and future occurrence of grazing does not represent a principal factor in the viability of the butterfly and its habitat. The petitioners presented some new information about cattle grazing in their comments on the 2008 90-day finding. We review this and other new information below.

The USFS monitors and manages allotments to maintain a minimum of 10 cm (4 in) end-of-season stubble height, which generally equates to 35 percent forage utilization (Holechek and Galt 2000, p. 13; USFS 2004c, 2009f). The USFS manages cattle allotments consistent with existing range management standards and guidelines under its Forest Plan, and when management adjustments are necessary to meet the forage levels, adjustments are made through the permit administration process (USFS 2004d). Moreover, the USFS manages and protects long-term range conditions consistent with their range management regulations (for example, see 36 CFR 222) (USFS 2004c).

In our December 21, 2004, withdrawal (69 FR 76428), we found that cattle grazing is compatible with conservation of the butterfly because the USFS is currently and will continue to manage its allotments that are occupied by butterflies for moderate-intensity grazing (10-cm end-of-season stubble height or 35-percent forage utilization or both). Although we also acknowledged that grazing can incidentally kill butterflies through trampling or accidental ingestion of larvae or eggs (for example, see Pittenger and Yori 2003; White 1986), and anticipated such effects are occurring within allotments that overlap with occupied butterfly habitat, we found that these effects were minimal and did not result in the butterfly population being compromised. Although the relationship between cattle grazing and the butterfly is not completely clear, as analyzed below, we continue to affirm that butterflies persist within allotments under a moderate-intensity grazing regime.

The petitioners presented information on five allotments: CC Walker, Sacramento, Russia Canyon, James Canyon, and Pumphouse. They claim that forage overutilization in CC Walker, Sacramento, and Russia Canyon Allotments indicates severe rangeland deterioration within butterfly habitat.

However, the butterfly has never been detected within the CC Walker Allotment (USFS 2004a, map; USFS 2009a). Additionally, as we detailed in the withdrawal of the proposed rule in 2004, no livestock grazing occurs in the portion of the Sacramento Allotment occupied by the butterfly, because the meadows are bounded by steep canyons that are inaccessible to cattle (Service 2004a, pp. 1-2). For these reasons, we conclude that no impacts are occurring to the butterfly within the CC Walker and Sacramento Allotments.

The butterfly occurs only within about 7.2 ha (17 ac) of the Russia Canyon Allotment (USFS 2004e). That allotment has two permittees. One is permitted for 6 head of cattle from May 16 to October 31 (USFS 2007c, p. 61); the other is permitted for 32 head from May 16 through October 31 (USFS 2007c, p. 61). We reviewed information collected between 2001 and 2008 from the Russia Canyon Allotment and find that the authorized minimum 10-cm (4-in) end-of-season stubble heights (i.e., grazing standards) have generally not been exceeded (WildEarth Guardians 2009, Attachment 2; USFS 2009f, p. 1). Therefore, severe rangeland deterioration is not occurring within butterfly habitat on the Russia Canyon Allotment (WildEarth Guardians 2009, Attachment 2; USFS 2009f, p. 1). Moreover, the butterfly continues to persist within the grazed area of this allotment (Service 2009). Additionally, after reviewing monitoring data that demonstrate the consistent application of the authorized moderate-intensity grazing standards on the Russia Canyon Allotment, we continue to find that some minor impacts are likely occurring from trampling of larvae by cattle and ingestion of food plants, but we do not consider these to be a significant threat to the butterfly or its habitat currently or in the foreseeable future, because the USFS has been monitoring and managing this allotment to attain the moderate-intensity standards, while butterflies continue to persist in this area. In 2004, we concluded that this management strategy will ensure larval and adult food plants are maintained. The new information we reviewed is consistent with our previous conclusion. We continue to find that cattle grazing is not a significant threat to the butterfly now or in the future.

The petitioners cite a statement in the Conservation Plan that the James Canyon Allotment will be reopened to grazing in 2007 (WildEarth Guardians 2009, p. 5; Service *et al.* 2005, p. 29). The Conservation Plan foreshadowed the opening of parts of the James Allotment by 2007 but also indicated

the Forest may leave one pasture ungrazed for the conservation of the butterfly (Service *et al.* 2005, p. 29). In 2005, the Forest analyzed an alternative to permanently close 2,751 ha (6,878 ac) to livestock grazing within the center of the allotment but did not finalize the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et. seq.*) decision. The remaining 2,655 ha (6,561 ac) occur within the Beard (837 ha (2,068 ac)), Zinker (984 ha (2,432 ac)), and Bailey (834 ha (2,061 ac)) pastures. This alternative would have used a deferred rotation grazing system, whereby livestock are moved through three pastures during the grazing season to maintain forage utilization between 30 and 40 percent and stubble heights of at least 11.4 cm (4.5 in) (USFS 2004f, p. 1). Of these pastures, the Beard pasture is outside of the known range of the butterfly (USFS 2004a, map 1; 2004f, map 1), whereas Zinker and Bailey pastures contain occupied butterfly habitat. Under this alternative, 67 percent (8,946 of 13,439 acres) of the allotment (5,376 ha) would be either outside the known range or closed to livestock grazing (USFS 2004f; Service *et al.* 2005, p. 29).

The USFS anticipates updating its NEPA analysis for the James Allotment in 2010 (USFS 2009f, p. 1). It intends to carry the same alternative forward that was analyzed in 2005 but not finalized, along with any other alternatives that may develop through the scoping process (USFS 2009f, p. 1). As part of this process, we intend to provide information to the USFS and encourage the selection of the same alternative that was developed in 2005 or an even more conservative alternative for the butterfly. The goal would be to minimize impacts to the butterfly by managing this allotment to attain a moderate or lower level of grazing and eliminate impacts to the butterfly by closing some areas to grazing.

There is currently no authorized grazing within James allotment, which has been the case since 1995 (USFS 2009f, p. 2). Similar to other USFS allotments, it is likely that a new term permit for the James Allotment will propose an end-of-the-season stubble height of 10 cm (4 in) or a forage utilization level of 35 percent (2004h). As noted above, in 2004, we concluded that this level of moderate-intensity grazing was compatible with conservation of the butterfly and limited potential adverse effects (69 FR 76437, December 21, 2004). This is because the butterfly continues to persist in areas that have been historically and are currently grazed by cattle. We still

believe this is the best available information.

We recognize the USFS could analyze and choose an alternative that does not close any of the areas within the allotment that contain occupied butterfly habitat. Under such a scenario, we would envision that impacts to the butterfly would be increased from trampling or ingestion of larvae or eggs. However, based on our current understanding of cattle grazing, we would anticipate butterflies would continue to persist within areas that are grazed at moderate intensity. Nevertheless, during the NEPA process, we intend to encourage the USFS to permanently close occupied butterfly habitat to cattle grazing in order to provide the greatest conservation benefit. We believe this would exemplify the USFS' commitment under the Conservation Plan to conserve and manage the species (Service *et al.* 2005).

