DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2012–0069; MO 92210–0–0008 B2]

RIN 1018–AY52

Endangered and Threatened Wildlife and Plants; Determination of Endangered Species Status for Mount Charleston Blue Butterfly

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine endangered species status under the Endangered Species Act of 1973, as amended (Act), for the Mount Charleston blue butterfly (*Plebejus shasta charlestonensis*), a butterfly subspecies from the Spring Mountains, Clark County, Nevada. The effect of this regulation will be to add this subspecies to the List of Endangered and Threatened Wildlife. Based on information gathered from peer reviewers and the public during the comment period, we

have determined that it is prudent to designate critical habitat for the Mount Charleston blue butterfly. Therefore, we will publish in a separate **Federal Register** notice, our proposed designation of critical habitat for the Mount Charleston blue butterfly.

DATES: This rule is effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: This final rule is available on the Internet at *http://www.regulations.gov* and *http://www.fws.gov/nevada*. Comments and materials received, as well as supporting documentation used in the preparation of this rule, are available for public inspection at *http://www.regulations.gov*. All of the comments, materials, and documentation that we considered in this rulemaking are available, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Nevada Ecological Services Office, 1340 Financial Boulevard, Suite 234, Reno, NV 89502–7147; (775) 861–6300 [phone]; (775) 861–6301 [facsimile].

FOR FURTHER INFORMATION CONTACT: Edward D. Koch, Field Supervisor, Nevada 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:

Executive Summary

This document consists of a final rule to list the Mount Charleston blue butterfly (*Plebejus shasta charlestonensis*) (formerly in genus *Icaricia*) as an endangered species.

Why we need to publish a rule. Under the Act, a species may warrant protection through listing if it is endangered or threatened throughout all or a significant portion of its range. Listing a species as an endangered or threatened species can only be completed by issuing a rule. If a species is determined to be an endangered or threatened species throughout all or a significant portion of its range, we are required to promptly publish a proposal in the **Federal Register** and make a determination on our proposal within 1 year. Critical habitat shall be designated, to the maximum extent prudent and determinable, for any species determined to be an endangered or threatened species under the Act. We will propose to designate critical habitat for the Mount Charleston blue butterfly under the Act in a separate **Federal Register** notice.

This rule will finalize the endangered status for the Mount Charleston blue butterfly. Based on information gathered from peer reviewers and the public during the comment period, we have determined that it is prudent to designate critical habitat for the Mount Charleston blue butterfly. Therefore, in a separate **Federal Register** notice, we will propose to designate critical habitat for the Mount Charleston blue butterfly. We are not finalizing the threatened status for the lupine blue butterfly (*Plebejus lupini texanus*), Reakirt's blue butterfly (*Echinargus isola*), Spring Mountains icarioides blue butterfly

(*Plebejus icarioides austinorum*), and two Spring Mountains dark blue butterflies (*Euphilotes ancilla cryptica* and *Euphilotes ancilla purpura*) based on similarity of appearance to the Mount Charleston blue butterfly under section 4(e) of the Act.

The basis for our action. Under the Act, we can determine that a species is an endangered or threatened species based on 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. We have determined that the Mount Charleston blue butterfly is endangered due to four of these five factors (A, B, D, and E), as discussed below. Threats facing the Mount Charleston blue butterfly increase the risk of extinction of the subspecies, given its few occurrences in a small area. The loss and degradation of habitat due to changes in natural fire regimes and succession, the implementation of recreational development projects and fuels reduction projects, and the increases in nonnative plants (see Factor A discussion) will increase the inherent risk of extinction of the remaining few occurrences of the Mount Charleston blue butterfly. Unpermitted and unlawful collection is a threat to the subspecies due to the small number of discrete populations, overall small metapopulation size, close proximity to roads and trails, and restricted range (Factor B). These threats are likely to be exacerbated by the impact of climate change, which is anticipated to increase drought and extreme precipitation events (see Factor E). The Mount Charleston blue butterfly is currently in danger of extinction because only small populations are known to occupy only 3 of the

17 historical locations, it may become extirpated in the near future at 7 other locations presumed to be occupied, and the threats are ongoing and persistent at all known and presumed-occupied locations.

We have determined that listing the lupine blue butterfly, Reakirt's blue butterfly, Spring Mountains icarioides blue butterfly, and two Spring Mountains dark blue butterflies based on similarity of appearance is no longer advisable and unnecessary because the threat of inadvertent collection and misidentification of the Mount Charleston blue butterfly will be reduced by a closure order issued by the U.S. Department of Agriculture's Forest Service (Forest Service). The application processes for Service and Forest Service collection permits associated with the closure order require thorough review of applicant qualifications by agency personnel, and we believe only highly qualified individuals capable of distinguishing between small, blue butterfly species that occur in the Spring Mountains will be issued permits. As a result, we do not anticipate that individuals with permits will misidentify the butterfly species, and therefore, we do not believe inadvertent collection of the Mount Charleston blue butterfly by authorized individuals will occur. In addition, any collection without permits would be in violation of the closure order and subject to law enforcement action so any purposeful, unlawful collection should also be reduced.

Peer reviewers commented that designating critical habitat would not increase the threat to the Mount Charleston blue butterfly from collection because those individuals interested in collecting Mount Charleston blue butterflies would be able to obtain

occurrence locations from other sources, such as the Internet. Based on these comments, we have determined that designation of critical habitat for the Mount Charleston blue butterfly is prudent. Therefore, elsewhere in a separate **Federal Register** notice, we will propose to designate critical habitat for the Mount Charleston blue butterfly.

Peer review and public comment. We sought comments from knowledgeable individuals with scientific expertise to ensure that our designation is based on scientifically sound data, assumptions, and analyses. We invited these peer reviewers to comment on our listing proposal. We also considered all comments and information we received during the comment period. We received five peer review responses. These peer reviewers generally concurred with listing the Mount Charleston blue butterfly. We also received 10 comments from the general public, including one from a Federal agency. All responses provided additional information, clarifications, and suggestions to improve this final listing determination.

Background

Previous Federal Actions

On September 27, 2012, we published a proposed rule (77 FR 59518) to list the Mount Charleston blue butterfly as endangered, and the lupine blue butterfly, Reakirt's blue butterfly, Spring Mountains icarioides blue butterfly, and two Spring Mountains dark blue butterflies as threatened due to similarity of appearance to the Mount

Charleston blue butterfly. Please refer to that proposed rule for a synopsis of previous Federal actions concerning the Mount Charleston blue butterfly. A 60-day comment period following publication of the proposed rule closed on November 26, 2012.

Species Information

It is our intent to discuss below only those topics directly relevant to the listing of the Mount Charleston blue butterfly as an endangered species in this final rule.

Taxonomy and Subspecies Description

The Mount Charleston blue butterfly is a distinct subspecies of the wider ranging Shasta blue butterfly (*Plebejus shasta*), which is a member of the Lycaenidae family. Currently, seven subspecies of Shasta blue butterflies are recognized: *P. s. shasta*, *P. s. calchas*, *P. s. pallidissima*, *P. s. minnehaha*, *P. s. charlestonensis*, *P. s. pitkinensis*, and *P. s. platazul* (Pelham 2008, pp. 25–26, 379–380). The Mount Charleston blue butterfly is known only to occur in the high elevations of the Spring Mountains, located approximately 25 miles (mi) (40 kilometers (km)) west of Las Vegas in Clark County, Nevada (Austin 1980, p. 20; Scott 1986, p. 410). The first mention of the Mount Charleston blue butterfly as a unique taxon was in 1928 by Garth (p. 93), who recognized it as distinct from the species Shasta blue butterfly (Austin 1980, p. 20). Howe (in 1975, Plate 59) described specimens from the Spring Mountains as the *P. s. shasta* form *comstocki*. However, in 1976, Ferris (p. 14) placed the Mount Charleston blue butterfly

with the wider ranging Minnehaha blue subspecies. Finally, Austin asserted that Ferris had not included specimens from the Sierra Nevada Mountains of extreme western Nevada in his study, and in light of the geographic isolation and distinctiveness of the Shasta blue butterfly population in the Spring Mountains and the presence of at least three other well-defined races (subspecies) of butterflies endemic to the area, it was appropriate to name this population as a subspecies, *P. s. charlestonensis* (Austin 1980, p. 20).

Our use of the genus name *Plebejus*, rather than the synonym *Icaricia*, reflects recent treatments of butterfly taxonomy (Opler and Warren 2003, p. 30; Pelham 2008, p. 265). The Integrated Taxonomic Information System (ITIS) recognizes the Mount Charleston blue butterfly as a valid subspecies based on Austin (1980) (Retrieved May 1, 2013, from the Integrated Taxonomic Information System online database, *http://www.itis.gov*). The ITIS is hosted by the U.S. Geological Survey (USGS) Center for Biological Informatics (CBI) and is the result of a partnership of Federal agencies formed to satisfy their mutual needs for scientifically credible taxonomic information.

As a subspecies, the Mount Charleston blue butterfly is similar to other Shasta blue butterflies, with a wingspan of 0.75 to 1 inch (in) (19 to 26 millimeters (mm)) (Opler 1999, p. 251). The Mount Charleston blue butterfly is sexually dimorphic; males and females occur in two distinct forms. The upper side of males is dark to dull iridescent blue, and females are brown with some blue basally (Opler 1999, p. 251). The subspecies has a row of submarginal black spots on the dorsal side of the hind wing and a

discal black spot on the dorsal side of the forewing and hind wing, which when viewed up close distinguishes it from other small, blue butterflies occurring in the Spring Mountains (Austin 1980, pp. 20, 23; Boyd and Austin 1999, p. 44). The underside of the wings is gray, with a pattern of black spots, brown blotches, and pale wing veins, giving it a mottled appearance (Opler 1999, p. 251). The underside of the hind wing has an inconspicuous band of submarginal metallic spots (Opler 1999, p. 251). Based on morphology, the Mount Charleston blue butterfly is most closely related to the Great Basin populations of the Minnehaha blue butterfly (Austin 1980, p. 23), and it can be distinguished from other Shasta blue butterfly subspecies by the presence of a clearer, sharper, and blacker post-median spot row on the underside of the hind wing (Austin 1980, p. 23; Scott 1986, p. 410).

Distribution

Based on current and historical occurrences or locations (Austin 1980, pp. 20–24; Weiss *et al.* 1997, Map 3.1; Boyd and Murphy 2008, p. 4; Pinyon 2011, Figure 9–11; Thompson *et al.* 2012, pp. 75–85), the geographic range of the Mount Charleston blue butterfly is in the upper elevations of the Spring Mountains, centered on lands managed by the Forest Service in the Spring Mountains National Recreation Area (SMNRA) of the Humboldt-Toiyabe National Forest within Upper Kyle and Lee Canyons, Clark County, Nevada. The majority of the occurrences or locations are along the upper ridges in the Mount Charleston Wilderness and in the Upper Lee Canyon area, while a few are in Upper Kyle Canyon. Table 1 lists the various locations of the Mount Charleston blue

butterfly that constitute the subspecies' current and historical range. Estimates of population size for the Mount Charleston blue butterfly are not available. Although surveys have varied in methodology, effort, frequency, time of year conducted, and sites visited, the occurrence data summarized in Table 1 represent the best scientific information on the distribution of Mount Charleston blue butterfly and how that distribution has changed over time.

Table 1. Locations where the Mount Charleston blue butterfly has been detected since 1928, and the status of the butterfly at those locations.

Location Name	First/Last Time Detected	Most Recent Survey Year(s) (y = detected, n = not detected)	Status	Primary References
1. South Loop Trail, Upper Kyle Canyon	1928/2012	2007 (y), 2008 (n), 2010 (y), 2011 (y), 2012 (y)	Known occupied; adults consistently observed	Weiss *et al.* 1997; Boyd 2006; Kingsley 2007; SWCA 2008; Pinyon 2011; Andrew *et al*. 2013; Thompson *et al.* 2013
2. Las Vegas Ski and Snowboard Resort (LVSSR), Upper Lee Canyon	1963/2012	2007 (n), 2008 (n), 2010 (y), 2011 (n), 2012 (y)	Known occupied; adults consistently observed	Weiss *et al.* 1994; Weiss *et al.* 1997; Boyd and Austin 2002; Boyd 2006; Newfields 2006; Datasmiths 2007; Boyd and Murphy 2008; Andrew *et al.* 2013; Thompson *et al.* 2013
3. Foxtail, Upper Lee Canyon	1995/1998	2006 (n), 2007 (n), 2008 (n),	Presumed occupied; adults	Boyd and Austin 1999; Boyd 2006; Datasmiths 2007;

		2012 (n)	observed less than 20 years ago	Boyd and Murphy 2008; Andrew *et al.* 2013; Thompson *et al.* 2013
4. Youth Camp, Upper Lee Canyon	1995/1995	2006 (n), 2007 (n), 2008 (n), 2012 (n)	Presumed occupied; adults observed less than 20 years ago	Weiss *et al*. 1997; Boyd 2006; Datasmiths 2007; Boyd and Murphy 2008; Andrew *et al.* 2013
5. Gary Abbott, Upper Lee Canyon	1995/1995	2006 (n), 2007 (n), 2008 (n), 2012 (n)	Presumed occupied; adults observed less than 20 years ago	Weiss *et al.* 1997; Boyd 2006; Datasmiths 2007; Boyd and Murphy 2008; Andrew *et al.* 2013; Thompson *et al.* 2013
6. Lower LVSSR Parking, Upper Lee Canyon	1995/2002	2007 (n), 2008 (n), 2012 (n)	Presumed occupied; adults observed less than 20 years ago	Weiss *et al.* 1997; Boyd 2006; Datasmiths 2007; Boyd and Murphy 2008; Andrew *et al.* 2013; Thompson *et al.* 2013
7. Mummy Spring, Upper Kyle Canyon	1995/1995	2006 (n), 2012 (n)	Presumed occupied; adults observed less than 20 years ago	Weiss *et al.* 1997; Boyd 2006; Andrew *et al.* 2013; Thompson *et al.* 2013
8. Lee Meadows, Upper Lee Canyon	1965/1965	2006 (n), 2007 (n), 2008 (n), 2012[2] (n)	Presumed extirpated	Weiss *et al.* 1997; Boyd 2006; Datasmiths 2007; Boyd and Murphy 2008; Andrew *et al.* 2013; Thompson *et al.* 2013
9. Bristlecone Trail	1990/1995	2007 (n), 2011 (n), 2012 (n)	Presumed occupied; adults intermittently observed	Weiss *et al.* 1995; Weiss *et al.* 1997; Kingsley 2007; Thompson *et al.* 2013Andrew *et al.*

				2013
10. Bonanza Trail	1995/2012	2006 (n), 2007 (n), 2011 (y), 2012 (y)	Known occupied; adults consistently observed	Weiss *et al.* 1997; Boyd 2006; Kingsley 2007; Andrew *et al.* 2013; Thompson *et al.* 2013
11. Upper Lee Canyon holotype	1963/1976	2006 (n), 2007 (n), 2012[1] (n)	Presumed extirpated	Weiss *et al.* 1997; Boyd 2006; Datasmiths 2007; Andrew *et al.* 2013
12. Cathedral Rock, Kyle Canyon	1972/1972	2007 (n), 2012[1] (n)	Presumed extirpated	Weiss *et al.* 1997; Datasmiths 2007; Andrew *et al.* 2013
13. Upper Kyle Canyon Ski Area	1965/1972	1995 (n), 2012[1] (n)	Presumed extirpated	Weiss *et al.* 1997; Andrew *et al.* 2013
14. Old Town, Kyle Canyon	1970s/1970s	1995 (n), 2012[1] (n)	Presumed extirpated	The Urban Wildlands Group, Inc. 2005
15. Deer Creek, Kyle Canyon	1950/1950	Unknown, 2012[1] (n)	Presumed extirpated	Howe 1975; Andrew *et al.* 2013
16. Willow Creek	1928/1928	2010 (n), 2012[2] (n)	Presumed extirpated	Weiss *et al.* 1997; Thompson *et al.* 2010; Andrew *et al.* 2013
17. Griffith Peak	1995/1995	2006 (n), 2012 (n)	Presumed occupied; adults observed less than 20 years ago	Weiss *et al.* 1997; Boyd 2006; Andrew *et al.* 2013

[1] Site was visited in 2012, but was not surveyed due to absence of larval host plants and lack of habitat suitability for Mount Charleston blue butterfly (Andrew *et al.* 2013, pp. 29–35, 56–57).
[2]Site does not have habitat to support Mount Charleston blue butterfly, but it was surveyed in 2012 because blue butterflies from the surrounding area could possibly be observed (Andrew *et al.* 2013, pp. 51–52, 60).

We presume that the Mount Charleston blue butterfly is extirpated from a location

when it has not been recorded at that location through formal and informal surveys or incidental observation for more than 20 years. We selected a 20-year time period because it would likely allow for local extirpation and recolonization events to occur should the Mount Charleston blue butterfly function in a metapopulation dynamic, and a 20-year time period would be enough time for succession or other vegetation shifts to render the habitat unsuitable (see discussion in "Habitat" and "Biology" sections, below). Using this criterion, the Mount Charleston blue butterfly is considered to be "presumed extirpated" from 7 of 17 locations (Locations 8 and 11 through 16 in Table 1) (Service 2006a, pp. 8–9). In the September 27, 2012, proposed rule (77 FR 59518), we identified Lee Meadows to be presumed occupied. After reviewing the available data, we determined the Mount Charleston blue butterfly has not been observed in Lee Meadows since 1965 (Weiss *et al*. 1997, p. 10); therefore, this site should be considered presumed extirpated. We also consider these sites to be historic because they no longer have larval host plants or nectar plants to support the Mount Charleston blue butterfly (Andrew *et al.* 2013, pp. 29–31, 34–35, 51–52, 56–57, 60). Of the remaining 10 locations, 7 locations are "presumed occupied" by the subspecies (Locations 3 through 7, 9, and 17 in Table 1), and the other 3 are "known occupied" (Locations 1, 2, and 10 in Table 1) (Service 2006a, pp. 7–8). In the proposed rule (77 FR 59518), we identified the Bonanza Trail location (Location 10) as presumed occupied. Detections of the Mount Charleston blue butterfly at Bonanza Trail were confirmed during 2011 and 2012 surveys (Andrew *et al.* 2013, pp. 58–59). Based on this new information, we now consider the Bonanza Trail area to be a known occupied location by the Mount Charleston blue butterfly. We note that the probability of detection of Mount Charleston blue butterflies at a particular location in a

given year is affected by factors other than the butterfly's abundance, such as survey effort and weather, both of which are highly variable from year to year.

