



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE OFFICE



Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

December 22, 2000

Jeanine A. Derby, Forest Supervisor
Los Padres National Forest
6144 Calle Real
Goleta, California 93117

Subject: Biological Opinion for Ongoing Activities Occurring in the Monterey Ranger District of the Los Padres National Forest, Monterey County, California (2670) (1-8-99-F-74)

Dear Ms. Derby:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the U.S. Forest Service's (Forest Service) ongoing activities in the Monterey Ranger District (MRD) of the Los Padres National Forest (LPNF) and the effects of these activities on the federally endangered Smith's blue butterfly (*Euphilotes enoptes smithi*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act). Your revised biological assessment, dated January 24, 2000, was received by our office on February 1, 2000. Your request for formal consultation, dated January 31, 2000, was received by our office on February 8, 2000.

This biological opinion is based on information which accompanied your revised biological assessment (Forest Service 2000), telephone conversations and electronic mail between Service and Forest Service staff, site visits on August 31, 1999, September 1, 1999, July 10 and 11, 2000, and our files.

The Forest Service has determined that activities associated with law enforcement, habitat improvement, soil and watershed improvements, the harvest of forest products, adjustment of land ownership, minerals, timber management, and administrative infrastructure are not likely to adversely affect the Smith's blue butterfly. The Forest Service also concluded that the legal introduction, reintroduction, and stocking of bald eagles (*Haliaeetus leucocephalus*), tule elk (*Cervus canadensis*), Nelson bighorn sheep (*Ovis canadensis*), wild turkeys (*Meleagris gallopavo*), chukar (*Alectoris chukar*), California condors (*Gymnogyps californianus*), and resident rainbow trout (*Oncorhynchus mykiss*) into the Los Padres National Forest are not likely to adversely affect the Smith's blue butterfly.

Descriptions of these activities and the reasons the Forest Service has concluded that they are not likely to adversely affect listed species are contained in the biological assessment. The Service concurs with the Forest Service's conclusions. These activities will not be discussed further in this biological opinion.

CONSULTATION HISTORY

In June 1998, the Southwest Center for Biological Diversity (Center) filed a notice of intent to sue the Forest Service because of its failure to consult with the Service on the existing Land and Resource Management Plans (LRMP) for the San Bernardino, Cleveland, Angeles, and Los Padres National Forests. The Center also noted that the Forest Service had failed to consult on individual ongoing actions and projects which implement the Land and Resource Management Plans. During the summer of 1998, we worked with the Forest Service to devise a strategy that would enable the Forest Service to bring its actions into compliance with the Act.

On August 19, 1998, an agreement was approved between the Forest Service and our offices in Carlsbad and Ventura. This agreement established an interagency team to facilitate a more collaborative and effective approach to consultations pursuant to section 7 of the Act. The principal focus of this team was the consultation on the existing LRMPs. However, the team recognized that the existing LRMPs did not reflect the current status of listed species or their habitats, and that such a consultation would not address the potential adverse effects occurring from ongoing activities, the second component of the lawsuit. In addition, a consultation on the LRMPs would take at least two years to complete.

Subsequently, we signed a Consultation Strategy with the Forest Service on January 15, 1999, that refined the agreement of August 1998. The Consultation Strategy identified the need to consult immediately on ongoing actions, and established a strategy for updating information in the LRMPs for future formal consultation. In developing the Consultation Strategy, our agencies identified 7 high-priority program areas likely to be adversely affecting 16 listed species:

- Maintenance, repair, and use of the existing Forest Service road system
- Use of existing developed recreation sites
- Maintenance, repair, and use of the existing Forest Service trail system
- Wildfire and prescribed burning activities
- Grazing by livestock
- Dispersed recreation use
- Special uses

Formal consultation on these high-priority program areas would take precedence over consultation on the LRMPs to bring ongoing activities into compliance with the Act. This biological opinion completes one of the consultations on these high-priority program areas and focuses exclusively on the Smith's blue butterfly.