The Pumphouse Allotment also contains suitable and occupied butterfly habitat that is open to livestock grazing and is managed to maintain moderate-intensity forage utilization between 30 and 40 percent (USFS 2005b, p. 1; 2009f, p. 1). We found that this level of livestock grazing would have insignificant and discountable effects to the plants that compose a part of Mexican spotted owl (*Strix occidentalis lucida*) critical habitat within meadows because the USFS would ensure forage standards were not violated (Service 2006, p. 1). These areas of critical habitat also contain butterfly food plants and habitat. Although livestock grazing within occupied butterfly habitat creates the potential for impacts to the species through trampling and loss of larval food plants, the USFS conducted regular monitoring and demonstrated that authorized grazing standards were annually attained (USFS 2004f, pp. 18-19; 2005b, p. 1; 2009f, p. 1). The USFS manages this and other allotments consistent with existing range management standards and guidelines under its Forest Plan, and when management adjustments are necessary to meet the forage levels, adjustments can be made through the permit administration process (USFS 2004g, p. 3, 2004d, p. 2, Service *et al.* 2005, p. 49; 69 FR 76437, December 21, 2004). Similar to the Russia Allotment discussed above, we reviewed data from 2001 to 2008 and find the minimum end-of-season stubble heights of greater than 10 cm (4 in) were maintained within the Pumphouse Allotment, and butterflies continue to persist in this area (WildEarth Guardians 2009, Attachment 2; USFS 2009f, p. 1; 2009a). We continue to believe that this level of

forage utilization is compatible with the butterfly now and in the foreseeable future.

Based on our review of this information, we find that, at current and predicted future livestock grazing levels within habitat occupied by the butterfly, there is not sufficient evidence to conclude that the subspecies is threatened. We have no evidence from any allotments that indicates ongoing livestock grazing affects the butterfly to such an extent that it would be likely to become endangered within the foreseeable future. USFS management of livestock allotments that are currently occupied by the butterfly is based on systematic vegetation monitoring in key areas to ensure the moderate intensity standards are attained. Forage utilization or stubble heights or both are measured by key area on key forage species within various pastures encompassing a grazing allotment. Key areas are locations readily accessible to water and forage and are located on level to intermediate slopes. Key species are herbaceous and woody vegetation that livestock prefer at any given time of the year, some of which are likely butterfly food plants. By monitoring key areas, the USFS ensures that an allotment or pastures within an allotment are not overgrazed. However, if forage utilization levels or stubble heights in a key area are reached, livestock can be moved out of that portion of a pasture, out of a pasture altogether, or off the entire allotment. This type of flexibility in range management operations is directed by USFS policy in using adaptive management (FSH 2209.13, Chapter 90) and is enforced through monitoring of allotments. This process generally limits exceeding utilization standards or stubble heights or both, and we believe it has and will continue to ensure the continued existence of the butterfly and its habitat.

Based on our review of these data, we conclude that the current and future occurrence of grazing does not represent a principal factor in the viability of the butterfly and its habitat, although the larval food plant *Penstemon neomexicanus* is likely routinely grazed upon by cattle. It was previously recognized that livestock grazing has the potential to impact the butterfly directly through trampling or ingestion of individuals and indirectly through the reduction in ground cover (Service *et al.* 2005, pp. 29-30). We continue to believe this is accurate, but have determined that USFS management and monitoring of livestock grazing standards on all allotments within the range of the butterfly are compatible with the

continued existence of the species. Although the potential for impacts to the butterfly exists, our review found no information indicating that livestock grazing significantly affects the status of the butterfly now or will do so in the foreseeable future. Therefore, we conclude that livestock grazing is not a significant threat to the butterfly.

Trespass Horses

In the withdrawal of the butterfly proposed rule, we noted trespass (feral) horses occurred within butterfly habitat in the northern portion of the Sacramento Ranger District (69 FR 76428; December 21, 2004). We found that these horses have the potential to affect the butterfly and its food plants, but horses were considered a low threat because they occur in a limited number of meadows in the James Allotment (Service *et al.* 2005, p. 49; USFS 2004f, pp. 18-19; USFS 2004g, p. 1). We also noted that the USFS committed in the Conservation Plan to removing the feral horses from the James Allotment. The USFS recently followed through on its commitment and removed feral horses from this area (Service *et al.* 2005, p. 49; USFS 2004c, p. 1; 2008f, p. 1). Although we continue to view feral horses as a low threat, the removal will benefit the butterfly and its habitat.

Fire

In addressing the threat of fire suppression and wildfire, the petitioners compare the analysis used in our September 6, 2001, proposed rule (66 FR 46575) to our analysis in the withdrawal of the proposed rule (69 FR 76428; December 21, 2004). The discussion and analysis related to wildfire and the butterfly in the withdrawal of the proposed rule are still the best available information that we have. In our withdrawal, we used information from the USFS, assessed new and continued efforts to reduce the risk of catastrophic wildfire in the Sacramento Mountains, and concluded that the threat to the butterfly from catastrophic wildfire had been reduced and was no longer significant (see also Service *et al.* 2005, pp. 21-25). For example, the areas where the larval host plant grows tend to lack continuous fine fuels that would effectively carry a fire (Service *et al.* 2005, p. 21). Moreover, we found that fire and activities conducted to reduce the risk of fire may be beneficial by increasing connectivity between areas of suitable butterfly habitat. Since 2004, the USFS has continued efforts to reduce the risk of wildfire (USFS 2007c, pp. 21-24). Increases in fuels management actions have been funded and implemented,

and these activities will continue for the foreseeable future (USFS 2009i). Within the last 5 years the USFS has accomplished a substantial fuels reduction work within 1 mile of the Village of Cloudcroft (e.g., see USFS 2007c, p. 33). Approximately 1,216 ha (3,005 ac) have received at least one, if not several, treatments, which include pre-commercial thinning, commercial timber harvest, mastication (shredding of felled trees), prescribed burns, and logging (USFS 2002b, 2004h, 2004i, 2004j, 2007b, 2007c, 2009g). As a result, the reduction of tree density, disposal of the resulting woody debris and appropriate use of prescribed fire will not only improve forest health, but also greatly reduce the probability of bark beetle outbreaks and decrease the risk of wildfire (USFS 2004k, p. 2).

Climate change may have an impact on wildfire. In a recent study, Westerling *et al.* (2006, p. 943) found that increased wildfire activity is at least partially the result of a changing climate and a resulting longer wildfire season, although the southwestern forests were less affected by changes in the timing of spring than forests of the northern Rocky Mountains. Other authors have described similar patterns of increased fires or risk of fires (Schoennagel *et al.* 2004; Running 2006). Nevertheless, any attempt to describe the relationship between climate change and the probability of butterfly habitat catastrophically burning is problematic, given that the scale of these studies is too large for us to draw any firm conclusions at the local scale within the range of the butterfly. On this basis, we conclude that the threat of wildfires has not increased within the range of the butterfly since our 2004 withdrawal of the proposed rule. For these reasons, we do not consider wildfire a significant threat to the species now or in the foreseeable future.

Noxious Weeds

The petitioners assert that the manual weed-pulling program to control noxious weeds does not fully address the threat of noxious weeds to the butterfly. The USFS began the weed-pulling program in 2001, and the program is described in the Conservation Plan (Service *et al.* 2005, p. 34). In our 2004 withdrawal of the proposed listing (69 FR 76428), we found that nonnative vegetation and the application of herbicides are currently being managed, and we concluded that the nonnative vegetation is not a significant threat to the butterfly. There is no information available to suggest that nonnative or noxious weeds are or

will become a threat to the Sacramento Mountains butterfly.

In summary, we have no information to indicate that any of the following are significant threats to the subspecies: Development; recreation; projects such as roads, powerlines, and other small-scale impacts; cattle or feral horse grazing; wildfire; and noxious weeds. On the basis of the information presented above, we find the present or threatened destruction, modification, or curtailment of the habitat or range of the butterfly is not a threat now and we do not foresee that it will be in the future.