The presumed occupied category (Locations 3 through 7, 9, and 17 in Table 1) is defined as a location within the known range of the subspecies where adults have been observed within the last 20 years and nectar plants are present to support Mount Charleston blue butterflies, and where there is potential for diapausing (a period of suspended growth or development similar to hibernation) larvae to be present because larval host plants are present (see "Biology" section, below, for details on Mount Charleston blue butterfly diapause). At some of these presumed occupied locations (Locations 4, 5, 7, 9, and 17 in Table 1), the Mount Charleston blue butterfly has not been recorded through formal surveys or informal observation since 1995 by Weiss *et al.* (1997, pp. 1–87). Of the presumed occupied locations, 3 and 6 have had the most recent observations (observed in 1998 and 2002, respectively) (Table 1). In the proposed rule (77 FR 59518), we did not identify Griffith Peak as a location for the Mount Charleston blue butterfly, but after reviewing the available data, we determined Mount Charleston blue butterfly had been observed in 1995 at Griffith peak (Weiss *et al.* 1997, p. 10 and Map 3.1); therefore, this location should be considered presumed occupied. In July 2013, the Carpenter 1 Fire burned into habitat of the Mount Charleston blue butterfly along the ridgelines between Griffith Peak and South Loop spanning a distance of approximately 3 miles (5 km). Within this area there are low, moderate, or high quality patches of Mount Charleston blue butterfly habitat intermixed with non-habitat. The full extent of impacts to the habitat and Mount Charleston blue butterflies occurring at the Griffith Peak

location are unknown, but the vegetation at this site may be unsuitable to support Mount Charleston blue butterflies until the appropriate plants reestablish.

We consider the remaining three Mount Charleston blue butterfly locations or occurrences to be "known occupied" (Locations 1, 2, and 10 in Table 1). Known occupied locations have had successive observations during multiple years of surveys and have the nectar and larval host plants to support Mount Charleston blue butterflies. The South Loop Trail, Las Vegas Ski and Snowboard Resort (LVSSR), and Bonanza Trail are considered to be known occupied locations.

The South Loop Trail location is in Upper Kyle Canyon within the Mount Charleston Wilderness. The South Loop Trail location (Location 1 in Table 1) is considered known occupied because: (1) The butterfly was observed on the site in 1995, 2002, 2007, 2010, 2011, and 2012 (Service 2007, pp. 1–2; Kingsley 2007, p. 5; Pinyon 2011, pp. 17–19; Andrew *et al.* 2013, pp. 20–26); and (2) the site supports at least one of the larval host plant species, *Astragalus calycosus* var. *calycosus* (Torrey's milkvetch) (Weiss *et al.* 1997, p. 31; Kingsley 2007, pp. 5 and 10; Thompson *et al.* 2012, pp. 75–85), and known nectar plants, including *Hymenoxys lemmonii* (Lemmon's bitterweed) and *Erigeron clokeyi* (Clokey fleabane) (SWCA 2008, pp. 2 and 5; Pinyon 2011, p. 11). This area has been mapped using a global positioning system unit and field-verified. The total area of habitat mapped by Pinyon in 2011 (Pinyon 2011, Figure 8; Service 2013, pp. 1–6) at South Loop Trail location is 190.8 acres (ac) (77.2 hectares (ha)). The area was delineated into polygons and classified as poor, moderate, and good habitat (Pinyon

2011, p. 11). Most observations in 2010 and 2011 occurred in two good habitat areas totaling 60.1 ac (24.3 ha) (Pinyon 2011). In July 2013, the Carpenter 1 Fire burned into habitat of the Mount Charleston blue butterfly along the ridgelines between Griffith Peak and South Loop spanning a distance of approximately 3 miles (5 km). The majority of Mount Charleston blue butterfly moderate- or high-quality habitat in the South Loop Trail location was classified as having a low or very low soil burn severity (Kallstrom 2013, p. 4). Adult butterflies may have been able to escape the fire, but the full extent of impacts to egg, larval, pupal, or adult life stages from exposure to lethal levels of smoke, gases, and convection or radiant heat from the fire will be unknown until surveys are performed on the ground. The areas in the South Loop Trail location with the highest density of Mount Charleston blue butterflies may have been unaffected by heat and smoke because it was outside the fire perimeter in an area slightly lower in elevation, below a topographic crest. Thus, Mount Charleston blue butterflies in these areas may have received topographic protection as smoke and convective heat moved above the area and may have been protected if they were in the soil or among the rocks; however, butterflies may have been exposed to lethal radiant heat. Damage to larval host and adult nectar plants in unburned, very low, or low soil burn severity areas has not been determined. The South Loop Trail area is considered the most important remaining population area for the Mount Charleston blue butterfly (Boyd and Murphy 2008, p. 21).

We consider the LVSSR location in Upper Lee Canyon (Location 2 in Table 1) to be “known occupied” because: (1) The butterfly was first recorded at LVSSR in 1963 (Austin 1980, p. 22) and has been consistently observed at LVSSR every year between

1995 and 2006 (with the exception of 1997 when no surveys were performed (Service 2007, pp. 1–2)), and in 2010 (Thompson *et al.* 2010, p. 5) and 2012 (Andrew *et al.* 2013, p. 41); and (2) the site supports at least one of the known larval host plant species, *Astragalus calycosus* var. *calycosus* (Weiss *et al.* 1997, p. 31), and known nectar plants, including *Hymenoxys lemmonii* and *Erigeron clokeyi* (Andrew *et al.* 2013, pp. 37–47). These areas are LVSSR #1 (17.4 ac (7.0 ha)) and LVSSR #2 (8.3 ac (3.3 ha)) (Service 2006a, p.1; Andrew *et. al*. 2013, pp. 79; Service 2013, pp. 1–6), which have been mapped using a global positioning system unit and field-verified.

We consider the Bonanza Trail location in Upper Lee Canyon (Location 10 in Table 1) to be "known occupied" because: (1) The butterfly has been recorded here in several years in the last 2 decades with the first record from 1995 (Weiss *et al*. 1997, p. 10) and subsequent records in 2011 and 2012 (Andrew *et al.* 2013, 57–59); and (2) the site supports the larval host plant species, *Astragalus calycosus* var. *calycosus* (Weiss *et al.* 1997, p. 31; Andrew *et al.* 2013, p. 57–59), and known nectar plants, including *Erigeron clokeyi, Hymenoxys lemmonii* and *Eriogonum umbellatum* var. *subaridum* (sulphur-flower buckwheat) (Weiss *et al.* 1997, p. 11; Andrew *et al.* 2013, p. 57–59). The total area of habitat at the Bonanza Trail area that has been mapped is 50.7 ac (20.5 ha) (Andrew *et al*. 2013, p. 87 and 89; Service 2013, pp. 1–6).

Currently, the Mount Charleston blue butterfly is known to persistently occupy less than 267.1 ac (108.1 ha) of habitat, and its known current distribution has decreased to a narrower range than it historically occupied.

Status and Trends

Surveys over the years have varied in methodology, effort, frequency, time of year conducted, and sites visited; therefore, we cannot statistically determine population size, dynamics, or trends for the Mount Charleston blue butterfly. While there is no population size estimate for the Mount Charleston blue butterfly, the best available information indicates a declining trend for this subspecies, as discussed below. Prior to 1980, the population status of the Mount Charleston blue butterfly was characterized as usually rare but common in some years (Austin and Austin 1980, p. 30). A species can be considered rare when its spatial distribution is limited or when it occurs in low densities but is potentially widely distributed (MacKenzie *et al.* 2005). Based on this definition, we consider the Mount Charleston blue butterfly to be rare, because it occurs in a narrow range of the Spring Mountains in apparently low densities (Boyd and Austin 1999, p. 2).

The number of locations where the Mount Charleston blue butterfly has been observed during surveys has decreased in the last 20 years, and the number of Mount Charleston blue butterfly observations at one historically important site (i.e., LVSSR) has also declined. Count statistics are products of the detection probability and the number of individuals present in a survey location (MacKenzie *et al.* 2005, p. 1101). While detection probabilities "may vary with environmental variables, such as weather conditions; different observers; or local habitats" (MacKenzie and Kendall 2002, p.

2388), the decrease in observations in recent years is most likely attributable to decreases in distribution and numbers of Mount Charleston blue butterflies. Year-to-year fluctuations in population numbers can also occur due to variations in precipitation and temperature, which affect both the Mount Charleston blue butterfly and its larval host plant (Weiss *et al.* 1997, pp. 2–3 and 31–32). However, the failure to detect Mount Charleston blue butterflies at many of the known historical locations during the past 20 years, especially in light of increased survey efforts since 2006, indicates a reduction in the butterfly's distribution and a likely decrease in total population size. Furthermore, four additional locations may be presumed to be extirpated in the near future, if surveys continue to fail to detect Mount Charleston blue butterflies. These include Youth Camp, Gary Abbott, Mummy Spring, and Griffith Peak (Table 1). Mount Charleston blue butterflies were last observed at these sites in 1995 (Weiss *et al.* 1997), which was considered a good year (Boyd and Murphy 2008, p. 22) for Mount Charleston blue butterflies. Each of these four sites was surveyed in 2012, and no Mount Charleston blue butterflies were detected (Andrew *et al.* 2013, pp. 32–37, 47–49 and 52–55). At Griffith Peak, larval host and nectar plants are present, and tree and shrub densities are minimal so that the site is nearly free of canopy cover (Andrew *et al.* 2013, p. 35–37). While larval host and nectar plants were present at Youth Camp, Gary Abbott, and Mummy Spring, vegetation at these sites is threatened by increased understory and overstory (Andrew *et al.* 2013, pp. 32–35, 47–49, 52–55). Larval host and nectar plants are lacking at Lee Meadows (Andrew *et al.* 2013, pp. 51–52). Therefore, these sites, with the exception of Griffith Peak, are or may soon be considered unsuitable for the Mount Charleston blue butterfly.

Surveys conducted in 1995 represent one of the years with the highest number of Mount Charleston blue butterflies recorded at LVSSR. Two areas of LVSSR were each surveyed twice, and 121 Mount Charleston blue butterflies were counted and their presence detected at several other locations (*i.e.*, Foxtail, Gary Abbott, Mummy Spring, Bristlecone Trail, Bonanza Trail, South Loop, Griffith Peak) (Weiss 1996, p. 4; Weiss *et al.* 1997, Table 2 and Map 3.1). One LVSSR area was surveyed once in 2002, with an equally high number of Mount Charleston blue butterflies as recorded in 1995 (Dewberry *et al.* 2002, p. 8). Such high numbers at LVSSR have not been recorded since 2002 (Boyd 2006, p. 1; Datasmiths 2007, p. 18; Andrew *et al.* 2013, pp. 38–47; Thompson *et al.* 2012, pp. 76, 77).

In 2006, Boyd (2006, pp. 1–2) surveyed for Mount Charleston blue butterflies at nearly all previously known locations and within potential habitat along Griffith Peak, North Loop Trail, Bristlecone Trail, and South Bonanza Trail, but did not observe the butterfly at any of these locations. One individual butterfly was observed at LVSSR adjacent to a pond that holds water for snowmaking (Newfields 2006, pp. 10, 13, and C5), but in a later report, the accuracy of this observation was questioned and considered erroneous (Newfields 2008, p. 27). In 2007, surveys were again conducted in previously known locations in Upper Lee Canyon and LVSSR, but no butterflies were recorded (Datasmiths 2007, p. 1; Newfields 2008, pp. 21–24).

While LVSSR had relatively high counts of Mount Charleston blue butterflies in the mid-1990s and early 2000s (121 in 1995 (Weiss 1996, p. 4); 67 in 2002 (Dewberry *et al.* 2002, p. 8)), recent surveys have not yielded such high counts, suggesting a decline of Mount Charleston blue butterflies in this area. In 2010, the Mount Charleston blue butterfly was observed during surveys at LVSSR and the South Loop Trail area. One adult was observed in Lee Canyon at LVSSR on July 23, 2010, but no other adults were detected at LVSSR during surveys of two areas conducted on August 2, 9, and 18, 2010 (Thompson *et al.* 2010, pp. 4–5). Mount Charleston blue butterflies were not observed at LVSSR in 2011, and three adults were observed at one of two surveyed areas in 2012 (female on June 27, one female on July 3, and one male on July 11) (Andrew *et al.* 2013, p. 41).

Until 2010, only incidental observations of the Mount Charleston blue butterfly had been recorded at the South Loop Trail area, so it is unknown if there have been changes in occupancy here. However, surveys in recent years indicate that the South Loop Trail area is an important area for the Mount Charleston blue butterfly. In 2007, two Mount Charleston blue butterflies were sighted on two different dates at the same location on the South Loop Trail in Upper Kyle Canyon (Kingsley 2007, p. 5). In 2008, butterflies were not observed during surveys of Upper Lee Canyon and the South Loop Trail (Boyd and Murphy 2008, pp. 1–3; Boyd 2008, p. 1; SWCA 2008, p. 6), although it is possible that adult butterflies may have been missed on the South Loop Trail because the surveys were performed very late in the season. No formal surveys were conducted in 2009, and during the few informal attempts made to observe the subspecies by Forest

Service biologists, no Mount Charleston blue butterflies were observed (Service 2009). A total of 63 Mount Charleston blue butterflies were counted in this area in 2010, with the highest count of 17 occurring on July 28 (Pinyon 2011, p. 17). In 2011, a total of 55 Mount Charleston blue butterflies were documented at the South Loop Trail area, with the highest count of 25 occurring on August 11 (Thompson *et al.* 2012, pp. 77, 80). In 2012, 94 Mount Charleston blue butterflies were counted during all surveys, with a high count of 34 recorded on July 9 (Andrew *et al.* 2013, p. 22).

Based on the available survey information, multiple Mount Charleston blue butterfly locations are currently considered extirpated, and several more locations may be considered extirpated if sightings are not made in upcoming surveys. Currently, three sites are known to be occupied, with LVSSR having much lower counts in recent years than prior to 2003. At the majority of the presumed occupied locations, the Mount Charleston blue butterfly has not been observed since the mid- to late-1990s. These trends likely reflect a decrease in the distribution and population size of the Mount Charleston blue butterfly and may be confirmed with repeated surveys of the same sites with similar effort, surveyors, and methodology.

Habitat

Weiss *et al.* (1997, pp. 10–11) describe the natural habitat for the Mount Charleston blue butterfly as relatively flat ridgelines above 2,500 meters (m) (8,200 feet (ft)), but isolated individuals have been observed as low as 2,000 m (6,600 ft). Boyd and

Murphy (2008, p. 19) indicate that areas occupied by the subspecies featured exposed soil and rock substrates with limited or no canopy cover or shading and flat to mild slopes. Like most butterfly species, the Mount Charleston blue butterfly is dependent on plants both during larval development (larval host plants) and the adult butterfly flight period (nectar plants). The Mount Charleston blue butterfly requires areas that support *Astragalus calycosus* var. *calycosus*, which until recently was thought to be the only known larval host plant for the subspecies (Weiss *et al.* 1994, p. 3; Weiss *et al.* 1997, p. 10; Datasmiths 2007, p. 21), as well as primary nectar plants, *Astragalus calycosus* var. *calycosus* and *Erigeron clokeyi*; however, butterflies have also been observed using *Hymenoxys lemmonii* and *Aster* sp. as nectar plants (Boyd 2005, p. 1; Boyd and Murphy 2008, p. 9).

The best available habitat information relates mostly to the Mount Charleston blue butterfly's larval host plant, with little information available characterizing the butterfly's interactions with its known nectar plants or other elements of its habitat. The Mount Charleston blue butterfly has most frequently been documented using *Astragalus calycosus* var. *calycosus* as its larval host plant (Weiss *et al.* 1997, p. 10). In 2011 and 2012, researchers from the University of Nevada Las Vegas observed female Mount Charleston blue butterflies landing on and exhibiting pre-oviposition behavior on *Astragalus calycosus* var. *calycosus*, *Astragalus lentiginosus* var. *kernensis*, and *Astragalus platytropis* (Andrew *et al.* 2012, p. 3). Andrew *et al.* (2013, p. 5) also documented Mount Charleston blue butterfly eggs on all three of these plant species and state that, unless it can be demonstrated that larvae are unable to develop and survive on

the latter two species, these field observations indicate that the Mount Charleston blue butterfly utilizes a minimum of three larval host plants.