On March 1, 1999, the Forest Service initiated formal consultation on the Smith's blue butterfly

with us. We submitted a draft biological opinion to the Forest Service in June 1999. After the Forest Service reviewed the draft biological opinion, staff from both agencies conducted site visits to the Monterey Ranger District (MRD) on August 31 and September 1, 1999. Because of the analysis of effects and the terms and conditions in the draft biological opinion and discussions during the site visits, the Forest Service decided to prepare a revised biological assessment. This revised biological assessment, dated January 24, 2000, was received by our office on February 1, 2000. After reviewing the revised biological assessment, Colleen Sculley and Diane Pratt of the Service met with Mike Foster and Jeff Kwasny of the Forest Service on July 11, 2000. During this meeting, Mr. Foster and Mr. Kwasny noted several inaccuracies in the biological assessment and stated that Forest Service would not be able to carry out all of the measures described in the revised biological assessment. We agreed to remove certain measures from the revised biological assessment and correct the inaccuracies. Ms. Sculley summarized these changes in a memorandum to the file dated August 18, 2000. Additional information for inclusion in the revised biological assessment was provided via electronic mail to Ms. Sculley by Mr. Kwasny on July 21 and August 15, 2000, and by Mr. Foster on August 24, 2000.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Overview of Management Direction

The LRMP establishes the management direction for the Los Padres National Forest. The primary direction related to listed species is derived from the Standards and Guidelines and Management Emphases of the LRMP which incorporated, in its entirety, the recovery plan for the Smith's blue butterfly. Therefore, the LRMP does not contain extensive species-specific direction for the Smith's blue butterfly.

The Smith's blue butterfly occurs within Management Areas 42, 48, 64, and 66 of the MRD. The primary emphases for Management Area 42 are fisheries management and retention of the natural wooded and pastoral quality of the landscape visible from Highway 1 and other major viewing areas. The Forest Service emphasizes uses such as viewing scenery, pleasure driving, beach recreation, picnicking, hiking, and nature study. Other resource activities are managed to be consistent with the visual and recreational emphasis. Existing grazing opportunities are maintained.

In Management Area 48, retention of the natural visual resources and fisheries management are emphasized also. Viewing scenery, picnicking, hiking, nature study, equestrian use, gathering forest products, hunting, and family camping are supported. Existing grazing opportunities are maintained, new mining claims are not recommended, and prescribed burning or other manipulation are used to maintain a mixed vegetation age class that is protective of soils and water resources.

Management Area 64 is managed for wilderness values. Existing grazing opportunities are

maintained, and prescribed burning is used to reduce to an acceptable level the risks and consequences of wildfires escaping from the wilderness area.

Management Area 66 is managed for non-destructive, non-manipulative research and study. Recreation is not encouraged. Grazing opportunities will not be expanded and may be eliminated as identified in the management plan for this area. Improvements for wildlife can be permitted if needed for sensitive or listed species.

High Priority Program Areas

Maintenance, Repair, and Use of the Existing Forest Service Road System

The Forest Service proposes to maintain, repair, and allow public use of the following existing Forest Service roads or road segments within potential habitat for the Smith's blue butterfly: 18S06, 19S05 (Sycamore Canyon Road), 19S06, 20S05 (Coast Ridge Road), 20S05.A, 22S01 (County Road 404/Nacimiento Road), 22S04, 23S01 (County Road 4006/Willow Creek Road), 23S02 (Plaskett Road), 23S14 and 24S06. Access and use of these roads are fairly limited along the coast of Monterey. Forest Service jurisdiction for some is limited as they are either private or under County of Monterey (County) or State jurisdiction. Sycamore Canyon Road (19S05) is the only road maintained by the Los Padres National Forest that is confirmed to have the larval host plant of the Smith's blue butterfly, seacliff buckwheat (*Eriogonum parvifolium*), occurring along the right-of-way.