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

The petitioners believe that collection threatens the butterfly, reiterating our preliminary finding from the 2001 proposed rule that the butterfly's life history characteristics, attractiveness to collectors due to rarity, and newspaper publications promote collection (66 FR 46575). In our 2004 withdrawal, we concluded that the closure of USFS lands to butterfly collecting in 2000 had reduced the threat of overcollection and that this threat was no longer significant. We did not receive any new information or any explanation as to why the butterfly is threatened by collection now or in the future. Likewise, we have no new information on the potential threat of overcollection since the 2004 withdrawal. We do not have any recent evidence of risks to the butterfly from overutilization for commercial, recreational, scientific, or educational purposes, and we have no reason to believe this factor will become a threat to the species in the future. Therefore, we find overutilization for commercial, recreational, scientific, or educational purposes does not threaten the butterfly now or in the foreseeable future.

C. Disease or Predation

We are not aware of any information indicating that disease or predation threaten the butterfly. Therefore, we find that disease and predation are not threats to the butterfly now or in the foreseeable future.

D. Inadequacy of Existing Regulatory Mechanisms

The petitioners claim that new USFS regulations were recently passed that remove any species viability standard protections that were previously provided in 36 CFR 219.20, a regulation requiring the USFS to address ecological conditions necessary to maintain species viability. The petition also asserts that conservation measures

resulting from section 7 (of the Act) conferencing no longer apply because the species is no longer proposed for listing. Additionally, the petitioners assert that the butterfly has no State protection, as New Mexico does not recognize insects as “wildlife.”

USFS Protections

The butterfly has been designated by the Regional Forester as a Forest sensitive species. Under this designation, the USFS currently analyzes all planned, funded, executed, or permitted programs and activities for possible effects to the species (USFS 2008e and 2009a; 2009h, p. 3). Sensitive species receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for Federal listing (USFS 2009h, p. 3). As a current Forest sensitive species, the butterfly is included in impact analyses by the USFS in all applicable NEPA documents to ensure its continued viability and preclude the need for Federal listing.

On April 21, 2008, a new USFS planning rule (73 FR 21468) was made final. However, on June 30, 2009, the United States District Court for the Northern District of California issued a decision in *Citizens for Better Forestry v. United States Department of Agriculture*, No. C 08-1927 CW (N.D. Cal. June 30, 2009). The court enjoined the USFS from implementing and using the 2008 planning rule and remanded the matter to them for further proceedings. The Government has not yet determined whether to appeal the District Court's June 30, 2009, decision to the Ninth Circuit Court of Appeals. Nevertheless, on July 15, 2009, the USFS issued legal guidance that the planning rule from November 9, 2000 (65 FR 67514) is now in effect (USFS 2009i). As a result, the information on the management and protection of the butterfly on public lands presented in the withdrawal for the butterfly (69 FR 76428; December 21, 2004) is still the best available information that we have. The intent of the Regional Forester's sensitive species designation is to provide a proactive approach to conserving species to prevent a trend toward listing under the Act, and to ensure the continued existence of viable, well-distributed populations.

The USFS policy (FSM 2670.3) states that Biological Evaluations (BEs) must be completed for sensitive species and signed by a journey-level biologist or botanist. The Lincoln National Forest will continue developing BEs and conducting NEPA analyses for each project that will affect the butterfly or its

habitat. This analysis will ensure that projects do not singularly or cumulatively impact the butterfly to such an extent that the species would require Federal listing. Through this process, the USFS will analyze specific project proposals to ensure that the actions being contemplated are consistent with any specific guidelines and standards for the butterfly under the current or a future revised LRMP. In practice, the USFS has taken actions to conserve and avoid impacts to sensitive species, including the butterfly and its habitat (see USFS 2004a, 2004c, 2007c, 2007d, 2007e, 2009a). This NEPA analysis process has been adequate to protect the butterfly. Under the current legal guidance, this oversight and protection will continue under the LRMP and when it is revised (USFS 2009l).

In summary, because the USFS had some authority and regulations in place as we reviewed in our 2004 withdrawal and will continue such efforts into the future, we find these efforts contribute significantly to the adequacy of existing regulatory mechanisms.

On the basis of this information, we believe the butterfly will receive protection and consideration in the future on Forest-wide and project-specific levels by continuing to be analyzed in all applicable NEPA documents. The Service's 2004 withdrawal of the proposed listing rule for the butterfly relied partly on the butterfly's inclusion in the Forest sensitive species designation for maintenance of certain protections for the butterfly through NEPA. Since the butterfly will continue to be considered a sensitive species and specific protections will be provided under the current or future revised LRMP, we find this process adequate to protect the butterfly currently and in the foreseeable future.

New Mexico Statute

The petitioners state that the butterfly has no State protection, because New Mexico does not recognize insects as “wildlife.” This is correct. We presented information about this in the October 7, 2004, draft Conservation Plan for which we invited public comment (69 FR 60178), and we considered this information when we withdrew the proposal to list the species.

Conservation Plan

We signed a Memorandum of Understanding with the Village of Cloudcroft, Otero County, and the USFS, and cooperatively developed a Conservation Plan (Service *et al.* 2005). The Memorandum of Understanding

demonstrates the parties' good-faith efforts to identify and undertake protective measures for the butterfly and its habitat, and it refers to the implementation schedule for specific actions, including time and cost estimates and responsible partners, named in the Conservation Plan to be undertaken to achieve its goals. The goal of the Conservation Plan is to provide conservation and management on public and private lands within the range of the butterfly (69 FR 60178; October 7, 2004).

Otero County has completed one of the conservation measures, amending its subdivision ordinance, which requires that, for any new subdivision to be developed within potential butterfly habitat, a survey be conducted for the butterfly, its habitat, and its larval host plant.

The USFS is committed to continue the implementation of the Conservation Plan (USFS 2009a, p.1), which it has been implementing for the past 4 years. The Conservation Plan called for a variety of measures that the USFS would implement to reduce impacts to the butterfly, including: (1) Managing domestic livestock and controlling of trespass livestock; (2) managing public recreation; (3) protecting the butterfly from the threat of collection; (4) using best management practices during projects; and (5) protecting and managing butterfly habitat. We relied in this finding on these measures because the USFS has demonstrated that these conservation efforts are being implemented and that they are effective. Therefore, we were not required to analyze them under the Service's Policy for Evaluation of Conservation Efforts When Making Listing Determinations (68 FR 15100; March 28, 2003) (PECE).

We did not rely on other conservation efforts identified in the Conservation Plan if they have not yet been fully or reliably implemented because it would require us to speculate on the certainty of their implementation and effectiveness. These efforts are concentrated on conducting research to fill in information gaps. These include determining the duration of larval diapause, investigating the influence of fire on butterfly habitat, and determining whether planting host plants influences butterfly occupancy (Service *et al.* 2005, pp. 56-59). Therefore, we did not analyze those particular conservation efforts as they relate to PECE. Other conservation measures, investigating the influence of grazing on butterfly habitat and analyzing the genetics of the butterfly, are ongoing, while another—evaluating the effectiveness of transplanting

butterflies to augment or expand the range of the species—will be conducted in the near future (for example, McIntyre 2005, Ryan 2007, 2009).