Astragalus calycosus var. *calycosus*, *Astragalus lentiginosus* var. *kernensis*, and *Astragalus platytropis* are small, low-growing, perennial herbs that have been observed growing in open areas between 1,520 to 3,290 m (5,000 to 10,800 ft) (Andrew *et al.* 2013, pp. 3–4) in subalpine, bristlecone, and mixed-conifer vegetation communities of the Spring Mountains (Provencher 2008, Appendix II). Within the alpine and subalpine range of the Mount Charleston blue butterfly, Weiss *et al.* (1997, p. 10) observed the highest densities of *Astragalus calycosus* var. *calycosus* in exposed areas and within canopy openings and lower densities in forested areas. Because the Mount Charleston blue butterfly's use of *Astragalus lentiginosus* var. *kernensis* and *Astragalus platytropis* as larval host plants is recent, little focus and documentation of these species in the Spring Mountains have been made. During 2012 surveys, Thompson *et al.* (2013b, presentation) qualitatively observed that *Astragalus platytropis* is fairly rare in the Spring Mountains and co-occurs with *Astragalus lentiginosus*, while *Astragalus calycosus* var. *calycosus* and *Astragalus lentiginosus* var. *kernensis* are more abundant.

More information regarding the occurrence of *Astragalus calycosus* var. *calycosus* in the Spring Mountains exists than for *Astragalus lentiginosus* var. *kernensis* and *Astragalus lentiginosus.* In 1995, *Astragalus calycosus* var. *calycosus* plant densities at Mount Charleston blue butterfly sites were on the order of 1 to 5 plants per square meter (Weiss *et al.* 1997, p. 10). Weiss *et al.* (1997, p. 31) stated that plant densities in

favorable habitat for the Mount Charleston blue butterfly could exceed more than 10 plants per square meter of *Astragalus calycosus* var. *calycosus*. Thompson *et al.* (2012, p. 84) documented an average of 41 *Astragalus calycosus* var. *calycosus* plants per square meter at the South Loop Trail location where the majority of recent Mount Charleston blue butterflies has been documented. Weiss *et al.* (1995, p. 5) and Datasmiths (2007, p. 21) indicate that, in some areas, butterfly habitat may be dependent on old or infrequent disturbances that create open understory and overstory. Overstory canopy within patches naturally becomes higher over time through succession, increasing shade and gradually becoming less favorable to the butterfly. Therefore, we conclude that open areas with visible mineral soil and relatively little grass cover and high densities of larval host plants support the highest densities of butterflies (Boyd 2005, p. 1; Service 2006b, p. 1). During 1995, an especially high-population year (a total of 121 butterflies were counted during surveys of two areas at LVSSR on two separate dates (Weiss 1996, p. 4)), Mount Charleston blue butterflies were observed in small habitat patches and with open understory and overstory where *Astragalus calycosus* var. *calycosus* was present in low densities, on the order of 1 to 5 plants per square meter (Weiss *et al.* 1997, p. 10; Newfields 2006, pp. 10 and C5). Therefore, areas with lower densities of the larval host plant may also be important to the subspecies, as these areas may be intermittently occupied or may be important for dispersal.

Lack of fire and management practices have likely limited the formation of new habitat for the Mount Charleston blue butterfly, as discussed below. The Forest Service began suppressing fires on the Spring Mountains in 1910 (Entrix 2008, p. 113).

Throughout the Spring Mountains, the less-open areas, and higher density of trees and shrubs that are currently present, are likely due to a lack of fire, which has been documented in a proximate mountain range (Amell 2006, pp. 2–3). Other successional changes that have been documented include increased forest area and forest structure (higher canopy cover, more young trees, and expansion of species less tolerant of fire) (Nachlinger and Reese 1996, p. 37; Amell 2006, pp. 6–9; Boyd and Murphy 2008, pp. 22–28; Denton *et al.* 2008, p. 21; Abella *et al.* 2012, pp. 128, 130). All of these changes result in an increase in vegetative cover that is generally less suitable for the Mount Charleston blue butterfly. Boyd and Murphy (2008, pp. 23, 25) hypothesized that the loss of presettlement vegetation structure over time has caused the Mount Charleston blue butterfly's metapopulation dynamics to collapse in Upper Lee Canyon. Similar losses of suitable butterfly habitat in woodlands and their negative effect on butterfly populations have been documented (Thomas 1984, pp. 337–338). The disturbed landscape at LVSSR provides important habitat for the Mount Charleston blue butterfly (Weiss *et al.* 1995, p. 5; Weiss *et al.* 1997, p. 26). Periodic maintenance (removal of trees and shrubs) of the ski runs has effectively arrested forest succession on the ski slopes and serves to maintain conditions favorable to the Mount Charleston blue butterfly, and to its host and nectar plants. However, the ski runs are not specifically managed to benefit habitat for this subspecies, and operational activities regularly modify Mount Charleston blue butterfly habitat or prevent larval host plants from reestablishing in disturbed areas.

An increase in forest canopy growth and encroachment, and lack of host or nectar plants, seems to be a limiting factor for the Mount Charleston blue butterfly. Both host

and nectar plants for the Mount Charleston blue butterfly are present at the locations we consider presumed occupied (Table 1), whereas the vegetation at the presumed extirpated locations no longer includes host or nectar plants sufficient to support the subspecies (Andrew *et al.* 2013, pp. 5–65). While host and nectar plants are relatively abundant at the presumed occupied locations of Foxtail, Youth Camp, Gary Abbott, and LVSSR, these locations are threatened by forest canopy growth and encroachment (Andrew *et al.* 2012, p. 45 Andrew *et al.* 2013, pp. 47–54). Lee Meadows, Cathedral Rock, Upper Lee Canyon holotype, Upper Kyle Canyon Ski Area, Old Town, Deer Creek, and Willow Creek are presumed extirpated (Table 1) and have limited or entirely lack Mount Charleston blue butterfly host or nectar plants (Andrew *et al.* 2013, pp. 29–60). While vegetation conditions in the past at these sites are not well-documented, we presume that they contained host and nectar plants for the Mount Charleston blue butterfly because individuals of the subspecies were observed at these locations. The vegetation at the majority of these sites is not likely to be suitable for the Mount Charleston blue butterfly without substantial changes (Andrew *et al.* 2013, pp. 29–60), and therefore, restoration of these sites may be cost-prohibitive. *Astragalus calycosus* var. *calycosus* has been successfully germinated during lab experiments (Thompson *et al.* 2013a, pp. 244–265); however, we currently do not have information on whether or not germinated plants can successfully be transplanted to restoration sites. Therefore, we do not consider substantial restoration of sites to be a feasible option. The vegetation at Upper Lee Canyon holotype does have diffuse *Astragalus calycosus* var. *calycosus* present (Andrew *et al.* 2013, p. 56–57) and could be suitable for restoration with nectar plant species. Overall, the number of locations with suitable vegetation to support Mount Charleston

blue butterflies is limited and appears to be declining due to a lack of disturbance to set back succession.

Biology

Specific information regarding diapause of the Mount Charleston blue butterfly is lacking, and while geographic and subspecific variation in life histories can vary, we present information on the diapause of the closely related Shasta blue butterfly, as it may be similar to the Mount Charleston blue butterfly. The Shasta blue butterfly is generally thought to diapause at the base of its larval host plant or in the surrounding substrate (Emmel and Shields 1978, p. 132). The Shasta blue butterfly diapauses as an egg the first winter and as a larvae near maturity the second winter (Ferris and Brown 1981, pp. 203–204; Scott 1986, p. 411); however, Emmel and Shields (1978, p. 132) suggested that diapause was passed as partly grown larvae, because freshly hatched eggshells were found near newly laid eggs (indicating that the eggs do not overwinter). Prolonged or multiple years of diapause has been documented for several butterfly families, including Lycaenidae (Pratt and Emmel 2010, p. 108). For example, the pupae of the variable checkerspot butterfly (*Euphydryas chalcedona*, which is in the Nymphalid family) are known to persist in diapause up to 5 to 7 years (Scott 1986, p. 28). The number of years the Mount Charleston blue butterfly can remain in diapause is unknown. Boyd and Murphy (2008, p. 21) suggest the Mount Charleston blue butterfly may be able to delay maturation during drought or the shortened growing seasons that follow winters with heavy snowfall and late snowmelt by remaining as eggs. Experts have hypothesized and

demonstrated that, in some species of Lepidoptera, a prolonged diapause period may be possible in response to unfavorable environmental conditions (Scott 1986, pp. 26–30; Murphy 2006, p. 1; Datasmiths 2007, p. 6; Boyd and Murphy 2008, p. 22), and this has been hypothesized for the Mount Charleston blue butterfly as well (Thompson *et al.* 2013b, presentation). Little has been confirmed regarding the length of time or life stage in which the Mount Charleston blue butterfly diapauses.

The typical flight and breeding period for the butterfly is early July to mid-August with a peak in late July, although the subspecies has been observed as early as mid-June and as late as mid-September (Austin 1980, p. 22; Boyd and Austin 1999, p. 17; Forest Service 2006, p. 9). As with most butterflies, the Mount Charleston blue butterfly typically flies during sunny conditions, which are particularly important for this subspecies given the cooler air temperatures at high elevations (Weiss *et al.* 1997, p. 31). Excessive winds also deter flight of most butterflies, although Weiss *et al.* (1997, p. 31) speculate that this may not be a significant factor for the Mount Charleston blue butterfly given its low-to-the-ground flight pattern.

Like all butterfly species, both the phenology (timing) and number of Mount Charleston blue butterfly individuals that emerge and fly to reproduce during a particular year are reliant on the combination of many environmental factors that may constitute a successful ("favorable") or unsuccessful ("poor") year for the subspecies. Other than observations by surveyors, little information is known regarding these aspects of the subspecies' biology, since the key determinants for the interactions among the Mount

Charleston blue butterfly's flight and breeding period, larval host plant, and environmental conditions have not been specifically studied. Observations indicate that above- or below-average precipitation, coupled with above- or below-average temperatures, influence the phenology of this subspecies (Weiss *et al.* 1997, pp. 2–3 and 32; Boyd and Austin 1999, p. 8) and are likely responsible for the fluctuation in population numbers from year to year (Weiss *et al.* 1997, pp. 2–3 and 31–32).

Most butterfly populations exist as regional metapopulations (Murphy *et al.* 1990, p. 44). Boyd and Austin (1999, pp. 17, 53) suggest this is true of the Mount Charleston blue butterfly. Small habitat patches tend to support smaller butterfly populations that are frequently extirpated by events that are part of normal variation (Murphy *et al.* 1990, p. 44). According to Boyd and Austin (1999, p. 17), smaller colonies of the Mount Charleston blue butterfly may be ephemeral in the long term, with the larger colonies of the subspecies more likely than smaller populations to persist in "poor" years, when environmental conditions do not support the emergence, flight, and reproduction of individuals. The ability of the Mount Charleston blue butterfly to move between habitat patches has not been studied; however, field observations indicate the subspecies has low vagility (capacity or tendency of a species to move about or disperse in a given environment), on the order of 10 to 100 m (33 to 330 ft) (Weiss *et al.* 1995, p. 9), and nearly sedentary behavior (Datasmiths 2007, p. 21; Boyd and Murphy 2008, pp. 3, 9). Furthermore, dispersal of lycaenid butterflies, in general, is limited and on the order of hundreds of meters (Cushman and Murphy 1993, p. 40). Based on this information, the likelihood of long-distance dispersal is low for the Mount Charleston blue butterfly.

Thompson *et al.* (2013b, presentation) have hypothesized that the Mount Charleston blue butterfly could diapause for multiple years (more than 2) as larvae and pupae until vegetation conditions are favorable to support emergence, flight, and reproduction. This could account for periodic high numbers of butterflies observed at more sites, as was documented by Weiss *et al.* in 1995, than years with unfavorable conditions. This would also suggest that Mount Charleston blue butterfly locations function as fairly isolated metapopulations and are not dependent on recolonization to persist. Additional future research regarding diapause patterns of the Mount Charleston blue butterfly is needed to further our understanding of this subspecies.

Summary of Comments and Recommendations

In the proposed rule published on September 27, 2012 (77 FR 59518), we requested that all interested parties submit written comments on the proposal by November 26, 2012. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general public comment were published in the Las Vegas Review-Journal and the Las Vegas Business Press on October 13, 2012. We did not receive any requests for a public hearing.

During the comment period for the proposed rule, we received 15 comment letters directly addressing the proposed listing of Mount Charleston blue butterfly with endangered status and the lupine blue butterfly, Reakirt's blue butterfly, Spring

Mountains icarioides blue butterfly, and the two Spring Mountains dark blue butterflies with threatened status due to similarity of appearance to the Mount Charleston blue butterfly, with a section 4(d) special rule, under section 4(e) of the Act (16 U.S.C. 1531 *et seq*.). We received 5 individual peer review responses and 10 comment letters from the public, including one Federal agency. With general regard to listing the Mount Charleston blue butterfly, 10 comment letters were in support of the listing, with 4 fully supporting the basis for the listing, and 6 supporting only certain aspects related to the listing. Five comment letters did not support listing the Mount Charleston blue butterfly. With regard to listing the five butterflies due to the similarity of appearance, 3 letters were in support, 10 letters were in opposition, and 2 letters were neutral. All substantive information provided during the comment period has either been incorporated directly into this final determination or is addressed below.

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from five knowledgeable individuals with scientific expertise that included familiarity with butterflies of the Spring Mountains, including the Mount Charleston blue butterfly, and their habitat, biological needs, and threats. We received responses from all five of the peer reviewers.

We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding the listing of the Mount Charleston blue butterfly as endangered and the lupine blue, Reakirt's blue, Spring Mountains icarioides blue, and the two Spring Mountains dark blue butterflies as threatened due to

similarity of appearance to the Mount Charleston blue butterfly. Generally, the reviewers agreed with the need for listing the Mount Charleston blue butterfly, but disagreed with certain aspects of the threats assessment. Two of the peer reviewers were in opposition to the proposed listing of the five other butterflies due to similarity of appearance; one peer reviewer was in support; and two peer reviewers were neutral on this topic. All reviewers offered additional information, clarifications, and suggestions to improve the final rule. We also received 10 comments from the general public, including one from a Federal agency. Peer reviewer and public comments are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Reviewer and Public Comments

Comments Related to the Background Section

(1) *Comment*: Two peer reviewers and five commenters stated that the methodology, effort, surveyor abilities, and time of year of the butterfly surveys have been variable over the years, and, therefore, the results from these surveys cannot be used to determine population trends and abundance of the Mount Charleston blue butterfly.

Our Response: We agree that the survey methodology, effort, surveyor ability, and time of year when surveys were conducted have been variable over the years and do not allow us to quantitatively estimate changes in the population size of the Mount Charleston blue butterfly. We agree that improving the consistency of these surveys

would increase our understanding of the dynamics and population trends of the subspecies. Because of these shortcomings in the data collection, we place more importance on the occupancy status and vegetation suitability at Mount Charleston blue butterfly locations, both of which have decreased, in determining its overall status than the number of butterflies that were observed. We maintain that because several historical Mount Charleston blue butterfly locations are no longer suitable and no new locations have been identified, it is likely the Mount Charleston blue butterfly population has decreased.

(2) *Comment*: One peer reviewer suggested that the South Loop Trail area is the only location that should be considered occupied by the Mount Charleston blue butterfly, but that other areas may be important for recovery of the subspecies.

Our Response: We agree that other areas will be important for the recovery of the subspecies, but we disagree that the South Loop Trail area is the only location that should be considered occupied by the Mount Charleston blue butterfly. The Mount Charleston blue butterfly has been repeatedly observed in three areas in recent years, including the South Loop Trail, Bonanza Trail, and the LVSSR (see "Distribution" and "Status and Trends" sections, above, for more details). Additionally, Mount Charleston blue butterflies have been observed over the last several decades at both the Bonanza Trail and LVSSR areas. These repeated detections over multiple years indicate the sites are occupied by the Mount Charleston blue butterfly.

Comments Related to Factor A

(3) *Comment*: We received many comments regarding threats to the Mount Charleston blue butterfly from peer reviewers and commenters. Two peer reviewers stated that general loss of habitat is the greatest threat to the Mount Charleston blue butterfly. One peer reviewer suggested that listing the Mount Charleston blue butterfly would not alleviate the most significant threats to the butterfly. Other threats to the Mount Charleston blue butterfly and its habitat that were identified by peer reviewers and commenters included fire management or the lack of fire; the presence and spread of nonnative plants; development, including roads, recreation projects, the LVSSR, and commercial and residential buildings; and wild horses. One peer reviewer was concerned that, given the current forest conditions, small, "controlled" fires could result in much larger fires and lead to more widespread effects than fire suppression and fuels management.

Our Response: We agree that the threats to the Mount Charleston blue butterfly and its habitat identified by the peer reviewers and commenters have contributed to the decline of the subspecies and its distribution. We agree that much larger fires could increase the spread of invasive species and that fuel and fire management strategies must be considered carefully prior to implementation.

(4) *Comment*: One commenter suggested that too little information is available to determine what the actual threats to the Mount Charleston blue butterfly are and that more research is needed.

Our Response: We agree that more research on the Mount Charleston blue butterfly would provide further insight into how particular threats affect the subspecies and its habitat. Although many of the threats are interrelated and confounding, the threats presented in this rule, as demonstrated by the best available scientific and commercial data available, have contributed to the decreasing distribution and likely population decline of the Mount Charleston blue butterfly.

(5) *Comment*: One peer reviewer stated that personnel coordination between the Service and the Forest Service seems to be inadequate and could be improved by engaging an independent, impartial group [to mediate future discussions].

Our Response: Overall, the Service and Forest Service coordinate closely, and this coordination has improved in recent years. While there have been lapses in coordination (see *Factor A* discussion, below), these incidents have been exceptions. We appreciate the suggestion, and although we do not anticipate it being necessary, we will consider seeking an independent, impartial group if future coordination should require this.

(6) *Comment*: One peer reviewer suggested that future Forest Service projects could be modified in order to avoid negatively affecting the Mount Charleston blue butterfly. This reviewer also stated that interagency consultation could improve the implementation of fire suppression efforts by the Forest Service.