Use of Existing Developed Recreation Sites

The Forest Service proposes to continue management of seven developed recreation sites within potential habitat of the Smith's blue butterfly: Botcher's Gap, Kirk Creek, and Plaskett Creek campgrounds, and Pfeiffer Beach, Mill Creek, Sand Dollar, and Willow Creek day use areas. All seven sites are operated by concessionaires under permit with the Forest Service. All but one of the sites are located along the immediate coast, just off Highway 1. The Forest Service must approve all operation and maintenance activities that could affect the Smith's blue butterfly.

Most recreational activities within the range of the Smith's blue butterfly revolve around the scenic, natural, and historic features of the coastline. Visitor use peaks during the summer months and for the most part is accommodated by Forest Service, State, and private facilities located along State Highway 1 and to a lesser extent by inland facilities located along road corridors. No Forest Service recreation-related construction projects are currently proposed for the Monterey coast.

Maintenance, Repair, and Use of the Existing Forest Service Trail System

The Forest Service proposes to maintain, repair, and allow public use of approximately 22 segments of hiking or equestrian trails located on the west slope of the Santa Lucia Range. Most of these trails are located in riparian corridors that do not support seacliff buckwheat or they are above the elevation limit of the Smith's blue butterfly. No new trails are currently planned for the MRD. The MRD does not contain any designated off-highway vehicle trails.

Wildfire and Prescribed Burning

Prescribed fire has not been used recently on the MRD; no projects are currently being planned. Consequently, the current burn program is not directly affecting the Smith's blue butterfly or its habitat. If prescribed fire projects are proposed in occupied or potential habitat for the Smith's blue butterfly, the Forest Service would consult with the Service. Wildfires could occur within Smith's blue butterfly potential habitat, as evidenced by the Kirk and Hare fires in September 1999.

Grazing by Livestock

Grazing has occurred on the coastal portion of the MRD for over 100 years. In the early part of this century, livestock numbers and their range were substantially larger than today. The coastal portion of the MRD supports five livestock allotments. The season of use ranges from 4.5 months to year-long. All five allotments contain potential Smith's blue butterfly habitat; Smith's blue butterflies have been documented on two allotments.

The following table describes the current and proposed grazing regimes for the five allotments on the coastal portion of the MRD. The proposed grazing regimes will undergo analysis as required by the National Environmental Policy Act and may be modified as a result of this analysis. Any modifications that may occur would result in equal or less-intensive grazing than the current levels. Asterisks denote allotments or allotment units where occurrences of the Smith's blue butterfly have been documented previously.

Table 1: Grazing Allotments on the MRD

Allotment Name	Current Number of Animals	Current Season of Use	Proposed Number of Animals	Proposed Season of Use
*Alder Creek	5 horse	year-long	8 horses	year-long
Buckeye	vacant	n/a	20 cattle	February 1 to June 30
Cozy Cove	vacant	n/a	30 cattle	January 1 to May 30

*Gorda				
*Mill Creek Unit	25 cattle	April 1 to August 15	25 cattle	February 15 to August 15
*Pacific Valley Unit	50 cattle	April 1 to October 15	40 cattle	April 1 to September 15
Plaskett Unit	30 cattle	April 1 to October 15	35 cattle	February 15 to July 15
Prewitt Unit	20 cattle	April 1 to October 15	50 cattle	February 15 to July 15
Salmon Creek	vacant	n/a	4 cattle	year long
Twitchell	20 cattle	April 1 to August 15	vacant	n/a

Dispersed Recreation Use

Dispersed recreation occurs throughout the MRD. Within the range of the Smith's blue butterfly, the primary open or cross country uses not involving use of designated trails or roads include backpacking, wildlife viewing, hunting, fishing, and photography. Approximately 29 dispersed recreation sites occur within the coastal slopes of the Santa Lucia Range; these sites include undeveloped trail camps and fishing areas.

Special Uses

The Forest Service issues special use permits to owners of private inholdings to allow access to their lands. Approximately five miles of this type of access road cross the coastal scrub communities of the MRD.

Approximately three miles of the Highway 1 right-of-way are managed by the Forest Service; the California Department of Transportation (Caltrans) operates under a Special Use Permit for this portion of the highway. The remainder of Highway 1 is owned by Caltrans.