We continue to support the implementation of the Conservation Plan and believe it has assisted in further improving the status of the butterfly and its habitat. For example, we have held two meetings with the implementation team for the Conservation Plan and provided technical assistance on actions proposed by team members (for example, avoidance of impacts from proposed insecticide spraying). The USFS has continued to allocate resources towards conservation efforts and coordinated with all parties involved with the conservation of the butterfly (USFS 2009a). Otero County passed the subdivision ordinance and, similarly, requested technical assistance on minimizing impacts with spraying of a forest insect outbreak (see *E. Other Natural or Manmade Factors Affecting the Species' Continued Existence*).

Private Lands

Beyond the Otero County subdivision ordinance, we are not aware of any specific prohibition on private lands to limit or avoid the destruction of the butterfly and its habitat. Half of the butterfly habitat is in private ownership. However, there are no data available that would allow us to make a conclusion concerning the quality of butterfly habitat on these private lands. The status of the butterfly on private lands is essentially unknown because access is controlled. The only available data concerning private lands are the approximations of the amount of habitat potentially available (USFS 2004a). Although there is a potential for the current and future management of these lands to affect the butterfly or its food plants, we lack specific information on how a lack of protection on private lands threatens the butterfly. As noted under Factor A (*Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range*), we do not believe that private property development is a significant threat to the butterfly currently or in the foreseeable future. We have no information on threats to populations of the butterfly on private lands, but land uses likely include private property development; some recreational use; small-scale habitat impacts in relation to roads, powerlines, and waterlines; livestock grazing; fire suppression; and perhaps noxious weed eradication. Moreover, it is likely that some level of habitat loss has already occurred on private lands and will occur in the

foreseeable future. Nevertheless, this amount of loss is not thought to be a significant threat to the butterfly or its habitat on private lands, given that the butterfly continues to persist on the adjacent public lands managed by the USFS, where these potential impacts do not significantly affect the species.

There are few regulatory mechanisms in place on private lands address the conservation of the butterfly or its habitat, although, as described below, a lack of protection should not affect the ability of the species to persist on private lands currently or in the future. As noted under Factor E (*Other Natural or Manmade Factors Affecting the Species' Continued Existence*), a minimal amount of insecticide spraying from the ground recently occurred on adjoining forested lands, and a small number of butterflies may have been affected if the spray drifted from the targeted forest into nearby meadows and directly contacted the butterflies. However, we concluded under Factor E that such spraying will only affect such a small amount of occupied butterfly habitat that it does not threaten the butterfly with future endangerment. If ground or aerial application of insecticides results in large contiguous blocks of occupied habitat being affected during the active period of the butterfly, these applications would be considered a significant threat. However, as discussed under Factor E, given the recent resolution of a threat from spraying through requests from Otero County and USFS for technical assistance from the Service, we believe that the timing of spraying and areas sprayed in the forests will be adequately controlled so the butterfly will not be threatened with endangerment. This is because the high cost of effective aerial spraying will drive private landowners and developers to combine such efforts on private lands with USFS efforts on USFS lands. Under such a scenario, the butterfly would be considered and analyzed within NEPA conducted by the USFS, which is what happened during the recent spraying of forest insects with *Bacillus thuringiensis* var. *kurstaki* (Btk) in 2007 (USFS 2007).

Although we would be concerned about the loss or alteration of large contiguous blocks of butterfly habitat on private lands, we have no information to indicate that such loss has occurred or will occur in the foreseeable future, nor whether any the loss of butterflies from activities on private lands has affected or will negatively affect the overall ability of the species to persist currently or in the future. Therefore, we find the butterfly is not threatened by a lack of

regulatory mechanisms on private lands at present or in the foreseeable future.

In summary, the butterfly currently receives adequate regulatory protection through the USFS sensitive species designation and the commitments provided in the Conservation Plan. We did not find that lack of State regulatory authority threatens the butterfly, because the USFS, the land management agency with authority over half of the butterfly's range, has instituted proactive protective measures by analyzing potential impacts through the NEPA process and by fulfilling the commitments in the conservation plan. On the basis of our review, we find similar protections will be implemented in the future under a revised LRMP. Their practices have included measures to either avoid impacts or to survey and move the species prior to habitat disturbance. We believe take at a level consistent with prior levels will not cause a decline in the species or affect its future viability such that impacts resulting from actions within occupied habitat constitute a significant threat to the species on USFS or private lands. There are few regulatory mechanisms in place on private lands that specifically target the conservation of the butterfly or its habitat, yet we believe this has not and will not affect the overall ability of the species to persist on private lands currently or in the future. In light of this information, we conclude that adequate regulatory mechanisms exist now and will continue into the foreseeable future.

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

Insecticide Spraying

The petition asserts that control of pest insects, climate change, and extreme weather threaten the butterfly under Factor E. The petitioners requested that we emergency-list the butterfly due to the perceived immediate threat to the butterfly's continued existence from a proposed aerial spraying in the autumn of 2007 of the naturally occurring bacterium *Bacillus thuringiensis* var. *kurstaki* (Btk) to control a fir looper moth (*Nepytia janetae*). However, as explained below, we determined that the potential spraying did not warrant emergency listing.

During summer and autumn 2007, Otero County and the USFS requested, and we provided, technical assistance on appropriate measures to minimize or avoid impacts to the butterfly (USFS 2007c; Otero County 2007a, 2007b). We advised them that mortality from the

application of Btk could be significant if it was applied when larvae of the butterfly were actively feeding (Service 2007a, 2007b, 2007c, 2007d, 2007e, 2007f). The USFS conducted an environmental assessment under NEPA that analyzed the effects to private and Federal lands of Btk spraying on Federal lands (USFS 2007d, 2007f, 2007d). Following that environmental assessment, the USFS, the Village of Cloudcroft, and Otero County waited to spray Btk on 1,788 ha (4,419 ac) of forest to control the fir looper until they and the Service determined from surveys that the larvae of the butterfly were in diapause (inactive and not feeding) (USFS 2007e, 2007g; Service 2007g, 2007h). Surveys confirmed that larvae of the butterfly were in diapause prior to spraying of Btk on November 5, 2007 (USFS 2007e, 2007h, Service 2007g).

Btk is sensitive to sunlight, usually becoming inactive within 7 to 10 days after application (USFS 2007f, p. 30). Therefore, Btk would have been inactive when larvae of the butterfly emerged from diapause in the spring of 2008. Btk is activated by the alkaline condition of the mid-gut of larvae that ingest it. Consequently, larvae must ingest Btk for the bacteria to be toxic. Post-treatment surveys conducted at six localities during July 2008, found no difference in abundance of adult butterflies when compared with pre-treatment surveys in July 2007 (McIntyre 2008, p. 1). This indicates that butterflies survived the spraying of Btk during November 2007, and the spraying of forest insects did not measurably affect the butterfly. Post-spraying monitoring in the autumn of 2007 determined that the fir looper population had declined to nearly undetectable levels on the Forest and adjacent lands (Anderson 2008). Therefore, the USFS concluded that no spraying was needed during March 2008 (Anderson 2008).

As described under Factor D (*Inadequacy of Existing Regulatory Mechanisms*), the butterfly is considered a sensitive species of under the 2000 USFS planning rule (USFS 2009l). Therefore, any future proposed insect treatment by the USFS would undergo an analysis of the potential impacts under NEPA and would follow the applicable LRMP. This analysis would ensure that any insect spraying being contemplated would be consistent with the specific guidelines and standards for the butterfly under the current or a future revised LRMP. We note that the Conservation Plan provided the framework under which the USFS and Otero County requested and received technical assistance on the avoidance of impacts to the butterfly.