Our Response: With the listing of the Mount Charleston blue butterfly as endangered, the Forest Service will be required to consult with the Service under section 7(a)(2) of the Act to ensure that activities it authorizes, funds, or carries out are not likely to jeopardize the continued existence of the subspecies. Additionally, we will continue to coordinate with the Forest Service on future projects, including fuels and fire management projects, as is provided under the current SMNRA conservation agreement.

(7) *Comment*: One commenter wanted to know why the 1998 conservation agreement and 2004 memorandum of understanding between the Forest Service and the Service have not been fully implemented and adhered to, and, further, how listing the butterflies will rectify future coordination between the Forest Service and the Service.

Our Response: More than half of the past projects that impacted Mount Charleston blue butterfly habitat were reviewed by the Service and Forest Service under a process that was developed and agreed to in the SMNRA conservation agreement; however, the review process on several projects was never initiated. Listing the Mount Charleston blue butterfly as an endangered species requires the Forest Service to consult on all projects that they authorize, fund, or carry out that may affect the subspecies.

Comments Related to Factor B

(8) *Comment*: Three peer reviewers and several commenters did not agree that the evidence in the proposed rule indicated that collection, commercial or noncommercial, has or will be a threat to the Mount Charleston blue butterfly or its long-term survival.

Our Response: We provided a thorough and detailed description of the best available scientific and commercial information available regarding the threat posed by collection in the proposed rule. In addition, we believe that it is necessary to fully discuss the many activities that go beyond collection for scientific research. Because the evidence of collection of the Mount Charleston blue butterfly is limited, we compare to other listed or imperiled butterflies, including those on protected lands, to evaluate the impact of illegal and illicit activities, and the establishment of markets for specimens, on those species and subspecies. We have determined that poaching is a potential and significant threat that could occur at any time. We recognize that listing may inadvertently increase the threat of collection and trade (*i.e.*, raise value, create demand). However, we acknowledge that most individuals who are interested in butterflies would follow guidelines and procedures to ensure responsible collecting of sensitive species.

(9) *Comment*: One peer reviewer stated that, given where the Mount Charleston blue butterfly tends to occur, it is unlikely that it would be collected by individuals with

little experience who do not know what they are catching, and that inexperienced individuals typically are not effective at capturing butterflies and would be unable to collect so intensively that a population-level effect was plausible.

Our Response: Mount Charleston blue butterflies do occur in easily accessible locations, including areas at the LVSSR and Bonanza Trail. Staff of the LVSSR have anecdotally relayed to the Service that they have seen people apparently collecting butterflies on the ski slopes and have been asked on which ski runs the Mount Charleston blue butterfly occurs. We acknowledge that a less experienced butterfly collector may have more difficulty capturing a Mount Charleston blue butterfly than an experienced person, but these less experienced individuals may also more easily mistake the Mount Charleston blue butterfly for another butterfly species. We maintain that because the Mount Charleston blue butterfly occurs in low numbers and so little is known about its population dynamics, collection at low levels could pose a threat to the subspecies.

(10) *Comment*: One peer reviewer thought Table 2 in the proposed rule, which summarized the numbers of Mount Charleston blue butterfly specimens collected by area, year, and sex, did not support the argument that collection has negatively impacted the subspecies, because the commenter thought it underrepresented the number of Mount Charleston blue butterflies that have been collected.

Our Response: We acknowledge the information presented in the proposed rule's Table 2 may under-represent the total number of Mount Charleston blue butterflies that

have been collected; not all collectors document all collected butterflies in records that are available to the Service. We presented the best scientific and commercial information on collection that was available to the Service. We maintain that unregulated collection has contributed to the decline of multiple butterfly species (see *Factor B* discussion, below, for more details), and could contribute to the decline of the Mount Charleston blue butterfly when coupled with habitat loss and other threats.

(11) *Comment*: One peer reviewer and one commenter stated that there needs to be better publicity regarding the need for permits to collect butterflies in the Spring Mountains, and many people who may be collecting may be unaware of the permit requirement.

Our Response: We agree that the outreach regarding the Forest Service's requirement for a permit to collect butterflies in the Lee Canyon, Kyle Canyon, Willow Creek, and Cold Creek areas of SMNRA has generally been lacking. This requirement is stated in the Forest Service's Humboldt-Toiyabe General Management Plan, which is not widely available to the general public. Beyond this, we are unaware of additional outreach the Forest Service made. We agree this lack of outreach likely led to unknowing, unpermitted collection of butterflies, including the Mount Charleston blue butterfly. We anticipate the outreach for the new Forest Service closure order will be much wider and more available. Per Code of Federal Register (CFR) regulations at 36 CFR 261.51, the Forest Service is required to: (1) Post a copy of the closure order in the offices of the Forest Supervisor and District Ranger who have jurisdiction of the lands

affected by the order, and (2) display each prohibition imposed by an order in such locations and manner as to reasonably bring the prohibition to the attention of the public. In addition to fulfilling these requirements, the Forest Service intends to post information on the closure order on its website (*http://www.fs.usda.gov/alerts/htnf/alerts-notices*), at kiosks and trailheads in the Spring Mountains, and on the Internet at Lepidopterist message boards, such as *http://pets.groups.yahoo.com/group/DesertLeps/* and *http://pet.groups.yahoo.com/group/SoWestLep/*.

Comments Related to Factor E

(12) *Comment*: Two peer reviewers identified a need to provide more site-specific evidence of how climate change is affecting Mount Charleston blue butterfly habitat.

Our Response: We agree that site-specific information about climate change and its effects on Mount Charleston blue butterfly should be included if it is available. However, site-specific information on climate change and its effects on the Mount Charleston blue butterfly and its habitat is not available at this time. Any information that is available that would improve our analyses of the effects of climate change on the Mount Charleston blue butterfly may be sent to the Nevada Ecological Services Office (see **ADDRESSES**, above).

(13) *Comment*: One commenter suggested that climate change or global warming will extirpate the Mount Charleston blue butterfly in the Spring Mountains (this would imply extinction).

Our Response: We agree that the Mount Charleston blue butterfly is at greater risk of extinction because of climate change, but there is no information to suggest that extinction is imminent only because of climate change. Threats related to climate change are discussed under *Factor E*, below.

Comments Related to Listing Because of Similarity of Appearance Under Section 4(e) of the Act and the Associated Section 4(d) Special Rule

(14) *Comment*: Four peer reviewers and eight commenters opposed listing the five other butterflies due to similarity of appearance, as proposed, for a variety of reasons. The proposed action was generally opposed because it was thought that the species can be readily discerned by differences in coloration and markings, size, and flight pattern, and because they are not fully sympatric, or overlapping in their ranges (they occur in distinct habitats, they occur in close association with different plant species, and they occur at different mean elevations). In general, those in opposition to the similarity of appearance proposed listings believed that people with even moderate experience with butterflies would be able to distinguish between the species.

Those in opposition also generally believed that listing similar butterflies would be overly restrictive and prohibitive, impede research, and discourage scientific support that could inform future management decisions or listing actions. One comment letter included photographs of the five butterflies proposed for listing with detailed descriptions of characteristics that may be used to distinguish the five butterflies from each other. Others provided textual descriptions of the diagnostic characteristics of the butterflies.

Our Response: We carefully considered all of the comments we received, reviewed the information and data provided by reviewers and commenters, and evaluated recent research and data we have acquired since the proposed rule was published. We used data on the historical range of the five species proposed for listing under similarity of appearance, and reported this information in our proposed rule (77 FR 59518; September 27, 2012). Since then, we have evaluated more current range information on these five species, and we find that the current known ranges of some of the species previously proposed for listing under similarity of appearance do not overlap or do not significantly overlap with the range of the Mount Charleston blue butterfly, so it would not be advisable to list these species under section 4(e) of the Act. In addition, since the closure order closes most of the known range of the Mount Charleston blue butterfly to all butterfly collection, it is closed to the collection of all five of these species as well. Therefore, listing the additional similarity of appearance species is no longer necessary because collection of these species will not take place in the range of the Mount Charleston blue butterfly without a permit. Permitted individuals will have the qualifications that enable them to differentiate between the species.

Further, as one peer reviewer stated, whether the taxa are similar in appearance is highly subjective. We agree with this statement. We agree that individuals who are more experienced with butterflies would be able to differentiate between the butterfly species. As described in the proposed rule, there are morphological differences between the species, but the distinguishing characteristics may not be obvious to all individuals who are collecting butterflies; thus, the similarity between the species is relative to the experience level and abilities of the observer.

We believe that the threat of the mistaken capture and collection of Mount Charleston blue butterfly has been reduced by a closure order and administrative permitting process recently issued by the Forest Service. This closure order (Order Number 04-17-13-20) closes all areas within the Spring Mountain National Recreation Area to the collection, possession, storage, or transport of the Mount Charleston blue butterfly and four other sensitive butterfly species (Morand's checkerspot [*Euphydryas anicia morandi*], Spring Mountains acastus checkerspot [*Chlosyne acastus robusta*], and the two subspecies of Spring Mountains dark blue butterflies [*Euphilotes ancilla cryptica* and *Euphilotes ancilla purpura*]). The closure order provides additional protections by closing most of the known range of the Mount Charleston blue butterfly to the collection of all butterfly species, except under a specific permit. Permits to collect non-listed butterflies in these areas may be issued by the Forest Service through the administrative permit process. This process requires applicants to provide information regarding their qualifications and experience with butterflies and intended uses of the permit, including

the specific purpose of collection; a list of which species will be collected; the number of each sex and life stage for each species that will be collected; a list of locations where collection would occur; the time period in which collection would occur; and how the information and knowledge gained from the collection will be disseminated (Ramirez, 2013). The entire SMNRA is closed to possession, storing or transport of these five species, because they are USFS sensitive species. It provides additional protection to the Mount Charleston blue butterfly by prohibiting possession and storage of Mount Charleston blue butterfly throughout the SMNRA, allowing Forest Service law enforcement officers to enforce this prohibition within the SMNRA. The second part of the closure order closes the vast majority of the habitat where the Mount Charleston blue butterfly occurs to the possession, storing and transport of all butterfly species in any life stage. This effectively eliminates the risk of unintentional collection of the Mount Charleston blue butterfly in two ways: (1) the Forest Service cannot issue a permit for collection of the Mount Charleston blue butterfly without the Service's concurrence (which we will not do unless we know the researcher and the work is authorized by the Service), and (2) anyone wanting to collect any butterfly species in this area (including any of the species proposed for listing under similarity of appearance) would need to demonstrate their credentials, including the ability to clearly distinguish blue butterfly species, to the Forest Service, before they would issue a permit. In summary, these requirements should effectively eliminate the unintentional collection of the Mount Charleston blue butterfly, because only those individuals with the demonstrated ability to identify and distinguish butterfly species (including two of the butterfly species similar in

appearance originally proposed to be listed) would be eligible for a permit to collect butterflies within most of the of the known range of the Mount Charleston blue butterfly.

The Forest Service permit does not allow the collection of any species listed under the Act, including the Mount Charleston blue butterfly being added to the Lists of Endangered and Threatened Species by this rule. Permits to collect the Mount Charleston blue butterfly, as well as any other endangered or threatened species, requires a section 10(a)(1)(A) permit issued by the Service; the section 10(a)(1)(A) permit process ensures that those that are interested in conducting research, which may include collection for scientific purposes, are qualified to work with this butterfly subspecies and have research objectives that will enhance the survival of the subspecies. Individuals who are issued a section 10(a)(1)(A) permit to research the Mount Charleston blue butterfly may then apply for a collection permit from the Forest Service if such research activities will be conducted on Forest Service lands. Because the application processes for a Service-issued section 10(a)(1)(A) permit and a Forest Service collection permit require thorough review of applicant qualifications by agency personnel, we believe only highly qualified individuals capable of distinguishing between small, blue butterfly species that occur in the Spring Mountains will be issued permits. As a result, we do not anticipate that individuals with permits will misidentify the butterfly species, and therefore, no inadvertent collection by authorized individuals will occur. Any collection without permits would be in violation of the closure order and subject to law enforcement action. In addition, any purposeful collection of a listed species, such as Mt Charleston blue butterfly, without a section 10 permit authorizing this activity, would be a violation of the

Act. Therefore, the threat from incidental, accidental, or purposeful, unlawful collection of the Mount Charleston blue butterfly will be reduced (see *Factor B* discussion, below, for more details).

The main goal of proposing other butterfly species for listing under similarity of appearance was to afford regulatory protection to the Mount Charleston blue butterfly in potential situations of misidentification of the Mount Charleston blue butterfly as one of the other five species, in order to prevent the subspecies from going extinct. We recognize and acknowledge that amateurs and professionals interested in butterflies have made significant contributions to our knowledge of the Mount Charleston blue butterfly and other butterfly species that occur in the Spring Mountains. We do not want to discourage research or scientific support for the Mount Charleston blue butterfly or other butterfly species that occur in the Spring Mountains. As described above, listing does not prohibit conducting research on the Mount Charleston blue butterfly; the section 10(a)(1)(A) permit process ensures that those that are interested in conducting research are qualified to work with this butterfly subspecies and have research objectives that will enhance the survival of the subspecies.

(15) *Comment*: One commenter stated that these subspecies occur in disjunct areas away from the Mount Charleston blue butterfly, and one peer reviewer and one commenter suggested that the only two taxa that realistically might be difficult to

distinguish from the Mount Charleston blue butterfly are the two subspecies of *Euphilotes ancilla*.

Our Response: We considered this comment, and we reviewed historical and recent sightings of the two Spring Mountains dark blue butterfly subspecies (*Euphilotes ancilla cryptica* and *Euphilotes ancilla purpura*) and the Mount Charleston blue butterfly. Historical data indicate that these subspecies co-occurred at the South Loop Trail and Willow Creek areas. In 2011, researchers documented both the Mount Charleston blue butterfly and the Spring Mountains dark blue butterfly (*Euphilotes ancilla purpura*) at the Bonanza Trail area, and noted that plants with which each subspecies is closely associated were present (Thompson *et al.* 2012, p. 3 and 4). Therefore, we believe the two *Euphilotes ancilla* subspecies do overlap with the Mount Charleston blue butterfly and are not disjunct.

We agree the Mount Charleston blue butterfly may be difficult to distinguish from the two subspecies of *Euphilotes ancilla* by some individuals (see *Response* to *Comment 14* for more details). We believe the closure order issued by the Forest Service (described above) and the requirement for a scientific collection permit from the Forest Service for collection of the two subspecies of *Euphilotes ancilla* and a section 10(a)(1)(A) permit from the Service for collection of any listed butterflies for research on the Mount Charleston blue butterfly reduces the threat from incidental or accidental collection of the Mount Charleston blue butterfly when other butterflies are being

targeted (see *Factor B* discussion, below, and *Response* to *Comment 14*, above, for more details).

(16) *Comment*: Three peer reviewers commented that the area which we identified in the proposed listing under section 4(e) of the Act protecting five species of butterflies similar in appearance to the Mount Charleston blue butterfly was too large.

Our Response: We selected the SMNRA boundary in the proposed listing under section 4(e) of the Act because it is easily identified on major roads accessing the area and, therefore, would be easily recognized by the general public and law enforcement. However, we are not listing under section 4(e) of the Act the lupine blue butterfly, Reakirt's blue butterfly, Spring Mountains icarioides blue butterfly, and two Spring Mountains dark blue butterflies based on similarity of appearance to the Mount Charleston blue butterfly (see *Factor B* discussion for more details); therefore, this comment no longer applies to our rulemaking.

(17) *Comment*: One commenter stated that the listing of the five additional butterfly species on the basis of the similarity of appearance should only prohibit their collection, and not extend to otherwise lawful activities.

Our Response: We agree that, had we finalized the proposed listing of five butterfly species based on their similarity of appearance to the Mount Charleston blue butterfly, the rule should have only prohibited their collection and not extended to

otherwise lawful activities. However, based on comments and further evaluation, we are not listing the lupine blue butterfly, Reakirt's blue butterfly, Spring Mountains icarioides blue butterfly, and two Spring Mountains dark blue butterflies based on similarity of appearance to the Mount Charleston blue butterfly under section 4(e) of the Act (see *Factor B* discussion, below, for more details).

(18) *Comment*: One commenter suggested that there are many unknowns regarding blue butterflies in the *Plebejus lupini* and *Plebejus acmon* complex, and it is debatable whether the lupine blue butterfly (*Plebejus lupini texanus*) actually occurs in the Spring Mountains, or if the butterfly that is identified as this subspecies is actually the Acmon blue butterfly (*Plebejus acmon*).

Our Response: We agree that further taxonomic work may be needed for the *Plebejus lupini* and *Plebejus acmon* complex. We used the most currently available scientific literature to identify taxonomic entities in the Spring Mountains. Recent observations of the subject butterflies occurring in the Spring Mountains have been identified as *Plebejus lupini texanus* (Andrew *et al*. 2013, pp. 41 and 61). Until new taxonomic information becomes available to suggest otherwise, we rely on the best available scientific and commercial information, which states that the subspecies described as occurring in the Spring Mountains is *Plebejus lupini texanus*.

Comments Related to Critical Habitat Prudency Determination

(19) *Comment*: Four peer reviewers and one commenter expressed concern over the Service's determination that critical habitat is not prudent, disagreed with this decision, or otherwise suggested we reconsider the basis for this determination. One peer reviewer and one commenter supported, or agreed to some extent with, the basis of our determination. Comments in opposition to our not prudent determination were largely based on the potential benefits of designating critical habitat, and skepticism that increased risk and harm from collection to the Mount Charleston blue butterfly would occur with designation, because ample detail could be obtained from other sources for potential poachers to locate remaining populations.