Measures to Minimize the Effects of Project Activities

The revised biological assessment states that the Forest Service will implement the following

measures to avoid or minimize adverse impacts to the Smith's blue butterfly and its hosts plants and, where practicable, to improve habitat quality.

Trail and Road Maintenance

1. Any seacliff buckwheat plants removed for trail and road maintenance will be removed by hand or hand tools and placed adjacent to other existing seacliff buckwheat plants to allow any larvae on the removed plants to relocate to living plants.
2. Field surveys will be conducted to determine the distribution and abundance of habitat (seacliff buckwheat) in 1) trail and road corridors that have documented occurrences of invasive, non-native plants; and 2) trail and road corridors for which knowledge regarding the distribution and abundance of seacliff buckwheat is incomplete.

Wildfire Suppression

1. Resource advisors will brief hand crew supervisors on locations of the Smith's blue butterfly and its habitat within wildfire suppression areas.
2. When possible, helicopters will use water drops in lieu of retardant for fire suppression within habitat for the Smith's blue butterfly.
3. When possible, construction of bulldozer lines will be avoided within areas inhabited by seacliff buckwheat. When lines must be constructed by bulldozers, the blade will be raised and bulldozers will be walked across seacliff buckwheat areas, where possible. When possible, waterbars will be installed or other management practices will be used to avoid directing runoff into seacliff buckwheat stands.
4. When possible, burning out or backfires will be avoided within seacliff buckwheat habitat. Water drops will be used, when practicable, to pretreat these areas and to attempt to prevent any intense burning.
5. When possible, construction of hand lines will be avoided within seacliff buckwheat habitat. When needed, hand lines will be constructed along the outside perimeter of seacliff buckwheat stands.
6. When possible, staging areas, helibases, base camps, drop off points or other areas of high use will not be established within areas where seacliff buckwheat occurs.
7. Monitoring to verify effectiveness of the above actions in minimizing impacts to the Smith's blue butterfly will be conducted as soon as possible after a fire has been declared controlled.

During the July 11, 2000 meeting between the Service and the Forest Service (see the Consultation History section of this biological opinion), we discussed the following additional minimization measures for wildfire fighting, which the Forest Service was willing to incorporate into its minimization measures for the proposed action. This commitment was confirmed by a

telephone conversation on December 13, 2000 between Bridget Fahey of our office and Mike Foster.

8. All areas of coastal scrub or grassland on the western slope of the MRD below 3000 feet in elevation shall be considered habitat for the Smith's blue butterfly.
9. Measures to avoid all stands of seacliff buckwheat, including those identified as low, medium or high quality, shall be incorporated into pre-suppression plans.
10. When possible, hand lines shall be used instead of dozer lines in habitat for the Smith's blue butterfly.
11. Implementation monitoring shall be conducted in the following manner: within 30 days of when a fire within habitat for the Smith's blue butterfly has been declared controlled, the Forest Service shall submit a report to the Service documenting measures implemented during fire suppression activities to avoid or minimize effects to the Smith's blue butterfly.
12. Effectiveness monitoring shall be conducted in the following manner: within one year of when a fire within habitat for the Smith's blue butterfly has been declared controlled, the Forest Service shall submit a report to the Service documenting the effectiveness of measures implemented during fire suppression activities to avoid or minimize effects to the Smith's blue butterfly.

Prescribed Fire

Within the range of the Smith's blue butterfly, an analysis will be conducted to identify opportunities for the use of prescribed fire to maintain and enhance the structure and species composition of seacliff buckwheat stands.

Livestock Grazing

1. Key livestock use areas will be designated for each allotment. A key livestock use area is defined as a portion of rangeland selected because of its location, grazing value, or use that guides the general management of the entire area of which it is a part.
2. When medium or high-quality stands of seacliff buckwheat exist in portions of allotments that meet the minimum capability criteria to support livestock, then key areas will be designated adjacent to these stands.
3. Utilization standards for key livestock use areas that are located adjacent to medium to high-quality seacliff buckwheat stands will be:
 - a. On range dominated by annual forage: utilization will not exceed 55 to 60 percent; the landscape should appear entirely covered as uniformly as natural

features and facilities will allow; 15 to 25 percent of the number of current seed stalks of herbaceous species will remain intact; and no more than 10 percent of the number of low-value herbaceous forage plants, including seacliff buckwheat, will be grazed.