Through this framework and subsequent dialog, the USFS carefully chose the timing of Btk application to specifically avoid larvae of the butterfly (USFS 2008h, p. 34). We found that this process successfully avoided impacts to the butterfly. Based principally on information related to the spraying of insecticides that occurred during November 2007 on USFS and private lands and the LRMP standards and guidelines, we believe the framework of the Conservation Plan and applicable NEPA analysis will ensure that, if any future insect control efforts are proposed, effects to the butterfly will be minimized.

The petitioners state that insect control from the ground on private lands was conducted within the Village of Cloudcroft. Newspaper articles provided by the petitioners substantiate that spraying of Confirm 2F was used on an area of private land in June of 2007. In the proposed rule (66 FR 46575; September 6, 2001), we estimated that there were about 4 ha (10 ac) of potentially suitable butterfly habitat within a private development on the east side of the Village of Cloudcroft. From information we have, we believe this private development is the same area sprayed with Confirm 2F. It is unknown how much of the potentially suitable butterfly habitat was sprayed, because no further information is available. It is unlikely that all of the 4 ha (10 ac) of potentially suitable butterfly habitat were sprayed, because insect control was targeting the fir looper within the adjoining mixed conifer forest, whereas the butterfly is found within open meadow habitat. If we assume a worst-case scenario (that drift from the spray affected all of the 4 ha (10 ac) of potentially suitable butterfly habitat within this area), impacts would be less than 0.4 percent of the suitable butterfly habitat (4 of 1,096 ha (10 of 2,709 ac)). In relation to the species' range, this would not be considered a significant impact affecting the future viability of the species and, therefore, does not rise to the level of being a threat.

If future small, ground applications of insecticide spraying (such as Btk) occur on private forested lands, impacts could similarly occur to the butterfly from drift. Spraying meadows would be ineffective for the control of forest insects and a waste of landowner or developer money. It is unlikely that such ground applications would be implemented on a large enough scale to be effective in controlling a severe outbreak of a forest insect pest, suggesting that ground applications are not likely to affect a significant

proportion of occupied butterfly habitat. Nevertheless, if ground or aerial application of Btk or other insecticide results in large contiguous blocks of occupied habitat being affected during the active period of the butterfly, insecticide spraying would be considered a significant threat that would cause the species to become endangered in the foreseeable future. However, given the recent resolution of a threat from insecticide spraying through requests for technical assistance from Otero County and USFS, we believe that concerns over the viability of the butterfly would weigh strongly in any decision to control forest insects. Moreover, we believe it is unlikely that large contiguous blocks of butterfly habitat would be sprayed for forest insects on private lands without combining such efforts with the USFS. Insect control of such a magnitude could only be achieved through aerial spraying; the cost of such efforts averages from 15 to 50 dollars per acre (0.4 ha) (Wisconsin Department of Natural Resources 2009, p. 6; Park Ridge, Illinois 2008), which, over several hundred acres, may be prohibitive for private landowners, unless they work with USFS. Under this scenario, the butterfly would be considered and analyzed within NEPA conducted by the USFS. In fact, this is what transpired during the recent spraying of Btk in 2007 (USFS 2007).

Although we do not anticipate future forest insecticide spraying on private lands to be at a scale that would cause the butterfly to become endangered, we recognize there are currently no mandatory requirements to minimize impacts to the butterfly if spraying was to occur on private lands. Hence, we encourage the Village of Cloudcroft and Otero County to intervene with any private landowner that might contemplate spraying an outbreak of forest insects on their land and request assistance from us under the auspices of the Conservation Plan. A request for technical assistance may be even more likely, given that the previous spraying of forest insects generated a variety of press releases from the USFS and newspaper articles by local press (Anderson 2008; Associated Press 2007; USFS 2007d, 2008). As discussed under Factor D (*Inadequacy of Existing Regulatory Mechanisms*), the Village of Cloudcroft and Otero County have a history of requesting assistance from the Service to avoid impacts to the butterfly when they consider spraying for the fir looper on private lands, and we have provided that assistance. Although past requests for assistance do not guarantee

future requests, they demonstrate a willingness by the Village of Cloudcroft and Otero County to do so. As described below, the fir looper population has declined (USFS 2008g, pp. 1-2), and we do not have any information to indicate that spraying to control future insect outbreaks will occur or that the process followed in 2007 to minimize impacts from spraying would not be followed. We are not aware of any information that demonstrates the butterfly is threatened now or in the foreseeable future from the spraying of Btk or other insecticide.

Alternatively, a NEPA analysis is not required for non-Federal agency spraying on private lands, which comprise about half of the butterfly's suitable habitat; we do not know how much of that suitable habitat on private lands is actually occupied by the butterfly. As described above, landowner spraying on private lands has the potential to affect the butterfly. We acknowledge that if Btk or chemical insecticides, such as Carbaryl or Confir 2F, are applied over large areas when larvae of the butterfly are actively feeding, insect control would pose a serious threat by potentially killing large numbers of the butterfly if the spray occurred within significant amounts of occupied habitat. As discussed above, if large-scale spraying occurs in the future, it is unlikely it would occur without requiring the USFS to consider and analyze the effects to the butterfly under NEPA. It is unknown how much of the potentially suitable or occupied butterfly habitat could be inadvertently sprayed because no information is available on the probability of future forest insect outbreaks. However, the Conservation Plan provided the framework under which Otero County requested and received technical assistance on the avoidance of impacts to the butterfly. One conservation action agreed to in the Conservation Plan was for the Service to provide technical assistance on management of the butterfly when requested. Beyond the impacts from spraying on private lands detailed above, this process avoided impacts on the vast majority of butterfly habitat on private lands.

As described in the withdrawal of the proposed rule (69 FR 76428) and in the discussion above, the USFS has continued efforts to reduce the risk of wildfire. As a result, the probability of bark beetle outbreaks will be greatly reduced (USFS 2004k, p. 2). Although it is likely that periodic insect outbreaks will occur within the range of the butterfly (e.g., see: Logan *et al.* 2003; Logan and Powell 2005; USFS 2008h), we have no information to evaluate the

potential for impacts due to spraying of forest insects with Btk or other insecticide on USFS or private lands because the duration and extent of insect outbreaks cannot be easily predicted (e.g., see Logan *et al.* 2003, p. 133; USFS 2009j, p. 3; Fellin and Dewey 1992, p. 1). For example, the recent outbreak of fir looper was the first outbreak in New Mexico attributed to this species (USFS 2007c, p. 25). Insect outbreaks occur when conditions favor an insect population expanding beyond the control of its natural enemies. These enemies may include parasitic flies and wasps, disease, and predators. Natural enemies are generally the primary cause of the collapse of a defoliating insect outbreak; however, Btk or other insecticides are sometimes used to expedite the collapse (USFS 2007f). As an example, parasites were responsible for the collapse of the short-lived Douglas-fir tussock moth outbreak on the Sacramento District in 2001 and likely partially responsible for the collapse of the fir looper by 2008 (USFS 2007f, p. 25; 2008). Moreover, at least five other forest insect pests have been documented in recent years on the Lincoln National Forest (USFS 2007f, p. 26; 2008h, p. 27), but it is unknown whether any of these will cause an outbreak of such magnitude that insect control would be considered. In our review of the recent insect-pest outbreak and spraying to control forest insects, we found no other reports of documented spraying. While we acknowledge spraying of insecticides has the potential to impact the butterfly if it is conducted within occupied habitat, we have no knowledge or information to assess the potential for insect outbreaks and the possibility of spraying now or in the future.