Our Response: We have considered the peer review and public comments. Based on these comments, and further consideration of the best scientific information available, we have determined that it is prudent to designate critical habitat for the Mount Charleston blue butterfly. Therefore, elsewhere in a separate **Federal Register** notice, we will propose to designate critical habitat for the Mount Charleston blue butterfly.

Comments from the State

Section 4(i) of the Act states, "the Secretary shall submit to the State agency a written justification for his failure to adopt regulations consistent with the agency's comments or petition." We received comments from the State from one peer reviewer. These comments were included under Peer Reviewer and Public Comments.

Federal Agency Comments

(20) *Comment*: The Forest Service noted that the baseline population that was chosen to determine the status of the Mount Charleston blue butterfly was the highest recorded in at least 20 years, and, therefore, the distribution and occupied habitat was likely greater than average, and may have included ecological sinks. They suggested a more typical year should have been used as the baseline average population and that the 20-year timeframe we used to determine occupancy status is too long.

Our Response: We agree that the Mount Charleston blue butterfly was recorded in high numbers at two areas of LVSSR in 1995, but note that an equally high number were counted at one of these areas (the second area was not visited) in 2002. We considered data from these and subsequent years to assess the occupancy of Mount Charleston blue butterfly locations. We did not choose the data from 1995 as a baseline for the Mount Charleston blue butterfly; rather, we selected a 20-year timeframe to assess the Mount Charleston blue butterfly's status, based on the butterfly's biology and ecological factors of its habitat as stated in the "Distribution" section, above. At this time, not enough information is known about the diapause period or the population dynamics of the Mount Charleston blue butterfly to determine how metapopulations of this subspecies may or may not be connected. We can make inferences using information from other closely related species, but until further research is conducted on the Mount Charleston blue butterfly, there is a great deal that is unknown. We do know that the Mount Charleston blue butterfly has not been detected at several sites since 1995. We

attribute this, in large part, to a lack of habitat, resulting from human disturbances and vegetation succession (see discussions under *Factors A, B, D,* and *E*, below) that have occurred in the last 20 years. Some of these vegetation shifts may have occurred in short time periods (*e.g.,* 2 years for a LVSSR ski run to shift from low-growing species to shrub cover), but the vegetation at sites where trees are encroaching (*e.g.*, Gary Abbott) are shifting over longer time periods. Thus, we used a 20-year timeframe to determine site occupancy status because it takes into account: (1) The variable time periods in which vegetation shifts can occur at Mount Charleston blue butterfly locations, and (2) population dynamics that may affect the presence of the Mount Charleston blue butterfly at a particular location.

(21) *Comment*: The Forest Service stated that it has complied with the regulations required by the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq*.) and the Act. The commenter stated that the Forest Service has taken conservation of the Mount Charleston blue butterfly into consideration and consulted with the Service on the implementation of plans and projects, including the LVSSR Master Plan. The commenter went on to state that many unknowns exist regarding the Mount Charleston blue butterfly; therefore, the Forest Service's land management practices are not responsible for potential declines, especially because the Forest Service has incorporated the Service's minimization measures.

Our Response: We are confident the Forest Service has complied with NEPA and the Act. Overall, the Forest Service has closely coordinated with the Service, and this

coordination has improved in recent years. While there have been lapses in coordination (see *Factor A* discussion, below), these incidents have been exceptions. We agree that many unknowns exist regarding the Mount Charleston blue butterfly and its ecology, but we conclude (see information under the discussions of *Factors A* and *C*, below) that some of the Forest Service's land management practices may have contributed to the loss of Mount Charleston blue butterfly habitat.

(22) *Comment*: The Forest Service stated that no fuel reduction funds are currently in place, but should fuel reduction activities be planned in the future, they can be done in a manner that minimizes impacts to and actually benefits the Mount Charleston blue butterfly and its habitat.

Our Response: We agree and look forward to working with the Forest Service to further the conservation of the Mount Charleston blue butterfly.

(23) *Comment*: The Forest Service stated that "if climate change predictions hold true in southern Nevada, low-elevation sites are likely to become less suitable for occupation by the butterfly."

Our Response: We do not agree that it can be stated at this time with a reasonable degree of certainty that there will be a unidirectional shift or decrease in the importance of sites in lower elevations. There is currently inadequate site-specific information from climate change models, combined with topographic variability at each site, to predict the

relative importance of various sites. We agree that there may be some correlation with elevation, but we are unaware of any analysis identifying the magnitude of shifts in climate as they relate to the Mount Charleston blue butterfly and its habitat.

Summary of Changes from Proposed Rule

After consideration of the comments we received during the public comment period (see above), we made several changes to the final listing rule. Many small, nonsubstantive changes and corrections not affecting the determination (for example, updating the **Background** section in response to comments and minor clarifications) were made throughout the document. All substantial changes relate to the proposed similarity of appearance listings under section 4(e) of the Act and the prudency of designating critical habitat.

Based on comments and further evaluation, we are not listing the lupine blue butterfly, Reakirt's blue butterfly, Spring Mountains icarioides blue butterfly, and two Spring Mountains dark blue butterflies based on similarity of appearance to the Mount Charleston blue butterfly under section 4(e) of the Act. The protection that would have been provided to the Mount Charleston blue butterfly through these listings (see discussion in response to Comment 14, above) is no longer advisable, as similar or greater protection will be provided by the closure order issued by the Forest Service. Specifically, the application processes for Service and Forest Service collection permits associated with the closure order require thorough review of applicant qualifications by

agency personnel, and we believe only highly qualified individuals capable of distinguishing between small, blue butterfly species that occur in the Spring Mountains will be issued permits. As a result, we do not anticipate that individuals with authorized collection permits will misidentify the butterfly species, and therefore, inadvertent collection should be greatly reduced . In addition, persons found collecting any butterfly species without permits within most of the the Mount Charleston blue butterfly's known range, or found to be possessing, storing, or transporting the Mount Charleston blue butterfly anywhere within the Spring Mountains National Recreation Area, would be in violation of the closure order and subject to law enforcement action.

Comparing the potential protections from our proposal of listing the remaining two similar butterfly species whose ranges overlap that of the Mount Charleston blue butterfly under section 4(e) of the Act (similarity of appearance) to the protections that will be afforded by the Forest Service's closure order, the closure order provides equal or greater protections. As stated in the proposed rule (77 FR 59518; September 27, 2012), the special 4(d) rule would have established "prohibitions on collection of the lupine blue butterfly (*Plebejus lupini texanus*), Reakirt's blue butterfly (*Echinargus isola*), Spring Mountains icarioides blue butterfly (*Plebejus icarioides austinorum*), and two Spring Mountains dark blue butterflies (*Euphilotes ancilla cryptica* and *E. a. purpura*), or their immature stages, where their ranges overlap with the Mt. Charleston blue butterfly, in order to protect the Mt. Charleston blue butterfly from collection, possession, and trade." Further, "Capture of the lupine blue butterfly, Reakirt's blue butterfly, Spring Mountains icarioides blue butterfly, and the two Spring Mountains dark blue butterflies, or their

immature stages, is not prohibited if it is accidental, such as during research, provided the animal is released immediately upon discovery at the point of capture," and "Scientific activities involving collection or propagation of these similarity-of-appearance butterflies are not prohibited provided there is prior written authorization from the Service. All otherwise legal activities that may involve what we would normally define as incidental take (take that results from, but is not the purpose of, carrying out an otherwise lawful activity) of these similar butterflies, and which are conducted in accordance with applicable State, Federal, Tribal, and local laws and regulations, will not be considered take under this regulation." For example, the special 4(d) rule would have exempted "legal application of pesticides, grounds maintenance, recreational facilities maintenance, vehicle use, vegetation management, exotic plant removal, and burning. These actions will not be considered as violations of section 9 of the Act if they result in incidental take of any of the similarity of appearance butterflies." The Forest Service closure order and permitting requirement goes farther by prohibiting not only intentional or inadvertent capture, but even the attempt to collect any butterfly species within most of the known range of the Mount Charleston blue butterfly, without a specific permit. The closure order establishes broader take and possession prohibitions against the five butterfly species specifically listed in the closure order, which includes the Mount Charleston blue butterfly, and establishes a permitting requirement for any collection of these species within the entire Spring Mountains Natural Resource Area. Additionally, collection of all butterflies within most of the known range of the Mount Charleston blue butterfly is prohibited unless a special permit is obtained from the Regional Forester. This will

likely have the desirable effect of reducing collection even more than would our proposed 4(d) rule.

Based on the more recent information that some of the species proposed for listing under similarity of appearance do not in fact overlap the range of the Mount Charleston blue butterfly, and the greater protections that will be afforded by the Forest Service closure order, we are not listing the lupine blue butterfly, Reakirt's blue butterfly, Spring Mountains icarioides blue butterfly, or the two Spring Mountains dark blue butterflies, based on similarity of appearance to the Mount Charleston blue butterfly under section 4(e) of the Act (see *Factor B* discussion, below, for more details).

In the proposed rule, we did not include Griffith Peak as a Mount Charleston blue butterfly location. After reviewing the available data, we determined that Griffith Peak should be considered a presumed occupied location for the Mount Charleston blue butterfly because the most recent observation was in 1995, and the appropriate larval host plants and nectar plants are present to support Mount Charleston blue butterflies. As defined earlier, we presume a location to be occupied if adults have been observed within the last 20 years and nectar plants are present to support Mount Charleston blue butterflies.

In the proposed rule we considered Lee Meadows to be a presumed occupied location for the Mount Charleston blue butterfly. After reviewing the available data, we

determined that Lee Meadows is a presumed extirpated location for the Mount Charleston blue butterfly because no detections of Mount Charleston blue butterflies have occurred there since 1965 (Weiss *et al.* 1997, p. 10). As discussed earlier, we presume that the Mount Charleston blue butterfly is extirpated from a location when it has not been recorded at that location through formal and informal surveys or incidental observation for more than 20 years.

In addition, based on information gathered from peer reviewers and the public during the comment period, we have determined that it is prudent to designate critical habitat for the Mount Charleston blue butterfly. Therefore, elsewhere in a separate **Federal Register** notice, we will propose to designate critical habitat for the Mount Charleston blue butterfly.

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be

warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

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

Below, we evaluate several factors that negatively impact the Mount Charleston blue butterfly's habitat, including fire suppression, fuels reduction, succession, introduction of nonnative species, recreation, and development. We also examine current conservation agreements and plans, and the extent to which they address the threats to the butterfly.

Fire Suppression, Succession, and Nonnative Species

Butterflies have extremely specialized habitat requirements (Thomas 1984, p. 337). Cushman and Murphy (1993, p. 4) determined 28 at-risk lycaenid butterfly species, including the Mount Charleston blue butterfly, to be dependent on one or two closely related larval host plants. Many of these larval host plants are dependent on early successional environments. Butterflies that specialize on such plants must track an ephemeral resource base that itself depends on unpredictable and perhaps infrequent ecosystem disturbances. For such butterfly species, local extinction events are both frequent and inevitable (Cushman and Murphy 1993, p. 4). The Mount Charleston blue butterfly may, in part, depend on disturbances that open up the subalpine canopy and

create conditions more favorable to the larval host plant, *Astragalus calycosus* var. *calycosus*, and nectar resources (Weiss *et al.* 1995, p. 5; Boyd and Murphy 2008, pp. 22–28) (see "Habitat" section, above).

A lack of disturbances, such as fire or mechanical alteration, may prevent open understory and overstory canopy conditions needed for *Astragalus calycosus* var. *calycosus* to grow, thereby decreasing the amount of potential Mount Charleston blue butterfly habitat. Datasmiths (2007, p. 21) suggests that Mount Charleston blue butterfly habitat consisting of patches of *Astragalus calycosus* var. *calycosus* are often, but not exclusively, associated with older or infrequent disturbance. Weiss *et al.* (1995, p. 5) note that a colony once existed on the Upper Kyle Canyon Ski Area (Location 13 in Table 1), but, since the ski run was abandoned, no butterflies have been collected there since 1965; presumably, the lack of disturbance at this site diminished the habitat quality for the Mount Charleston blue butterfly. Boyd and Austin (2002, p. 13) observed that the butterfly was common at Lee Meadows (Location 8 in Table 1) in the 1960s, but became uncommon at the site because of succession and a lack of disturbance. Weiss *et al.* (1995, p. 5) concluded that most of Lee Meadows did not support any larval host plants in the mid-1990s and would not support a Mount Charleston blue butterfly population over the long term; in 2012, Andrew *et al.* (2013, p. 51–52) assessed the site similarly.

Although no published fire histories for the Spring Mountains are known (Abella *et al.* 2012, p. 128), the Forest Service's policy regarding fire exclusion in the early and mid-1900s is well-documented (Interagency Federal Wildland Fire Policy Review

Working Group 2001, p. 1) and presumably affected fire management practices in the Spring Mountains. The current dominance of certain tree species indicate a recent lack of fire due to fire exclusion or reduction in natural fire cycles in the Spring Mountains (Abella *et al*. 2012, pp. 129–130), which has resulted in long-term successional changes, including increased forest area and forest structure (higher canopy cover, more young trees, and more trees intolerant of fire) (Nachlinger and Reese 1996, p. 37; Amell 2006, pp. 6–9; Boyd and Murphy 2008, pp. 22–28; Denton *et al.* 2008, p. 21; Abella *et al.* 2012, pp. 128, 130). Frequent low-severity fires, as historically occurred in *Pinus ponderosa* (ponderosa pine)-dominated forests, would have maintained an open forest structure characterized by uneven-aged stands of fire-resistant *Pinus ponderosa* trees in Lee and Kyle Canyons (Amell 2006, p. 5). Because of changes to historic fire regimes, there has been an increase in area covered by forest canopy and an increase in stem densities with more smaller trees intolerant of fire within the lower-elevation Mount Charleston blue butterfly habitat.

Large-diameter *Pinus ponderosa* trees with multiple fire scars in Upper Lee and Kyle Canyons indicate that low-severity fires historically burned through mixed-conifer forests within the range of the Mount Charleston blue butterfly (Amell 2006, p. 3). There are no empirical estimates of fire intervals or frequencies in the Spring Mountains, but extensive research in the Southwest indicates that return intervals prior to the fire exclusion policy were generally less than 10 years in *Pinus ponderosa* forests (Abella *et al.* 2012, p. 130), and return intervals in the proximate San Bernardino Mountains have been reported to be 4 to 20, or 2 to 39, years, prior to fire exclusion in the 20th century

(Minnich *et al*. 1995, p. 903; Denton *et al*. 2008, p. 23). Open mixed-conifer forests in the Spring Mountains were likely characterized by more abundant and diverse understory plant communities compared to current conditions (Entrix 2008, pp. 73–78). These successional changes have been hypothesized to have contributed to the decline of the Mount Charleston blue butterfly because of reduced densities of larval and nectar plants, decreased solar insolation, and inhibited butterfly movements that subsequently determine colonization or recolonization processes (Weiss *et al*. 1997, p. 26; Boyd and Murphy 2008, pp. 22–28).

Changes in forest structure and understory plant communities result in habitat loss, degradation, and fragmentation for the Mount Charleston blue butterfly across a broad spatial scale. Boyd and Murphy (2008, p. 23) note that important habitat characteristics required by Mount Charleston blue butterfly—*Astragalus calycosus* var. *calycosus* and preferred nectar plants occurring together in open sites not shaded by tree canopies—would have occurred more frequently across a more open forested landscape. Comparatively, the current, more densely forested landscape reduces the connectivity of existing or potential Mount Charleston blue butterfly locations. These more densely forested landscapes decrease the likelihood that the butterfly will expand to unoccupied locations. Although the butterfly's population dynamics are unknown, if the Mount Charleston blue butterfly functions in a metapopulation dynamic, vegetation shifts to a denser forest structure could impact key metapopulation processes by reducing the probability of recolonization following local population extirpations in remaining patches of Mount Charleston blue butterfly habitat (Boyd and Murphy 2008, p. 25).

The introduction of forbs, shrubs, and nonnative grasses can be a threat to the butterfly's habitat because these species can compete with, and decrease, the quality and abundance of larval host plant and adult nectar sources. This has been observed for many butterfly species, including the Quino checkerspot butterfly (*Euphydryas editha quino*) (62 FR 2313; January 16, 1997) and Fender's blue butterfly (*Plebejus* (= *Icaricia*) *icarioides fenderi*) (65 FR 3875; January 25, 2000). Succession, coupled with the introduction of nonnative species, is also believed to be the reason the Mount Charleston blue butterfly is no longer present at the Old Town site in Kyle Canyon (Location 14 in Table 1) and at the Mount Charleston blue butterfly holotype (the type specimen used in the original description of a species or subspecies) site in Upper Lee Canyon (Location 11 in Table 1) (Urban Wildlands Group, Inc. 2005, p. 3; Boyd and Austin 1999, p. 17).

Introduction of nonnative species within its habitat negatively impacts the quality of the Mount Charleston blue butterfly's habitat. As mentioned previously (see "Habitat" section, above), periodic maintenance (removal of trees and shrubs) of the ski runs has effectively arrested succession on the ski slopes and maintains conditions that can be favorable to the Mount Charleston blue butterfly. However, the ski runs are not specifically managed to benefit habitat for this subspecies and its habitat requirements, and operational activities (including seeding of nonnative species) regularly modify Mount Charleston blue butterfly habitat or prevent larval host plants from reestablishing in disturbed areas. Weiss *et al.* (1995, pp. 5–6) recognized that a positive management action for the Mount Charleston blue butterfly would be to establish more *Astragalus* on

additional ski runs at LVSSR, especially in areas of thin soils where grasses and *Melilotus* (sweetclover) are difficult to establish. Titus and Landau (2003, p. 1) observed that vegetation on highly and moderately disturbed areas of the LVSSR ski runs are floristically very different from natural openings in the adjacent forested areas that support this subspecies. Seeding nonnative species for erosion control was discontinued in 2005; however, because of erosion problems during 2006 and 2007, and the lack of native seed, LVSSR resumed using a nonnative seed mix, particularly in the lower portions of the ski runs (not adjacent to Mount Charleston blue butterfly habitat) where erosion problems persist.