- b. On range dominated by perennial bunchgrass: utilization will not exceed 45 to 50 percent on perennial bunchgrasses; half of the available forage (by weight) on bunchgrasses will appear to have been utilized; and 15 to 25 percent of current seed stalks will remain intact.
4. Livestock will be promptly removed from individual pastures when the utilization standards described above have been reached.
5. Whenever possible, cattle and horses will be removed during the flowering period of seacliff buckwheat from pastures where medium to high-quality seacliff buckwheat stands occur.
6. Salt locations will be placed a minimum of 0.25 mile from medium to high-quality seacliff buckwheat stands to guide livestock away from these areas.
7. New water developments will be located a minimum of 0.25 mile away from medium to high-quality stands of seacliff buckwheat to guide livestock away from these areas.
8. Existing water developments that are located more than 0.25 mile from medium to high-quality seacliff buckwheat stands will be maintained in a usable state.
9. Monitoring to evaluate livestock impacts will include:
 - a. Monitoring to assess the implementation of grazing management strategies and practices.
 - b. Monitoring to assess the effectiveness of management practices in preventing impacts to habitat for the Smith's blue butterfly.
10. Field surveys will be conducted to determine the distribution and abundance of habitat (seacliff buckwheat) in unsurveyed areas that are in or adjacent to suitable rangelands within active grazing allotments.

Noxious and Invasive Weeds

The MRD has completed a separate section 7 consultation for treating non-native invasive weeds at ten to twelve locations on the coastal portion of the district. Approximately 36 to 40 acres of weeds will be treated. This action will directly and indirectly benefit the Smith's blue butterfly by reducing the number of non-native invasive weeds present within its range and by providing

opportunities for the treated sites to be colonized by seacliff buckwheat. The Forest Service will continue to map the distribution of non-native invasive weeds within the range of the Smith's blue butterfly and continue its efforts to develop site-specific proposals for controlling and eliminating non-native invasive weeds from suitable habitat for the Smith's blue butterfly.

Vegetation Management Practices

Vegetation management practices will be planned to protect, enhance or establish viable seacliff buckwheat stands. For example, areas within or immediately adjacent to medium to high-quality seacliff buckwheat stands will not be planted or seeded with any materials other than seacliff buckwheat. Locally collected seacliff buckwheat seeds will be used for revegetation projects on roadsides, roadcuts, and other erosional features that need to be stabilized to meet other resource objectives. Vegetation management practices to retard or prevent the spread of non-native invasive plant species will be used as funding becomes available.

Information Gaps

The Forest Service will implement the following measures to fill some of the information gaps related to the Smith's blue butterfly on the MRD.

1. Stands of seacliff buckwheat that were identified by Jeff Norman in 1994 using aerial photographs will be ground-truthed and mapped by the end of 2005.
2. A protocol to survey for the Smith's blue butterfly within the MRD will be developed in cooperation with the Service by the end of 2002.

STATUS OF THE SPECIES

The Smith's blue butterfly was listed as endangered by the Service on June 1, 1976. A recovery plan was published in 1984 (Service 1984). Critical habitat has not been designated. Detailed information regarding the biology of the Smith's blue butterfly can be found in Arnold (1978, 1980, 1983), Mattoni (1954, 1977), and Langston (1975).