Climate Change

The petition asserts that climate change is likely a greater threat to the butterfly than was previously considered by the Service. The petitioners assert that scientific information not considered in, or published subsequent to, the 2004 withdrawal indicates that the impact of climate change will be especially severe in New Mexico and the southwestern United States. They cite a State of New Mexico website, which states that the impacts of climate change and climate variability on the environment include the potential for prolonged drought, severe forest fires, warmer temperatures, increased snowmelt, and reduced snow pack (<http://www.nmclimatechange.us/background-impacts.cfm>). The petitioners also note that harm from climate change to butterflies has been

particularly well documented for other species of checkerspot butterflies.

The petitioners cite Parmesan (1996) to support their claim that the butterfly will be imperiled by climate change. Parmesan (1996, p. 765) documented a range shift due to population extinctions in the non-migratory Edith's checkerspot butterfly (*Euphydryas editha*), a related species, in western North America and presented arguments on why the shift was attributable to climate change. The petition correctly indicates that *Penstemon neomexicanus*, the only plant on which the Sacramento Mountains checkerspot butterfly has been found to lay eggs, is known within portions of the Capitan Mountains, which are adjacent to and north of the current range of the butterfly in the Sacramento Mountains. The petition asserts that a slight shift in either the butterfly's or *P. neomexicanus*' distribution, productivity, phenology, or other factors resulting from climate change could imperil the butterfly. The apparent northward range "shift" in the Edith's checkerspot butterfly was due to greater population extinctions at southern latitudes, not to a northward expansion of its range (Parmesan 1996, p. 765). Parmesan (1996, pp. 765-766) discussed why these extinctions were most likely attributable to climate change rather than habitat destruction. If the butterfly were to respond similarly, it may decline at the southern portion of its range, but not expand northward to the Capitan Mountains. However, as described below, we have little information to accurately predict or assess how the butterfly or its food plants will respond to a changing climate.

According to the Intergovernmental Panel on Climate Change (IPCC) (2007), "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level." For the next two decades a global warming of about 0.2 °C (0.4 °F) per decade is projected (IPCC 2007). Afterwards, temperature projections increasingly depend on specific emission scenarios (IPCC 2007). Various emissions scenarios suggest that by the end of the 21st century, average global temperatures are expected to increase 0.6 °C to 4.0 °C (1.1 °F to 7.2 °F), with the greatest warming expected over land (IPCC 2007). Localized projections suggest the Southwest may experience the greatest temperature increase of any area in the lower 48 States (IPCC 2007). The IPCC states it is very likely that

extreme high temperatures, heat waves, and heavy precipitation will increase in frequency (IPCC 2007). Because the butterfly occupies a relatively small area of specialized habitat, it may be vulnerable to climatic changes that could decrease suitable habitat or alter food plant seasonal growth patterns (phenology). However, while it appears reasonable to assume that the butterfly may be affected, as detailed below, we lack sufficient certainty to know specifically how climate change will affect the subspecies.

Parmesan (2009, p. 2) noted that the relationship between climate and survival is driven more by the indirect effects of seasonal growth patterns of host plants and the life cycle of Edith's checkerspot than by the direct effects of temperature and precipitation. However, predicting seasonal growth patterns of butterfly host plants is complicated, because these patterns are likely more sensitive to moisture than temperature, which is predicted to be highly variable and uncertain, especially for the southwestern United States (Bale *et al.* 2002, p. 11; Archer and Predick 2008, p. 2; Enquist and Gori 2008, pp. 16, 30; New Mexico Agency Climate Change Technical Work Group 2005, p. 7). Uncertainty about climate change does not mean that impacts may or may not occur; it means that the risks of a given outcome are difficult to quantify or accurately predict (New Mexico Agency Climate Change Technical Work Group 2005). The interplay between host plant distribution, larval and adult butterfly dispersal, and female choice of where to lay eggs will ultimately determine the population response to climate change (Parmesan 2009, p. 3). However, determining the long-term responses to climate change from even well-studied butterflies in the genus *Euphydryas* is unclear, given their ability to switch to alternative larval food plants in some instances (Parmesan 2009, p. 3; Hellman 2002, p. 933; Singer *et al.* 2007, pp. 312-319; Singer and Thomas 1996, pp. S33-34). Attempts to analyze the interplay between climate and host plant growth patterns using predictive models or general State-wide assessments and to relate these to the butterfly are equally complicated. Despite the potential for future climate change in the Southwest, as discussed above, we have not identified nor are we aware of any data on an appropriate scale to evaluate habitat or populations trends for the butterfly or the Sacramento Mountains or to make predictions on future trends and whether the species will be significantly impacted.

During the active season of prediapause larvae (late summer to early fall), the species *Euphydryas anicia* feeds primarily on plants of the family Scrophulariaceae, including species of *Castilleja* and *Penstemon* (Robinson *et al.* 2009, pp. 1-9). Although the USFS and others have conducted surveys and monitored the butterfly, the subspecies remains poorly studied relative to other butterflies in the genus *Euphydryas* (for example, see Ehrlich and Hanski 2004). We believe that the larvae of this subspecies currently use the food plants *P. neomexicanus* and *V. edulis* (Service *et al.* 2005, pp. 9-11). We have no information that indicates the degree to which, if any, the butterfly uses other plants in the Scrophulariaceae or Plantaginaceae family. In fact, there have been no published studies on food plant preference or use for the butterfly. However, alternative food plant use is not only possible, but probable given that many checkerspot populations in western North America use two or more larval host plants (Ehrlich and Hanski 2004, p. 270; Singer and Wee 2005, p. 350), and this species has already been found to eat other food plants in captivity. For example, Pratt (2008, p. 1) reared larvae on *P. gloxinoides*, whereas Ryan (2009, pers. comm.) reared them on a commercially available *Penstemon* sp. Hutchins (1974, pp. 424-437) reported that almost 40 species of plants in the Scrophulariaceae family occur in the region. Additionally, shifts to new or alternative food plants have been documented in related species, allowing them to colonize new habitat and increase survival of larvae (Singer and Thomas 1996; Hanski and Singer 2001). Available information suggests that if climate change disrupts seasonal growth patterns of food plants, it is conceivable that the butterfly may use alternative food plants that occur within its range (Service *et al.* 2005, p. 38). Nevertheless, we have no information indicating the likelihood that any of these changes will occur in the foreseeable future.

We also have no data on the overlap of seasonal growth patterns between *P. neomexicanus* and the butterfly. No one has monitored the timing of the lifecycle of the butterfly relative to their host plants, *P. neomexicanus* or *V. edulis*, nor how each responds to extreme weather events (drought, late frosts, or storms). Parmesan (2007, p. 1869) has reported that a lifecycle mismatch can cause a shortening of the time window available for larval feeding, causing the death of those individuals unable to complete their larval development into the shortened period. Still, a high proportion of the butterflies Parmesan

(2007 p. 1869) studied fed on annual host plants whose emergence and desiccation are likely more closely linked to annual precipitation patterns than *P. neomexicanus*, which is a perennial, generally living for 2 years or longer (NMRPTC 2005, p. 1). We are not yet capable of making meaningful predictions on whether climate variability (such as higher temperatures or drier conditions) will influence *P. neomexicanus*'s life cycle such that it is out of sequence with the butterfly's larval development (for example, see Parmesan 2007, p. 1869; Service *et al.* 2005, pp. 36-38). Without these data, it remains unclear how climate change will affect the long-term viability of the butterfly.