The best available information indicates that, in at least five of the seven locations where the Mount Charleston blue butterfly has been extirpated, habitat is no longer present due to vegetation changes attributed to changes in the natural fire regime, vegetation succession, the introduction of nonnative species, or a combination of these.

Recreation, Development, and Other Projects

As discussed in the "Distribution" section, above, the Mount Charleston blue butterfly is a narrow endemic subspecies that is currently known to occupy three locations and presumed to occupy seven others. One of the three areas where Mount Charleston blue butterflies have been detected in recent years is the LVSSR. Several ground-disturbing projects occurred within Mount Charleston blue butterfly habitat at LVSSR between 2000 and 2011 (see 76 FR 12667, March 8, 2011, pp. 12672, 12673).

These projects were of small spatial scale (ground disturbance was less than about 10 ac each) but are known to have impacted habitat and possibly impacted individual Mount Charleston blue butterflies (eggs, larvae, pupae, or adults). In addition to these recreation development projects at LVSSR, a small area of habitat and possibly individual Mount Charleston blue butterflies were impacted by a water system replacement project in Upper Lee Canyon in 2003, and a small area of habitat (less than 1 acre) was impacted by a stream restoration project at Lee Meadows in 2011. It is difficult to know the full extent of impacts and whether the impacts were negative or positive to the Mount Charleston blue butterfly's habitat as a result of these projects because Mount Charleston blue butterfly habitat was not mapped, nor were some project areas surveyed, prior to implementation.

Four ongoing and future projects also may impact Mount Charleston blue butterfly habitat in Upper Lee Canyon. These projects are summarized below:

(1) A March 2011 master development plan for LVSSR proposes to improve, upgrade, and expand the existing facilities to provide year-round recreational activities. The plan proposes to increase snow trails, beginner terrain, and snowmaking reservoir capacity and coverage; widen existing ski trails; replace and add lifts; and develop "gladed" areas for sliding that would remove deadfall timber to reduce fire hazards (Ecosign 2011, pp. I-3–I-4, IV-5–IV-7). The plan proposes to add summer activities including lift-accessed sightseeing and hiking, nature interpretive hikes, evening stargazing, mountain biking, conference retreats and seminars, weddings, family

reunions, mountain music concerts, festivals, climbing walls, bungee trampoline, beach and grass volleyball, a car rally, and other activities (Ecosign 2011, pp. I-3–I-4). Widening existing ski trails and increasing snowmaking reservoir capacity (Ecosign 2011, p. IV-5, Figure 21a) would impact the Mount Charleston blue butterfly at a known occupied and at a presumed occupied location (Locations 2 and 5 in Table 1). Summer activities would impact the Mount Charleston blue butterfly and its known occupied and presumed occupied habitat by attracting visitors in higher numbers during the time of year when larvae and larval host plants are especially vulnerable to trampling (Location 2 in Table 1). The LVSSR master development plan, which has been accepted by the Forest Service, considered Mount Charleston blue butterfly habitat during development of the plan. Impacts to Mount Charleston blue butterfly habitat from the LVSSR master development plan will be addressed further during its NEPA process (discussed further under *Factor D*, below) (Forest Service 2011, p. 3).

(2) In the proposed rule, we reported that the Old Mill, Dolomite, and McWilliams Reconstruction Projects to improve camping and picnic areas in Upper Lee Canyon were being planned and evaluated under NEPA. The Service coordinated with and provided recommendations to the Forest Service to prevent impacts to Mount Charleston blue butterflies and their habitat (Service 2012a, p. 2). In January 2013, the Forest Service issued a decision notice and finding of no significant impact for the project, which incorporated design criteria to avoid impacts to Mount Charleston blue butterfly habitat and individuals (Forest Service 2013a, p. 1). Design criteria included early coordination between work crews and specialists familiar with the Mount

Charleston blue butterfly and its habitat, temporary fencing around potential habitat areas, weed prevention, restoration of disturbed areas, and avoidance of potential habitat areas during construction boundary and trail layout (Forest Service 2013a, p. 17–19). The Forest Service began implementing this project in November 2012, and the project is expected to be completed in May 2015 (Forest Service 2013b). These projects are ongoing with the design criteria being implemented to minimize the likelihood of impacts. Until the work is completed, we will not be able to tell whether the design criteria that were implemented will be effective at avoiding or minimizing impacts to the Mount Charleston blue butterfly.

(3) In the proposed rule, we reported that the Foxtail Group Picnic Area Reconstruction Project in Upper Lee Canyon was being planned and evaluated under NEPA. The Service coordinated with and provided recommendations to the Forest Service to prevent impacts to Mount Charleston blue butterflies or their habitat (Service 2012b, p. 2). In December 2012, the Forest Service issued a decision notice and finding of no significant impact for the project, which incorporated design criteria to avoid impacts to Mount Charleston blue butterfly habitat and individuals (Forest Service 2012, p. 1). Design criteria included early coordination between work crews and specialists familiar with the Mount Charleston blue butterfly and its habitat, temporary fencing around potential habitat areas, weed prevention, restoration of disturbed areas, and avoidance of potential habitat areas during construction boundary and trail layout (Forest Service 2012, pp. 12–15). The Forest Service began implementing this project in November 2012, and the project is expected to be completed in May 2015 (Forest Service

2013b). These projects are ongoing with the design criteria being implemented to minimize the likelihood of impacts. Until the work is completed, we will not be able to tell whether the design criteria that were implemented will be effective at avoiding or minimizing impacts to the Mount Charleston blue butterfly.

(4) The Ski Lift 2 Replacement Project is being planned and evaluated under NEPA. The proposed action includes removing and replacing chair lift number 2 and moving the base terminal down slope to the elevation of the base lodge deck. In order to accomplish this, chair lift number 1 will have to be moved to the south to accommodate both loading terminals. Construction activities would include removing and replacing all terminals, lift towers, tower footings, lift lines, metal rope, chairs, communication equipment, and backup power generation. This proposed action is consistent with the LVSSR master development plan accepted by the Forest Service in 2011. We met with the Forest Service and provided recommendations regarding potential direct and indirect impacts of these activities to the Mount Charleston blue butterfly and its potential habitat within or in close proximity to the project area. The recommendations provided by the Service will assist with the development of the proposed action in order to avoid or minimize adverse effects to the Mount Charleston blue butterfly and its potential habitat. The Forest Service expects to issue a decision notice on this project in August 2013, and begin implementation immediately after that time (Forest Service 2013b).

Fuels Reduction Projects

In December 2007, the Forest Service approved the SMNRA Hazardous Fuels Reduction Project (Forest Service 2007a, pp. 1–127). This project resulted in tree removals and vegetation thinning in three presumed occupied Mount Charleston blue butterfly locations in Upper Lee Canyon, including Foxtail Ridge and Lee Canyon Youth Camp, and impacted approximately 32 ac (13 ha) of presumed occupied habitat that has been mapped in Upper Lee Canyon (Locations 3 and 4 in Table 1) (Forest Service 2007a, Appendix A-Map 2; Datasmiths 2007, p. 26). Manual and mechanical clearing of shrubs and trees will be repeated on a 5- to 10-year rotating basis and will result in direct impacts to the Mount Charleston blue butterfly and its habitat, including crushing or removal of larval host plants and diapausing larvae (if present). Implementation of this project began in the spring of 2008 throughout the Spring Mountains National Recreation Area, including Lee Canyon, and the project is nearly complete for its initial implementation (Forest Service 2011, p. 2).

Although Boyd and Murphy (2008, p. 26) recommended increased forest thinning to improve habitat quality for the Mount Charleston blue butterfly, the primary goal of this project was to reduce wildfire risk to life and property in the SMNRA wildland urban interface (Forest Service 2007a, p. 6), not to improve Mount Charleston blue butterfly habitat. Mount Charleston blue butterflies require larval host plants and nectar plants that are flowering concurrent with the butterfly's flight period and that occur in areas without forest canopy cover, which can reduce solar exposure during critical larval feeding periods (Boyd and Murphy 2008, p. 23; Fleishman 2012, peer review comment). Although the fuel reduction project incorporated measures to minimize impacts to the

Mount Charleston blue butterfly and its habitat, shaded fuel breaks created for this project may not result in open areas to create or significantly improve Mount Charleston blue butterfly habitat.

Although this project may result in increased understory herbaceous plant productivity and diversity, there are short-term risks to the Mount Charleston blue butterfly's habitat associated with project implementation. In recommending increased forest thinning to improve Mount Charleston blue butterfly habitat, Boyd and Murphy (2008, p. 26) cautioned that thinning treatments would need to be implemented carefully to minimize short-term disturbance impacts to the Mount Charleston blue butterfly and its habitat. Individual butterflies (larvae, pupae, and adults), and larval host plants and nectar plants, may be crushed during project implementation. In areas where thinned trees are chipped (mastication), layers of wood chips may become too deep and impact survival of Mount Charleston blue butterfly larvae and pupae, as well as larval host plants and nectar plants. Soil and vegetation disturbance during project implementation would increase the probability of colonization and establishment of weeds and disturbance-adapted species, such as *Chrysothamnus* spp. (rabbitbrush); these plants would compete with Mount Charleston blue butterfly larval host and nectar plants.

Conservation Agreement and Plans That May Offset Habitat Threats

A conservation agreement was developed in 1998, to facilitate voluntary cooperation among the Forest Service, the Service, and the State of Nevada Department

of Conservation and Natural Resources in providing long-term protection for the rare and sensitive flora and fauna of the Spring Mountains, including the Mount Charleston blue butterfly (Forest Service 1998a, pp. 1–50). The conservation agreement was in effect for a period of 10 years after it was signed on April 13, 1998 (Forest Service *et al*. 1998, pp. 44, 49), and was renewed in 2008 (Forest Service 2008). Coordination between the Forest Service and Service has continued. Many of the conservation actions described in the conservation agreement have been implemented; however, several important conservation actions that may have directly benefited the Mount Charleston blue butterfly have not been implemented. Regardless, many of the conservation actions in the conservation agreement (for example, inventory and monitoring) would not directly reduce threats to the Mount Charleston blue butterfly or its habitat.

In 2004, the Service and Forest Service signed a memorandum of agreement that provides a process for review of activities that involve species covered under the 1998 conservation agreement (Forest Service and Service 2004, pp. 1–9). Formal coordination through this memorandum of agreement was established to: (1) Jointly develop projects that avoid or minimize impacts to species that are listed, candidate species, and species that are proposed for listing, and species under the 1998 conservation agreement; and (2) to ensure consistency with commitments and direction provided for in recovery planning efforts and in conservation agreement efforts. More than half of the past projects that impacted Mount Charleston blue butterfly habitat were reviewed by the Service and Forest Service under this review process, but the review process on several projects was never initiated. Some efforts under this memorandum of agreement have been successful

in reducing or avoiding project impacts to the Mount Charleston blue butterfly, while other efforts have not. Recent examples of projects that have been planned to reduce or avoid impacts to the Mount Charleston blue butterfly include the Lee Meadows Restoration Project (discussed above in "Recreation, Development, and Other Projects" under *Factor A*) and the Bristlecone Trail Habitat Improvement Project (Forest Service 2007b, pp. 1–7; Forest Service 2007c, pp. 1–14; Service 2007, p. 1–2). However, the projects are currently under implementation so effectiveness of the avoidance and minimization measures cannot be evaluated at this time. A new conservation agreement is currently being developed for the SMNRA.

The loss or modification of known occupied and presumed occupied Mount Charleston blue butterfly habitat in Upper Lee Canyon, as discussed above, has occurred in the past. However, more recently, the Forest Service has suspended decisions on certain projects that would potentially impact Mount Charleston blue butterfly habitat (see discussion of lower parking lot expansion and new snowmaking lines projects in the 12-month status finding "Recreation, Development Projects," (76 FR 12673)).

In addition, the Forest Service has reaffirmed its commitment to collaborate with the Service in order to avoid implementation of projects or actions that would impact the viability of the Mount Charleston blue butterfly (Forest Service 2010). This commitment includes: (1) Developing a mutually agreeable process to review future proposed projects to ensure that implementation of these actions will not lead to loss of population viability; (2) reviewing proposed projects that may pose a threat to the continued viability of the

subspecies; and (3) jointly developing a conservation agreement (strategy) that identifies actions that will be taken to ensure the conservation of the subspecies (Forest Service 2010). The Forest Service and the Service are currently in the process of cooperatively developing the conservation agreement.

The Mount Charleston blue butterfly is a covered subspecies under the 2000 Clark County Multiple Species Habitat Conservation Plan (MSHCP). The Clark County MSHCP identifies two goals for the Mount Charleston blue butterfly: (a) "Maintain stable or increasing population numbers and host and larval plant species"; and (b) "No net unmitigated loss of larval host plant or nectar plant species habitat" (RECON 2000a, Table 2.5, pp. 2–154; RECON 2000b, pp. B158–B161). The Forest Service is one of several signatories to the implementing agreement for the Clark County MSHCP, because many of the activities from the 1998 conservation agreement were incorporated into the MSHCP. Primarily, activities undertaken by the Forest Service focused on conducting surveying and monitoring for butterflies. Although some surveying and monitoring occurred through contracts by the Forest Service, Clark County, and the Service, a butterfly monitoring plan was not fully implemented.

Recently, the Forest Service has been implementing the LVSSR Adaptive Vegetation Management Plan (Forest Service 2005, pp. 1–24) to provide mitigation for approximately 11 ac (4.45 ha) of impacts to presumed-occupied Mount Charleston blue butterfly habitat (and other sensitive wildlife and plant species habitat) resulting from projects that the Forest Service implemented in 2005 and 2006. Under the plan, LVSSR

will revegetate impacted areas using native plant species, including *Astragalus calycosus* var. *calycosus*. However, this program is experimental and has experienced difficulties due to the challenges of native seed availability and propagation. Under the plan, *Astragalus calycosus* var. *calycosus* is being brought into horticultural propagation. Several methods have been used to propagate *Astragalus calycosus* var. *calycosus*, including germination from seed and salvaging plants to grow in pots (Thiell 2011, pp. 4–6). Overall survival of plants to the time of planting with either method was low, although many variables may have factored into this success rate (Thiell 2011, pp. 4–6, 14–15). Thus, additional methods to propagate *Astragalus calycosus* var. *calycosus* and other larval host plants and nectar plants will need to be tested in order to establish successful methodology for restoration of Mount Charleston blue butterfly habitat.

Summary of Factor A

The Mount Charleston blue butterfly is currently known to occur in three locations: the South Loop Trail area in upper Kyle Canyon, LVSSR in Upper Lee Canyon, and Bonanza Trail. In addition, the Mount Charleston blue butterfly is presumed to occupy seven locations: Foxtail, Youth Camp, Gary Abbott, Lower LVSSR Parking, Bristlecone Trail, Mummy Spring, and Griffith Peak. Habitat loss and modification, as a result of changes in fire regimes and long-term successional changes in forest structure, implementation of recreational development projects and fuels reduction projects, and nonnative species, are continuing threats to the butterfly's habitat in Upper Lee Canyon. Recreational area reconstruction projects currently planned also may

negatively impact Mount Charleston blue butterfly habitat in Upper Lee Canyon. In addition, proposed future activities under a draft master development plan at LVSSR may impact the Mount Charleston blue butterfly and its habitat in Upper Lee Canyon.

Because of its likely small population size, projects that impact even relatively small areas of occupied habitat could threaten the long-term population viability of the Mount Charleston blue butterfly. The continued loss or modification of presumed occupied habitat would further impair the long-term population viability of the Mount Charleston blue butterfly in Upper Lee Canyon by removing diapausing larvae and, potentially, pupae (if present), and by reducing the ability of the Mount Charleston blue butterfly to disperse during favorable years. The successional advance of trees, shrubs, and grasses, along with the spread of nonnative species, are continuing threats to the subspecies in Upper Lee Canyon. While host and nectar plants are relatively abundant at the presumed-occupied locations of Foxtail, Youth Camp, Gary Abbott, and the known occupied location of LVSSR, these locations are threatened by forest canopy growth and encroachment (Andrew *et al.* 2013, p. 47–54). The Mount Charleston blue butterfly is presumed extirpated from seven historical locations (Lee Meadows, Cathedral Rock, Upper Lee Canyon holotype, Upper Kyle Canyon Ski Area, Old Town, Deer Creek, and Willow Creek), likely due to successional changes and the introduction of nonnative plants. Nonnative forbs and grasses are a threat to the subspecies and its habitat at LVSSR.

There are agreements and plans in place (including the 2008 Spring Mountains

conservation agreement and the 2000 Clark County MSHCP) or in development that are intended to conserve the Mount Charleston blue butterfly and its habitat. Future voluntary conservation actions could be implemented in accordance with the terms of these agreements and plans, but are largely dependent on the level of funding available to the Forest Service for such work. If all of these projects were able to be implemented, the threat to the Mount Charleston blue butterfly and its habitat could be reduced. Conservation actions (for example, mechanical thinning of timber stands and prescribed burns to create openings in the forest canopy suitable for the Mount Charleston blue butterfly and its host and nectar plants) could reduce to some degree the ongoing adverse effects to the butterfly of vegetative succession promoted by alteration of the natural fire regime in the Spring Mountains. The Forest Service's commitment to collaboratively review proposed projects to minimize impacts to the Mount Charleston blue butterfly may reduce the threat posed by activities under the Forest Service's control, although we are unable to determine the potential effectiveness of this new strategy at this time. Therefore, based on the current distribution of suitable habitat and recent, existing, and likely future trends in habitat loss, we find that the present and future destruction, modification, and curtailment of its habitat or range is a threat to the Mount Charleston blue butterfly.