The Smith's blue butterfly is dependent upon its host species, seacliff buckwheat and coast buckwheat (*Eriogonum latifolium*), during all life stages. Smith's blue butterflies co-occur with coast and seacliff buckwheat plants that grow in coastal dune, cliffside chaparral, coastal scrub and coastal grassland communities from the mouth of the Salinas River to just south of the northern border of San Luis Obispo County. Smith's blue butterflies are notably absent from the Monterey Peninsula, although, historically, they have been observed just to its north at the Naval Postgraduate School and its south at Point Lobos State Reserve. Long-term monitoring has not occurred for any population of the Smith's blue butterfly. Most of our knowledge of the distribution of the Smith's blue butterfly is the result of singular observations made in the past 30 years. Therefore, the number, size and persistence of colonies throughout the range of the species are poorly understood.

The Smith's blue butterfly has a wingspan of generally less than one inch. Synchronous with peak flowering of its buckwheat hosts, adult Smith's blue butterflies emerge from their pupal cases for a single flight season extending from mid-June to early September. Individual adults live for about one week, during which time they locate mates, court, and copulate. Females oviposit singly in individual flower heads. Larvae hatch four to eight days after oviposition and feed on buckwheat flowers as they grow and molt through five instars. Between mid-August and early September, larvae pupate, although the location where pupation occurs has not been adequately documented. Researchers have surmised that pupation occurs in the heads of flowers, adjacent to leaf or stem axils, in the duff, or several inches below the soil surface (Arnold 1980, Pratt 1988, Shields 1975). Larvae overwinter as pupae and emerge as adults the following flight season.

Like many other lycaenid butterflies, Smith's blue butterfly larvae are tended by ants during the third through fifth instars. The larvae produce a sugary secretion upon which the ants feed. In return, the ants are presumed to provide the larvae with protection from predation or parasitism. The importance of such ant associations for the Smith's blue butterfly is currently unknown.

Vegetation within the range of the Smith's blue butterfly is very dynamic, especially where stands of seacliff buckwheat occur. Seacliff buckwheat seedlings depend upon disturbances such as landslides and other erosional features for the development of site conditions favorable for germination and establishment. Landslides and mass wasting are common along the Monterey coast and provide the disturbances required by seacliff buckwheat; conversely, these geologic activities can also destroy existing stands of seacliff buckwheat. The Smith's blue butterfly may benefit from some human disturbance when these anthropogenic disturbances mimic natural processes. The quality of habitat likely changes over relatively brief periods due to natural successional processes and, increasingly, by the invasion of non-native plants. Over time, especially when disturbances are rare, stands of seacliff buckwheat are likely to be displaced by larger native shrubs on all but the harshest sites.

The role of these dynamic processes in creating and maintaining habitat for the Smith's blue butterfly is poorly understood. Most likely, Smith's blue butterflies abandon areas where seacliff buckwheat is replaced by alternative vegetation. Then, adults would disperse and colonize new areas that contain adequate patches of host buckwheat plants. Arnold (1991) found that the density and age class distribution of the seacliff buckwheat and coast buckwheat appear to be important determinants for the establishment and persistence of the Smith's blue butterfly populations in some locations. Adult Smith's blue butterflies are neither strong nor active fliers; therefore colonies may become isolated if suitable habitat is not available nearby for dispersal and colonization.

Recently, Pratt and Emmel (1998) concluded that the subspecies of the Smith's blue butterfly should be split into two separate subspecies, *Euphilotes enoptes smithi* and *E. e. arenacola*. The authors have concluded that *E. e. smithi* feeds exclusively on seacliff buckwheat from the vicinity of Marina south to near the Monterey County-San Luis Obispo County line, has a later flight period than *E. e. arenacola*, and is different in appearance. The authors also concluded

that *E. e. arenacola* feeds exclusively on coast buckwheat and occurs from the vicinity of Marina north to the Salinas River. While we review the proposed taxonomic split, we will continue to consider the Smith's blue butterfly as occurring from the Salinas River to near the San Luis Obispo County line.

The following summary describes the status of the species outside of the project area which we define as the MRD of the Los Padres National Forest. The status of the species within the project area will be discussed in the section of this biological opinion titled Environmental Baseline.