Predicting future population dynamics and distributions is even more complex for such animals as butterflies that have two very different physiological stages (larva and adult) (for example, see Bale *et al.* 2002, p. 5). Moreover, forecasting the responses of butterflies and other insects to elevated temperatures or decreased precipitation is largely based on field and laboratory studies (Hellmann 2002, pp. 927-929). However, the relationship between these changing environmental conditions and the butterfly has not been studied. Likewise, we have no survey data from the presumed northern end of the butterfly's range. For example, we currently do not know whether the immediately adjacent lands of the Mescalero Apache Tribe are occupied by the butterfly. The host plant for the butterfly occurs south of the current range of the species and to the north in parts of the Sacramento Mountains and into the Capitan Mountains, about 40 to 80 kilometers (25 to 50 miles) north of the current range of the butterfly (Hutchins 1974, pp. 434-435; USFS 2000 pp. 11-12, 19-21). This suggests that the host plants also may be found in some areas of the intervening Tribal lands. Given the similarity in habitat and elevation and the close proximity between Tribal and USFS lands, some of the area may be occupied by the butterfly.

We have identified no reports of apparent habitat, food plant, or population changes of the butterfly related to climate change in New Mexico. Moreover, there is a lack of any real-time data on the relationship between temperature or precipitation trends and the butterfly or its food plants (Service *et al.* 2005, p. 38). We have no specific information on how the butterfly will react to a changing climate, either an increase in temperature or the increasing variability of precipitation. For this reason, the

effect of higher temperatures and the unpredictability of extreme weather and precipitation on the distribution and abundance of the butterfly remains unknown.

Because larvae of the butterfly are closely tied to their food, the distribution of these plants defines the potential distribution of the species. The ability of larvae to move, in conjunction with host plant availability, can lessen the potential effects of climate change (for example, see Hellmann 2002). For example, some species of butterflies may expand their geographical ranges northward or upward elevationally (e.g., see Parmesan 1996; Parmesan *et al.* 1999). If the butterfly moves northward from its current range or higher in elevation, similar to some documented range shifts by other species in the genus *Euphydryas*, suitable habitat may be present. For example, adjacent contiguous areas are available northward on lands owned by the Mescalero Apache Tribe. Alternatively, only 3.2 km (2 mi) south of the butterfly's current range, potential higher elevation (over 2,750 m (9,000 ft)) habitat that contains the foodplants of the butterfly are available (Service 2009). However, we do not have information to predict how the climate will change in the range of the butterfly, and we do not know how any change may alter the range of the species.

As described above, it is likely that insect pest outbreaks will occur within the range of the butterfly, although we do not know whether any insect control would be considered. Nevertheless, climate change may contribute to the proliferation of some forest pest insects, which can lead to defoliation and forest die-back in some areas (Easterling *et al.* 2007, p. 290; Enquist *et al.* 2008, p. 2; USFS 2008g, p. 1). Insect outbreaks in response to the recent drought in the southwest (e.g., Enquist *et al.* 2008, pp. 2, 13) may exemplify this type of climate-related event. Elevated moisture stress from drought in southwestern forests and woodlands has been shown to amplify the effects of insect outbreaks and fire, in addition to increasing the risk of large-scale forest die-back events (Breshears *et al.* 2005, Westerling *et al.* 2006). These disturbances are expected to increase. One of the recent insect outbreaks in the Sacramento Mountains may lead to a short-term increase in the amount of potential butterfly habitat. For example, portions of the mixed conifer forest in the Sacramento Mountains of New Mexico have experienced defoliating insect outbreaks since 2002 (USFS 2008e, p. 1). An infestation of the forest insect species tussock moth (*Orgyia pseudotsugata*),

western spruce budworm (*Choristoneura occidentalis*), New Mexico fir looper (*Galenara consimilis*), and a looper species, *Nepytia janetae* (no common name) resulted in approximately 5,868 ha (14,500 ac) of forest defoliation (USFS 2008e, p. 1). Within this area, tree mortality will average about 50 percent (USFS 2008e, p. 2). The insects primarily defoliated *Pseudotsuga menziesii* (Douglas-fir) and *Abies concolor* (white fir), but *Pinus strobiformis* (southwestern white pine), *Picea engelmannii* (Englemann spruce), and *Pinus ponderosa* (ponderosa pine) were also affected (USFS 2008e, p. 2). About 227 ha (570 ac) of occupied butterfly habitat is interspersed or adjacent to the defoliated areas of the mixed conifer forest (USFS 2008e, p. 41). *Penstemon neomexicanus* and other forbs or grasses will likely respond in the coming years to the increased available sunlight within areas containing a high percentage of dead trees. As a result, *P. neomexicanus* and *Helenium hoopesii* may spread into these adjacent areas, thereby increasing the connectivity between patches of occupied butterfly habitat or increasing the overall amount of potential butterfly habitat. We intend to monitor these areas to determine how the butterfly responds to these changes.

In summary, we have identified and reviewed relevant information on the butterfly and climate change. We acknowledge the potential for climate to change in the Southwest and, thus, within the range of the butterfly. However, as discussed above, there is a great amount of uncertainty with respect to the potential impact on the butterfly or its food plants. No specific data on the seasonal growth patterns and overlap between the food plants or butterfly larvae are available. The ability of other butterfly species in the same genus to switch food plants has been documented. The response of this species to suitable habitat that may be created in the future by climate change is unknown. Weather and climate, particularly precipitation, are highly unpredictable within the range of the species. Multiple hypothetical outcomes associated with climate change could potentially affect butterfly habitat. However, unlike documented declines in other species in the genus *Euphydryas* (e.g., Parmesan 1996, 2006), we lack predictive models on how climate change will affect butterfly habitat. Given that reliable, predictive models have not been developed for use at the local scale in New Mexico's Sacramento Mountains, currently there is little certainty regarding the timing,

magnitude, and net effect of impact. It is possible that the butterfly may be vulnerable to climate change; however, we cannot reliably predict effects of climate-induced changes given the large number of unknowns and the current limitations in available data and climate models. Based on the best available information and our current knowledge and understanding, we find that the effects related to climate change will not result in significant impacts to the butterfly now or in the foreseeable future. Although, we conclude that climate change is not a threat to the butterfly, we intend to continue surveying and monitoring the butterfly population.

The petition asserts that extreme weather threatens the butterfly. However, other than reiterating our preliminary finding from the 2001 proposed listing rule (66 FR 46575; September 6, 2001) that this may be a threat to the species, the petition presents no information or explanation regarding why the butterfly is threatened as a result of extreme weather. In our 2004 proposed listing withdrawal, we found that the butterfly can survive and persist despite natural events such as drought (69 FR 76428; December 21, 2004). Since our finding in that 2004 withdrawal, we have no new information indicating that there is any such threat from extreme weather currently or in the foreseeable future.

Foreseeable Future

The Act does not define the term "foreseeable future." However, in a January 16, 2009, memorandum addressed to the Acting Director of the U.S. Fish and Wildlife Service, the Office of the Solicitor, Department of the Interior, concluded, "'* * * [As] used in the [Act], Congress intended the term 'foreseeable future' to describe the extent to which the Secretary can reasonably rely on predictions about the future in making determinations about the future conservation status of the species.'" In discussing the concept of foreseeable future for the butterfly, we considered: (1) The biological and demographic characteristics of the species (such as generation times, persistence of current populations); (2) our ability to predict or extrapolate the effects of threats facing the butterfly into the future; and (3) the relative permanency or irreversibility of these threats.