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

Rare butterflies and moths are highly prized by collectors, and an international

trade exists in specimens for both live and decorative markets, as well as the specialist trade that supplies hobbyists, collectors, and researchers (Collins and Morris 1985, pp. 155–179; Morris *et al.* 1991, pp. 332–334; Williams 1996, pp. 30–37). The specialist trade differs from both the live and decorative market in that it concentrates on rare and threatened species (U.S. Department of Justice [USDOJ] 1993, pp. 1–3; *United States* v. *Skalski et al.,* Case No. CR9320137, U.S. District Court for the Northern District of California [U.S. Attorney's Office] 1993, pp. 1–86). In general, the rarer the species, the more valuable it is; prices can exceed $25,000 for exceedingly rare specimens. For example, during a 4-year investigation, special agents of the Service's Office of Law Enforcement executed warrants and seized over 30,000 endangered and protected butterflies and beetles, with a total wholesale commercial market value of about $90,000 in the United States (USDJ 1995, pp. 1–4). In another case, special agents found at least 13 species protected under the Act, and another 130 species illegally taken from lands administered by the Department of the Interior and other State lands (USDC 1993, pp. 1–86; Service 1995, pp. 1–2).

Several listings of butterflies as endangered or threatened species under the Act have been based, at least partially, on intense collection pressure. Notably, the Saint Francis' satyr (*Neonympha mitchellii francisci*) was emergency-listed as an endangered species on April 18, 1994 (59 FR 18324). The Saint Francis' satyr was demonstrated to have been significantly impacted by collectors in just a 3-year period (59 FR 18324). The Callippe and Behren's silverspot butterflies (*Speyeria callippe callippe* and *Speyeria zerene behrensii*) were listed as endangered species on December 5, 1997 (62 FR 64306),

partially due to overcollection. Most recently, the Miami blue butterfly (*Cyclargus thomasi bethunebakeri*) was emergency-listed as an endangered species (76 FR 49542; August 10, 2011), with collection being one of the primary threats.

Butterflies in small populations may be vulnerable to harm from collection (Gall 1984, p. 133). A population may be reduced to below sustainable numbers by removal of females, reducing the probability that new colonies will be founded. Collectors can pose threats to butterflies, notably when populations are already severely reduced by other factors, because they may be unable to recognize when they are depleting colonies below the thresholds of survival or recovery (Collins and Morris 1985, pp. 162–165). There is ample evidence of collectors impacting other imperiled and endangered butterflies (Gochfeld and Burger 1997, pp. 208–209), impacting larval host plants (Cech and Tudor 2005, p. 55), and even contributing to extirpations (Duffey 1968, p. 94). For example, the federally endangered Mitchell's satyr (*Neonympha mitchellii mitchellii*) is believed to have been extirpated from New Jersey due to overcollection coupled with habitat loss (57 FR 21564, May 20, 1992; Gochfeld and Burger 1997, p. 209).

Rare butterflies can be highly prized by insect collectors, and collection is a known threat to some butterfly species, such as the Fender's blue butterfly (65 FR 3875; January 25, 2000). In some cases, private collectors have more extensive collections of particular butterfly species than museums (Alexander 1996, p. 2). In particular, small colonies and populations are at the highest risk. Overcollection or repeated handling and marking of females in years of low abundance can seriously damage populations through

loss of reproductive individuals and genetic variability (65 FR 3875; January 25, 2000). In areas of the southwestern United States surrounding the range of the Mount Charleston blue butterfly, other diminutive lycaenid butterflies such as Western-tailed blue butterfly (*Everes amyntula*), Pygmy blue butterfly (*Brephidium exilis*), Ceraunus blue butterfly (*Hemiargus ceraunus*), and Boisduval's blue butterfly (*Plebejus icarioides* ssp.) have been confiscated from commercial traders who illegally collected them (U.S. Attorney's Office 1993, pp. 4, 8, 16; Alexander 1996, pp. 1–6). Since the publication of the 12-month finding (76 FR 12667) on March 8, 2011, we have discovered additional information that indicates butterfly collecting occurs at some level in the Spring Mountains (Service 2012c, pp. 1–4), and the Mount Charleston blue butterfly and other small, blue butterflies that co-occur with the Mount Charleston blue butterfly have been collected (Service 2012c, pp. 1–4; Andrew et al. 2013, pp. 22, 28, 41, 49, 55, 61). Therefore, while we do not know to what extent the Mount Charleston blue butterfly is specifically targeted for collection, we do know the inadvertent or unpermitted collection of Mount Charleston blue butterflies has occurred in the past and is anticipated to continue in the future to some degree.

When Austin first described the Mount Charleston blue butterfly in 1980 (Austin 1980, p. 22), he indicated that collectors regularly visited areas close to the known collection sites of the Mount Charleston blue butterfly. Records indicate collection has occurred in several locations within the Spring Mountains, with Lee Canyon being among the most popular areas for butterfly collecting (Table 2; Austin 1980, p. 22; Service 2012, p. 2). Butterfly collectors may sometimes remove the only individual of a

subspecies observed during collecting trips, even if it is known to be a unique specimen (Service 2012, p. 3). In many instances, a collector may not know he has a particularly rare or scarce species until after collection and subsequent identification takes place. The best available information indicates that Mount Charleston blue butterflies have been collected for personal use (Service 2012c, p. 2).

Table 2. Numbers of Mount Charleston blue butterfly specimens collected by area, year, and sex.

Collection Area/ Year	Male	Female	Unknown	Total
Mount Charleston				
1928			~700*	~700*
Willow Creek				
1928	15	19		34
Lee Canyon				
1963	8	6	8	22
1976	1			1
2002	1			1
Kyle Canyon				
1965	3			3
Cathedral Rock				
1972			1	1
Deer Creek Rd.				
1950	2			2
South Loop				
2007			1	1
Total	30	25	10	65

References: Garth 1928, p. 93; Howe 1975, Plate 59; Austin 1980, p. 22; Austin and Austin 1980, p. 30; Kingsley 2007, p. 4; Service 2012c, p. 2

* = Collections by Frank Morand as reported in Garth 1928, p. 93. Not included in totals.

For most butterfly species, collecting is generally thought to have less of an impact on butterfly populations compared to other threats. Weiss *et al.* (1997, p. 29)

indicated that, in general, responsible collecting posed little harm to populations. However, when a butterfly population is very small, any collection of butterflies results in the direct mortality of individuals and may greatly affect the population's viability and ability to recover. Populations already stressed by other factors may be severely threatened by intensive collecting (Thomas 1984, p. 345; Miller 1994, pp. 76, 83; New *et al*. 1995, p. 62). Thomas 1984 (p. 345) suggested that small (fewer than 250 adults), closed, sedentary populations of those butterfly species that fly often, fly fairly weakly, and are in areas of readily accessible terrain are most likely to be at risk from overcollection.

Butterfly collecting (except those with protected status) for noncommercial (recreational and personal) purposes does not require a special use authorization (Forest Service 1998b, p. 1; Joslin 1998, p. 74). However, the Forest Service's 1996 General Management Plan identified Lee Canyon, Cold Creek, Willow Creek, and upper Kyle Canyon in the SMNRA as areas where permits are required for any butterfly collecting (Forest Service 1998, pp. 28, E9). On Forest Service-administered lands, a special use permit has been required for commercial activities (36 CFR 251.50), which, although not identified specifically, would presumably include the commercial collection of butterflies. There are no records indicating any butterfly collection permits have been issued under the Forest Service's general management plan (GMP) provision (although at least one application has been submitted), or that any special use permits have been issued for commercial collecting of Mount Charleston blue butterflies under 36 CFR 251.50 in the Spring Mountains (S. Hinman 2011, personal communication). However,

outreach and public notification regarding this requirement was not wide, and many individuals probably were not aware that a permit was required, resulting in unauthorized collection in the past.

Collection targeting other butterfly species that are similar in appearance to the Mount Charleston blue butterfly may have resulted in incidental collection of the Mount Charleston blue butterfly or mistaken identification of the Mount Charleston blue butterfly for another similar species. Based on this, we proposed to list five additional butterfly species (lupine blue, Reakirt's blue butterfly, Spring Mountains icarioides blue butterfly, and two Spring Mountains dark blue butterflies) under section 4(e) of the Act (77 FR 59518, September 27, 2012). Since our proposed rule, we have evaluated more recent range data for the five species, and find that not all of those species actually overlap the known range of the Mount Charleston blue butterfly. Although the butterflies species that we proposed for listing are similar in appearance to the Mount Charleston blue butterfly, we believe the protection from misidentification and incidental collection that their listing would have provided is now unnecessary because the Forest Service has issued a closure order prohibiting collection, possession and transportation of all butterfly species without a special permit within the majority of the occupied range of the Mount Charleston blue butterfly that will significantly reduce or eliminate the threat of incidental collection of the Mount Charleston blue butterfly. This closure order has two prohibitions, the first prohibits the collection of the Mount Charleston blue butterfly and four other sensitive butterfly species (Morand's checkerspot [*Euphydryas anicia morandi*], Spring Mountains acastus checkerspot [*Chlosyne acastus robusta*], and

the two subspecies of Spring Mountains dark blue butterflies) in all areas within the Spring Mountain National Recreation Area. A second prohibition of the order closes the majority of theknown range of the Mount Charleston blue butterfly to the collection of all butterfly species, including those species for which the Mount Charleston blue butterfly could be mistaken. Permits to collect non-listed butterflies in these areas may be issued by the Forest Service through the collection permit process. This process requires applicants to provide information regarding their qualifications and experience with butterflies and intended uses of the permit, including the specific purpose of collection; a list of which species will be collected; the number of each sex and life stage for each species that will be collected; a list of locations where collection would occur; the time period in which collection would occur; and how information and knowledge gained from the collection will be disseminated.

The Forest Service permit does not allow the collection of any species listed under the Act, including the Mount Charleston blue butterfly being added to the Lists of Endangered and Threatened Species by this rule. Collection of the Mount Charleston blue butterfly, as well as any other endangered or threatened species, requires a section 10(a)(1)(A) permit issued by the Service; the section 10(a)(1)(A) permit process ensures that those that are interested in conducting research, which may include collection for scientific purposes, are qualified to work with this butterfly subspecies and have research objectives that will enhance the survival of the subspecies. Individuals who are issued a section 10(a)(1)(A) permit to research the Mount Charleston blue butterfly may then apply for a scientific collection permit from the Forest Service if such research activities will be conducted on Forest Service lands. Because the application processes for a

Service-issued section 10(a)(1)(A) permit and a Forest Service scientific collection permit require thorough review of applicant qualifications by agency personnel, we believe only highly qualified individuals capable of distinguishing between small, blue butterfly species that occur in the Spring Mountains will be issued permits. Therefore, the threat from incidental or accidental collection of the Mount Charleston blue butterfly will be reduced. As a result, we do not anticipate that individuals with permits will misidentify the butterfly species, and therefore, inadvertent collection by authorized individuals should be greatly reduced. In addition, any collection without permits would be in violation of the closure order and subject to law enforcement action so purposeful, unlawful collection should also be reduced.

This closure order is expected to provide more protection from the threat of collection to the Mount Charleston blue butterfly than the listing of the five additional butterflies based on similarity of appearance would have provided, for several reasons. First, the recently issued Forest Service closure order provides an enforcement mechanism for law enforcement officers through the Code of Federal Regulations (36 CFR 261.51), which the GMP provision did not provide. Law enforcement officers will be able to ticket or cite individuals who are out of compliance with the closure order.

Secondly, individuals interested in collecting nonlisted butterflies in the SMNRA will have to apply for a collection permit and provide thorough justification and description of their research and need for collection as described above. Based on the

current number of known butterfly researchers in the Spring Mountains, the Forest Service is unlikely to issue many collection permits for any butterfly species in Mount Charleston blue butterfly habitat. Those who are issued permits will have provided information demonstrating their qualifications and ability to research and identify butterfly species of the Spring Mountains; therefore, only individuals who are highly qualified and competent with butterflies and their identification will be issued collection permits. Further, qualified and competent collectors will be able to identify the Mount Charleston blue butterfly and know that its collection is prohibited under the Act. Therefore, the threat from incidental or accidental collection of the Mount Charleston blue butterfly while collecting other butterfly species will be reduced.

Thirdly, Forest Service law enforcement will be able to more readily and easily enforce a closure order than our law enforcement would be able to enforce potential violations based on similarity of appearance listings under the Act. The areas identified in the closure area receive the highest amount of recreation in the SMNRA, so these areas often receive the greatest presence of Forest Service law enforcement. This will provide substantially more law enforcement presence to deter possible unlawful collection than if the species similar in appearance were listed without the closure order. Law enforcement personnel will not need to be able to distinguish between different butterfly species during potential enforcement actions, because anyone collecting or attempting to collect butterflies within the closure area must be permitted, or that person will be in violation of the closure order, and law enforcement may take appropriate enforcement action. Because individuals applying for a Forest Service collection permit must

demonstrate adequate qualifications and expertise in butterfly identification, we believe individuals that are permitted will be qualified and able to distinguish the Mount Charleston blue butterfly from other species and will be in compliance with his or her permit. Should someone be stopped with blue butterflies outside of the closure order area, law enforcement will still be able to seize the blue butterflies, with probable cause, and have them identified by an expert to ensure that they are not listed species. If they are a listed species, the individual would need to prove lawful possession or be subject to law enforcement action, including potential criminal or civil prosecution for violations of the Act. Based on these reasons, the Forest Service closure order is expected to be more effective in protecting the Mount Charleston blue butterfly from the threat of collection than the listing of species due to their similarity of appearance to the Mount Charleston blue butterfly. For more information on the Forest Service closure order, please visit *http://www.fs.usda.gov/alerts/htnf/alerts-notices*.

In summary, the threat to the Mount Charleston blue butterfly from collection is expected to be reduced by the Forest Service's closure order on collection, and we are confident that most individuals will follow the Forest Service's and our permitting regulations. However, it is possible that unlawful collection of the Mount Charleston blue butterfly could occur. Due to the small number of discrete populations, overall small metapopulation size, close proximity to roads and trails, and restricted range, we have determined that unpermitted and unlawful collection is a threat to the subspecies and may continue to be in the future.

Factor C. Disease or Predation

We are not aware of any information specific to the Mount Charleston blue butterfly regarding impacts from either disease or predation. Research on these topics and their impacts on the Mount Charleston blue butterfly is lacking. Researchers have observed potential predator species (for example, spiders (class Arachnida), ambush bugs (*Phymata* spp.), and flycatchers (*Empidonax* spp.)) at Mount Charleston blue butterfly locations (Thompson *et al.* 2013b, presentation), but we are not aware of any documented predation events and cannot confirm if any of these species do predate Mount Charleston blue butterflies. The extent to which parasitoids regulate butterfly populations is not adequately understood (Gilbert and Singer 1975, p. 367), and we do not have information specific to this regarding the Mount Charleston blue butterfly. As a result, the best available scientific and commercial information does not indicate that disease or predation are a threat to the Mount Charleston blue butterfly.

Factor D. The Inadequacy of Existing Regulatory Mechanisms

Under this factor, we examine whether existing regulatory mechanisms are inadequate to address the threats to the subspecies discussed under the other factors. Section 4(b)(1)(A) of the Act requires the Service to take into account "those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species…." In relation to Factor D under the Act, we interpret this language to require the Service to consider relevant Federal, State, and tribal

laws, regulations, and other such mechanisms that may minimize any of the threats we describe in threat analyses under the other four factors, or otherwise enhance conservation of the species. We give strongest weight to statutes and their implementing regulations and to management direction that stems from those laws and regulations. An example would be State governmental actions enforced under a State statute or constitution, or Federal action under statute.

Having evaluated the significance of the threat as mitigated by any such conservation efforts, we analyze under Factor D the extent to which existing regulatory mechanisms are inadequate to address the specific threats to the species. Regulatory mechanisms, if they exist, may reduce or eliminate the impacts from one or more identified threats. In this section, we review existing State and Federal regulatory mechanisms to determine whether they effectively reduce or remove threats to the Mount Charleston blue butterfly.

Mount Charleston blue butterflies have been detected in only three general areas in recent years—the South Loop Trail area, LVSSR, and the Bonanza Trail area, all of which occur primarily on Federal land under the jurisdiction of the Forest Service; therefore, the discussion below focuses on Federal laws. There is no available information regarding local land use laws and ordinances that have been issued by Clark County or other local government entities for the protection of the Mount Charleston blue butterfly. Nevada Revised Statutes sections 503 and 527 offer protective measures to wildlife and plants, but do not include invertebrate species such as the Mount Charleston

blue butterfly. Therefore, no regulatory protection is offered under Nevada State law. Please note that actions adopted by local groups, States, or Federal entities that are discretionary, including conservation strategies and guidance, are not regulatory mechanisms and were discussed above in the "Conservation Agreement and Plans That May Offset Habitat Threats" section under *Factor A*, above.

The Forest Service manages lands designated as wilderness under the Wilderness Act of 1964 (16 U.S.C. 1131–1136). With respect to these areas, section 4(c) of the Wilderness Act states in part that "except as specifically provided for in this Act, . . . there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area." Although the Wilderness Act is not specifically intended to protect at-risk species, such as the Mount Charleston blue butterfly, the Wilderness Act provides ancillary protection to this subspecies by the prohibitions restricting development in habitat in the South Loop Trail and Bonanza Trail areas. Mount Charleston blue butterfly habitat at LVSSR and elsewhere in Lee Canyon and Kyle Canyon is located outside of the Mount Charleston Wilderness, and thus is not subject to protections afforded by the Wilderness Act.

The National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 *et seq.*), requires Federal agencies, such as the Forest Service, to describe proposed agency actions, consider alternatives, identify and disclose potential environmental impacts of each alternative, and involve the public in the decision-making process.

Federal agencies are not required to select the NEPA alternative having the least significant environmental impacts. A Federal agency may select an action that will adversely affect sensitive species provided that these effects are identified in a NEPA document. The NEPA itself is a disclosure law, and does not require subsequent minimization or mitigation of actions taken by Federal agencies. Although Federal agencies may include conservation measures for the Mount Charleston blue butterfly as a result of the NEPA process, such measures are not required by the statute. The Forest Service is required to analyze its projects, including those listed under the *Factor A* discussion, above, in accordance with the NEPA.

The SMNRA is one of 10 districts of the Humboldt–Toiyabe National Forest and was established by Pub. L. 103-63, dated August 4, 1993 (the Spring Mountains National Recreation Area Act, 16 U.S. C. 460hhh *et seq.*). The Federal lands of the SMNRA are managed by the Forest Service in Clark and Nye Counties, Nevada, for the following purposes:

(1) To preserve the scenic, scientific, historic, cultural, natural, wilderness, watershed, riparian, wildlife, endangered and threatened species, and other values contributing to public enjoyment and biological diversity in the Spring Mountains of Nevada;

(2) To ensure appropriate conservation and management of natural and recreational resources in the Spring Mountains; and

(3) To provide for the development of public recreational opportunities in the Spring Mountains for the enjoyment of present and future generations.

Habitat of the Mount Charleston blue butterfly is predominantly in the SMNRA and one of several resources considered by the Forest Service under the guidance of its land management plans.

The National Forest Management Act (NFMA) of 1976, as amended (16 U.S.C. 1600 *et seq.*), provides the principal guidance for the management of activities on lands under Forest Service jurisdiction through associated land and resource management plans for each forest unit. Under NFMA and other Federal laws, the Forest Service has authority to regulate recreation, vehicle travel and other human disturbance, livestock grazing, fire management, energy development, and mining on lands within its jurisdiction. Current guidance for the management of Forest Service lands in the SMNRA is under the Toiyabe National Forest Land and Resource Management Plan and the Spring Mountains National Recreation Area GMP (Forest Service 1996). In June 2006, the Forest Service added the Mount Charleston blue butterfly, and three other endemic butterflies, to the Regional Forester's Sensitive Species List, in accordance with Forest Service Manual 2670. The Forest Service's objective in managing sensitive species is to prevent listing of species under the Act, maintain viable populations of native species, and develop and implement management objectives for populations and habitat of sensitive species. Projects listed under the *Factor A* discussion, above, have been guided by these Forest Service plans, policies, and guidance. These plans, policies, and guidance notwithstanding, removal or degradation of known occupied and presumed-occupied butterfly habitat has occurred as a result of projects approved by the Forest Service in Upper Lee Canyon. Additionally, this guidance has not been effective in

reducing other threats to the Mount Charleston blue butterfly (for example, invasion of nonnative plant species and commercial and personal collection activities) (Weiss *et al.* 1995, pp. 5–6; Titus and Landau 2003, p. 1; Boyd and Murphy 2008, p. 6; Service 2012c, pp. 1–4).

Until recently, the effectiveness of the Forest Service's GMP provision requiring a permit in order to collect butterflies was inadequate because it was not well publicized and did not provide a mechanism for law enforcement personnel to enforce it (77 FR 59518, September 27, 2012). However, as described in detail under Factor B, above, the Forest Service has recently issued a closure order prohibiting the collection of the Mount Charleston blue butterfly and four other sensitive butterfly species throughout the SMNRA and prohibiting the collection of all butterfly species in the area where the majority of known occupied and presumed occupied locations of the Mount Charleston blue butterfly occur. The Code of Federal Regulations (36 CFR 261.51) requires the Forest Service to provide information on the closure area in multiple locations, and the Forest Service has notified the public on its website, at kiosks and trailheads in the SMNRA, and on butterfly discussion boards. Any violation of the prohibitions in the closure order issued pursuant to 36 CFR 261.50(a) and (b) is subject to law enforcement action and punishable as a misdemeanor offense [Title 16 USC 551, 18 USC 3571(b)(6), Title 18 USC 3581(b)(7)]. Based on this, we believe the Forest Service's closure order will be effective in protecting the Mount Charleston blue butterfly from most butterfly collection.

Summary of Factor D

While not the intent of the Wilderness Act, the Mount Charleston blue butterfly receives ancillary protection from the Wilderness Act from its prohibitions on development. We consider the recent issuance of a butterfly collection closure order by the Forest Service to reduce the threat of collection to the Mount Charleston blue butterfly.

Other existing regulatory mechanisms have not provided effective protection to the Mount Charleston blue butterfly and its habitat. Forest Service plans, policies, and guidance notwithstanding, removal or degradation of known occupied and presumed-occupied butterfly habitat has occurred as a result of projects approved by the Forest Service in Upper Lee Canyon, and Forest Service guidance has not been effective in reducing other threats to the Mount Charleston blue butterfly (for example, invasion of nonnative plant species and commercial and personal collection activities) (Weiss *et al.* 1995, pp. 5–6; Titus and Landau 2003, p. 1; Boyd and Murphy 2008, p. 6; Service 2012c, pp. 1–4).

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

Our analyses under the Act include consideration of ongoing and projected changes in climate. The terms "climate" and "climate change" are defined by the Intergovernmental Panel on Climate Change (IPCC). "Climate" refers to the mean and

variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007a, p. 78). The term "climate change" thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007a, p. 78). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007b, pp. 8–14, 18–19). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

Global climate projections are informative, and, in some cases, the only or the best scientific information available for us to use. However, projected changes in climate and related impacts can vary substantially across and within different regions of the world (e.g., IPCC 2007b, pp. 8–12). Therefore, we use "downscaled" projections when they are available and have been developed through appropriate scientific procedures, because such projections provide higher resolution information that is more relevant to spatial scales used for analyses of a given species (see Glick *et al*. 2011, pp. 58–61, for a discussion of downscaling). IPCC models are at a landscape scale and project that precipitation will decrease in the southwestern United States (IPCC 2007c, p. 8, Table SPM.2). The IPCC reports that temperature increases and rising air and ocean

temperature is unquestionable (IPCC 2007b, p. 4). The average annual temperature is projected to increase 2.5 degrees Celsius (4.4 degrees Fahrenheit) from the 1961–1990 baseline average to the 2050s (average of 16 general circulation models performed with three emission scenarios) (TNC 2011, website). Precipitation variability in the Mojave Desert region is linked spatially and temporally with events in the tropical and northern Pacific Oceans (El Niño and La Niña) (USGS 2004, pp. 2–3). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change as it affects the Mount Charleston blue butterfly.

The Mount Charleston blue butterfly population has declined since the last high-population year in 1995 (a total of 121 butterflies were counted during surveys of 2 areas at LVSSR on 2 separate dates (Weiss 1996, p. 4)). This subspecies has a limited distribution within 267.1 ac (108.1 ha) of habitat at only 3 known occupied locations, and based on numbers of observations made at these locations in a single season, the populations are likely small. Small populations have a higher risk of extinction due to random environmental events (Shaffer 1981, p. 131; Shaffer 1987, pp. 69–75; Gilpin and Soule 1986, pp. 24–28). Weather extremes can cause severe butterfly population reductions or extinctions (Murphy *et al.* 1990, p. 43; Weiss *et al.* 1987, pp. 164–167; Thomas *et al.* 1996, pp. 964–969). Given the limited distribution and likely low population numbers of the Mount Charleston blue butterfly, late-season snowstorms, severe summer monsoon thunderstorms, and drought have the potential to adversely impact the subspecies.

Late-season snowstorms have caused alpine butterfly extirpations (Ehrlich *et al.* 1972, pp. 101–105), and false spring conditions followed by normal winter snowstorms have caused adult and pre-diapause larvae mortality (Parmesan 2005, pp. 56–60). In addition, high rainfall years have been associated with butterfly population declines (Dobkin *et al.* 1987, pp. 161–176). Extended periods of rainy weather can also slow larval development and reduce overwintering survival (Weiss *et al.* 1993, pp. 261–270). Weiss *et al.* (1997, p. 32) suggested that heavy summer monsoon thunderstorms adversely impacted Mount Charleston blue butterflies during the 1996 flight season. During the 2006 and 2007 flight season, severe summer thunderstorms may have affected the flight season at LVSSR and the South Loop Trail (Newfields 2006, pp. 11 and 14; Kingsley 2007, p. 8). Additionally, drought has been shown to lower butterfly populations (Ehrlich *et al.* 1980, pp. 101–105; Thomas 1984, p. 344). Drought can cause larval butterfly host plants to mature early and reduce larval food availability (Ehrlich *et al.* 1980, pp. 101–105; Weiss 1987, p. 165). This has likely affected the Mount Charleston blue butterfly. Murphy (2006, p. 3) and Boyd (2006, p. 1) both assert a series of drought years, followed by a season of above-average snowfall and then more drought, could be a reason for the lack of butterfly sightings in 2006. Continuing drought could be responsible for the lack of sightings in 2007 and 2008 (Datasmiths 2007, p. 1; Boyd 2008, p. 2).

High-elevation species like the Mount Charleston blue butterfly may be susceptible to some level of habitat loss due to global climate change exacerbating threats

already impacting the subspecies (Peters and Darling 1985, p. 714; Hill *et al.* 2002, p. 2170). Effects on the Mount Charleston blue butterfly or its habitat from climate change will vary across its range because of topographic heterogeneity (Luoto and Heikkinen 2008, p. 487). The IPCC has high confidence in predictions that extreme weather events, warmer temperatures, and regional drought are very likely to increase in the northern hemisphere as a result of climate change (IPCC 2007c, pp. 15–16). Climate models show the southwestern United States has transitioned into a more arid climate of drought that is predicted to continue into the next century (Seager *et al.* 2007, p. 1181). In the past 60 years, the frequency of storms with extreme precipitation has increased in Nevada by 29 percent (Madsen and Figdor 2007, p. 37). Changes in local southern Nevada climatic patterns cannot be definitively tied to global climate change; however, they are consistent with IPCC-predicted patterns of extreme precipitation, warmer than average temperatures, and drought (Redmond 2007, p. 1). Therefore, we think it likely that climate change will impact the Mount Charleston blue butterfly and its high-elevation habitat through predicted increases in extreme precipitation and drought. Based on the above evidence, we believe that the Mount Charleston blue butterfly has likely been affected by unfavorable climatic changes in precipitation and temperature that are both ongoing and projected to continue into the future, and alternating extreme precipitation and drought may exacerbate threats already facing the subspecies as a result of its small population size and threats to its habitat.

Summary of Factor E

Small butterfly populations have a higher risk of extinction due to random environmental events (Shaffer 1981, p. 131; Gilpin and Soule 1986, pp. 24–28; Shaffer 1987, pp. 69–75). Because of its presumed small population and restricted range, the Mount Charleston blue butterfly is vulnerable to random environmental events; in particular, the Mount Charleston blue butterfly is threatened by extreme precipitation events and drought. In the past 60 years, the frequency of storms with extreme precipitation has increased in Nevada by 29 percent (Madsen and Figdor 2007, p. 37), and it is predicted that altered regional patterns of temperature and precipitation as a result of global climate change will continue (IPCC 2007c, pp. 15–16). While we may not have detailed, site-specific information on climate change and its effects on the Mount Charleston blue butterfly and its habitat at this time (see responses to Comments 12 and 13, above), altered climate patterns throughout the entire range of the Mount Charleston blue butterfly could increase the potential for extreme precipitation events and drought, and may exacerbate the threats the subspecies already faces given its presumed small population size and the threats to the alpine environment where it occurs. Based on this information, we find that other natural or manmade factors are affecting the Mount Charleston blue butterfly such that these factors are a threat to the subspecies' continued existence.

Determination

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Mount Charleston blue

butterfly. The Mount Charleston blue butterfly is sensitive to environmental variability with the butterfly population rising and falling in response to environmental conditions (see "Status and Trends" section, above). The best available information for the Mount Charleston blue butterfly shows that the range and population have been in decline over the last 20 years, and that the population is now likely extremely small (see "Status and Trends" section, above).

Threats facing the Mount Charleston blue butterfly, discussed above under listing Factors A, B, D, and E, increase the risk of extinction of the subspecies, given its few occurrences in a small area. The loss and degradation of habitat due to changes in natural fire regimes and succession; the implementation of recreational development projects and fuels reduction projects; and the increases in nonnative plants (see *Factor A* discussion) will increase the inherent risk of extinction of the remaining few occurrences of the Mount Charleston blue butterfly. In addition, the threat to the Mount Charleston blue butterfly from collection (see *Factor B* discussion) is expected to be reduced by the Forest Service's closure order on collection. However, due to the small number of discrete populations, overall small metapopulation size, close proximity to roads and trails, and restricted range, we have determined that unpermitted and unlawful collection is a threat to the subspecies and may continue to be in the future. Regarding the inadequacy of existing regulatory mechanisms (see *Factor D* discussion), we consider the recent issuance of a butterfly collection closure order by the Forest Service to reduce the threat of collection to the Mount Charleston blue butterfly. However, other existing regulatory mechanisms have not provided effective protection to the Mount Charleston

blue butterfly and its habitat. These threats are likely to be exacerbated by the impact of climate change, which is anticipated to increase drought and extreme precipitation events (see *Factor E* discussion). The Mount Charleston blue butterfly is currently in danger of extinction because only small populations are known to occupy only 3 of the 17 historical locations, it may become extirpated in the near future at 7 other locations presumed to be occupied, and the threats are ongoing and persistent at all known and presumed-occupied locations.

The Act defines an endangered species as any species that is "in danger of extinction throughout all or a significant portion of its range" and a threatened species as any species "that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future." We determine that Mount Charleston blue butterfly is presently in danger of extinction throughout its entire range, based on the immediacy, severity, and scope of the threats described above and its limited distribution of three known occupied locations and seven presumed-occupied locations nearing extirpation. The Mount Charleston blue butterfly thus meets the definition of an endangered species rather than threatened species because: (1) It has been extirpated from seven locations, (2) it is limited to only three small populations and possibly 7 other populations at presumed-occupied areas, (3) the known-occupied and presumed-occupied populations are facing severe and imminent threats, and (4) threats are ongoing and expected to continue into the future. Therefore, on the basis of the best available scientific and commercial information, we are listing the Mount Charleston blue butterfly as endangered in accordance with sections 3(6) and 4(a)(1) of the Act.

Under the Act and our implementing regulations, a species may warrant listing if it is an endangered or threatened species throughout all or a significant portion of its range. The Mount Charleston blue butterfly is highly restricted in its range and the threats occur throughout its range. Therefore, we assessed the status of the subspecies throughout its entire range. The threats to the survival of the subspecies occur throughout the subspecies' range and are not restricted to any particular significant portion of that range. Accordingly, our assessment and determination applies to the subspecies throughout its entire range, and we did not further evaluate a significant portion of the subspecies' range.

Protections and Conservation Measures Available Upon Listing

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed and preparation of a draft and final recovery plan. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery plan identifies site-specific management actions that set a trigger for review of the five factors that control whether a species remains endangered or may be downlisted or delisted, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (comprised of species experts, Federal and State agencies, nongovernment organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our

website (*http://www.fws.gov/endangered*), or from our Nevada Ecological Services Office (see **ADDRESSES**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribal, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

Once this rule is effective (see **DATES** section, above), funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the State of Nevada will be eligible for Federal funds to implement management actions that promote the protection or recovery of the Mount Charleston blue butterfly. Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants*.

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with

respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal agency actions within the subspecies' habitat that may require conference or consultation or both as described in the preceding paragraph include management and any other landscape-altering activities on Federal lands administered by the Forest Service; issuance of section 404 Clean Water Act (33 U.S.C. 1251 *et seq*.) permits by the U.S. Army Corps of Engineers; and construction and maintenance of roads or highways by the Federal Highway Administration.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. The prohibitions of section 9(a)(2) of the Act, codified at 50 CFR 17.21 for endangered wildlife, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these),

import, export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. Under the Lacey Act (18 U.S.C. 42–43; 16 U.S.C. 3371–3378), it is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the U.S. Fish and Wildlife Service (Service) and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 for endangered wildlife, and at 17.32 for threatened wildlife. With regard to endangered wildlife, a permit must be issued for the following purposes: for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities.

Required Determinations

National Environmental Policy Act

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), need not be prepared in connection with listing a species as an endangered or threatened species under the Endangered Species Act. We published

a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to NEPA in connection with designating critical habitat under the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

References Cited

A complete list of all references cited in this rule is available on the Internet at *http://www.regulations.gov* or upon request from the Nevada Ecological Services Office (see **ADDRESSES**).

Authors

The primary authors of this document are the staff members of the Nevada Ecological Services Office.

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

PART 17—[AMENDED]

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

Authority: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245, unless otherwise noted.

2. Amend §17.11(h) by adding an entry for "Butterfly, Mount Charleston blue", in alphabetical order under INSECTS, to the List of Endangered and Threatened Wildlife, to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
						NA	NA
* * * * * * *							
INSECTS							
* * * * * * *							
Butterfly, Mount Charleston blue	*Plebejus shasta charlestonensis*	Spring Mountains, Clark County, NV, U.S.A.	Entire	E	820		
* * * * * * *							

* * * * *

Dated: September 10, 2013

Signed: Stephen Guertin

Acting Director, U.S. Fish and Wildlife Service

Billing Code 4310-55-P

[FR Doc. 2013-22702 Filed 09/18/2013 at 8:45 am; Publication Date: 09/19/2013]