Although we did not find any information to allow us to reliably predict that threats would increase significantly in the future, predicting and managing for the effects of potential future threats will be facilitated by the

Conservation Plan and Memorandum of Understanding among the Service, USFS, Otero County and Village of Cloudcroft that are in place and cover the butterfly rangewide (see Conservation Plan section under Factor D). Monitoring of butterfly population numbers and habitat conditions by the USFS is included in the Conservation Plan and any significant decreases in butterfly numbers or habitat conditions should be identified and effectively mitigated by the Service providing technical assistance to the USFS, Otero County, and the Village of Cloudcroft. The Memorandum of Understanding and Conservation Plan will be in place and operating until the tasks identified in the Conservation Plan are successfully completed, after which the Memorandum of Understanding can be renewed, modified, or terminated. The Memorandum of Understanding can be terminated by mutual concurrence of all parties, but because the Conservation Plan has been successfully implemented for 4 years through agreement in the Memorandum of Understanding, we have no reason to believe it will be terminated. Most of the tasks identified in the Conservation Plan are expected to be completed within 15 to 20 years and some will be ongoing. We find this to be a reasonable timeframe for considering the foreseeable future.

Significant Portion of the Range

The Act defines an endangered species as one "in danger of extinction throughout all or a significant portion of its range," and a threatened species as one "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." The term "significant portion of its range" is not defined by the statute. For the purposes of this finding, a significant portion of a species' range is an area that is important to the conservation of the species because it contributes meaningfully to the representation, resiliency, or redundancy of the species. The contribution must be at a level such that its loss would result in a decrease in the ability to conserve the species.

If an analysis of whether a species is threatened or endangered in a significant portion of its range is appropriate, we engage in a systematic process that begins with identifying any portions of the range of the species that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose in analyzing portions of the range that are not reasonably likely to be significant and threatened or endangered. To

identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that (i) The portions may be significant and (ii) the species may be in danger of extinction there or likely to become so within the foreseeable future. In practice, a key part of this analysis is whether the threats are geographically concentrated in some way. If the threats to the species are essentially uniform throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats applies only to portions of the range that are unimportant to the conservation of the species, such portions will not warrant further consideration.

We next address whether any portions of the butterfly's range warrant further consideration. On the basis of our review, we found no geographic concentration of threats either on USFS or private lands such that the subspecies may be in danger of extinction in that portion. Although the potential future opening of the James Allotment to cattle grazing may impact the butterfly and its larval food plants to some extent, we have found that allotments that are grazed by cattle and occupied by the species have not resulted in a significant threat to the butterfly. Similarly, we found that there is no area, either on USFS or private lands, within the range of the butterfly where the potential threat of insecticide spraying may be significantly concentrated or may be substantially greater than in other portions of the range. Therefore, we find that these possible actions will also not result in the endangerment of the butterfly in the foreseeable future within this portion or all of its range. The factors affecting the species are essentially uniform throughout its range, indicating that no portion of the butterfly's range warrants further consideration of possible threatened or endangered status.

Finding

In our review of the status of the butterfly, we carefully examined the best scientific and commercial information available. We identified a number of potential threats to this subspecies, including: Residential and commercial property development; OHV and other recreational impacts; habitat altering projects in relation to roads, powerlines, and other small-scale impacts; cattle and feral horse grazing; wildfire; noxious weeds; butterfly collection; lack of regulatory mechanisms; insect control; climate change; and extreme weather events. To determine whether these factors

individually or collectively put the species in danger of extinction throughout its range, or are likely to do so within the foreseeable future, we first considered whether the risk factors significantly affected the butterfly, or were likely to do so in the future.

Information on population size and trends for the butterfly is limited. The overall population size is unknown because comprehensive surveys are logistically expensive and difficult to conduct and have not been conducted. Some data are available from periodic adult surveys and annual larval surveys, but confounding factors, lack of replication, and sampling errors limit their applicability in evaluating the butterfly's status. Few surveys have been conducted and only in small parts of its range, and, for this and the other reasons listed above, an assessment of population trends using these data would not be accurate. We can draw no conclusions on trend information for the butterfly. Notwithstanding these issues, based on the best available information, we find that the butterfly continues to persist within the same general localities (USFS 2009a; McIntyre 2005, 2008, Ryan 2007, pp. 11-12).

As required by the Act, we considered the five potential factors to assess whether the butterfly is threatened or endangered throughout all or a significant portion of its range. We evaluated existing and potential threats on the butterfly to determine what effects on the species were currently occurring, and whether these impacts currently threaten the butterfly or were likely to increase or decrease in the future. We did not find any current significant threats to the butterfly. We also considered and found that none of these factors were likely to increase within the foreseeable future.

We do not believe that recreational impacts are likely to increase in the foreseeable future, because the USFS has nearly completed reconfiguring their campgrounds to reduce their capacity, thereby limiting potential conflicts with the butterfly. We determined that projects such as roads, powerlines, and other small-scale disturbances have affected and will likely continue to affect the butterfly and its habitat, but do not pose a significant threat to the subspecies. Cattle grazing is being managed by the USFS to attain moderate-intensity grazing that appears to be compatible with the butterfly and its host plants. The potential for significant impacts from wildfire continue to be reduced through the USFS's thinning and prescribed burning program. Moreover, the potential for private property

development still appears to be low, given the scarcity of municipal water within the range of the butterfly. The potential impact of butterfly overcollection continues to be minimal due to a butterfly closure order imposed by the USFS. We determined that the regulatory mechanisms are adequate to provide for the protection of the butterfly on USFS and private lands. We find no reason to conclude that forest insect outbreaks similar to the 2007 event and treatment are likely to disappear. Still, although some spraying occurred on a small area of private lands, we believe that the commitments through the 2005 Conservation Plan and the process for providing technical assistance avoided further impacts to the butterfly. We have no reason to conclude that this process currently in place would change if insecticide spraying is proposed in the future. As detailed above, we find the butterfly is not threatened by a lack of regulatory mechanisms on private lands at present or in the foreseeable future. Emergency listing of the butterfly will always remain an option if the magnitude of a proposed action is likely to make the species become threatened or endangered within the foreseeable future.

Climate change is also likely to continue for the foreseeable future, but there is substantial uncertainty as to how climate change, described in Factor E, will affect the butterfly or its habitat. The uncertainty associated with the information we reviewed does not permit us to make an accurate prediction whether climate change will affect the future viability of the subspecies. We also have no new information indicating that there is any such threat from extreme weather currently or in the foreseeable future.

We reviewed the petition and associated documents, information available in our files, and other published and unpublished information submitted to us during the public comment period following our 90-day petition finding. We have carefully assessed the best scientific and commercial information regarding the biology of this species and its threats. We conclude that the butterfly is not likely to become endangered within the foreseeable future throughout all or a significant portion of its range. We further conclude that the butterfly is not in danger of extinction throughout all or a significant portion of its range. In our judgment, the butterfly will continue to persist into the foreseeable future.

Therefore, we find that listing the Sacramento Mountains checkerspot butterfly as a threatened or endangered species is not warranted.

We will continue to monitor the status of the subspecies and to accept additional information and comments from all concerned governmental agencies, the scientific community, industry, or any other interested party concerning this finding.

References Cited

A complete list of all references cited in this finding is available upon request from the New Mexico Ecological Services Office (see **ADDRESSES**).

Author

The primary authors of this rule are the staff members of the New Mexico Ecological Services Office (see **ADDRESSES**).

Authority

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

Dated: August 24, 2009.

Daniel M. Ashe,

Acting Director, Fish and Wildlife Service.
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