The decline of the Smith's blue butterfly is attributed to degradation and loss of habitat as a result of urban development, recreational activities in dune habitats, sand mining, military activities, fire suppression in chaparral habitat, and encroachment of exotic plant species. Aggressive, disturbance-oriented invader species such as kikuyu grass (*Pennisetum clandestinum*), pampas grass (*Cortaderia jubata*), Cape ivy (*Delaireria odorata*), and French broom (*Genista monspessulana*) are found on sites otherwise suitable for seacliff buckwheat and the Smith's blue butterfly. In sand dunes along Monterey Bay, non-native iceplant (*Carpobrotus* spp.) has covered hundreds of acres of formerly suitable habitat for the Smith's blue butterfly. The low vagility of adults coupled with fragmentation of suitable habitat reduce the probabilities of colonization events and migratory exchange between populations. Due to the lack of surveys or long-term monitoring, the status of the Smith's blue butterfly must be assessed largely based on the status of the habitat for the species.

Several colonies of Smith's blue butterflies and some potential habitat are currently protected from at least some of the threats which led to listing. For example, large amounts of land that have supported known colonies of the Smith's blue butterfly are owned and managed by resource agencies. Along the Monterey Bay, these areas include the Salinas River National Wildlife Refuge, Monterey State Beach, Marina State Beach, and the coastal portion of the former Fort Ord.

However, threats to the Smith's blue butterfly still exist even at many of the sites that are protected from certain development pressures. Much of the species habitat has been invaded and, in some cases overtaken, by invasive plants. At least 70 non-native plant species introduced during the past 200 years threaten habitat for the Smith's blue butterfly in both protected and unprotected areas throughout the species' range.

Urban development, recreational activities, and other activities continue to result in habitat loss and degradation. Urban development, introduction of invasive plant species and recreational use have fragmented and continue to fragment habitat for the Smith's blue butterfly. This fragmentation has several ramifications for the Smith's blue butterfly. The quality of the remaining suitable habitat is reduced, the distance dispersing adults must travel to reach the next island of suitable habitat is increased, the entire metapopulation structure is potentially disrupted, and genetic diversity is reduced. Overall, groups of Smith's blue butterflies occupying smaller, more isolated stands of suitable habitat are more likely to be extirpated by stochastic or

anthropogenic actions.

ENVIRONMENTAL BASELINE

The Smith's blue butterfly's range consists of an approximately 80 linear mile strip along the coast of central California; 45 of these miles lie within the boundaries of the LPNF. The MRD supports an estimated 2,000 acres of potential habitat for the Smith's blue butterfly. This estimate is based on the distribution of seacliff buckwheat which occurs along the western edge of the MRD in coastal sage scrub, grasslands, and on cliffs and bluffs from sea level to approximately 2,200 feet. As Smith's blue butterflies are not present in all areas with seacliff buckwheat, the distribution of seacliff buckwheat is more extensive on the MRD than is the distribution of the Smith's blue butterfly.

Comprehensive surveys for the Smith's blue butterfly have not been conducted within the MRD. Most surveys that have been completed have been along the Highway 1 corridor. Inland areas east of Highway 1 contain the majority of the habitat for the Smith's blue butterfly, but virtually nothing is known about the distribution and abundance of the species in these areas. Smith's blue butterflies have been detected from the following locations within or adjacent to the MRD:

Table 2: Observations of Smith's blue butterflies on or adjacent to the MRD 1975-1998.

LOCATION	DATE	LOCATION	DATE
Pfeiffer Big Sur State Park*	1975	1 st and 2 nd creeks S of Limekiln	1988
Lafler Canyon/Highway 1*	1988	4 miles N of Point Gorda	1977
Torre Canyon/Highway 1*	1988	Wild Cattle Creek	1988
Partington Canyon/Highway 1*	1988	Cone Peak Road†	1984
Anderson Canyon/Highway 1*	1988	Kirk Creek	1984
Burns Creek (Type locality) *	1961	Nacimiento-Ferguson Road	1994
Burns Creek (Type locality) *	1988	Nacimiento-Ferguson Road	1988
Buck Creek*	1988	Gorda Horse Pasture	1994
4 miles N of Dolon Creek*	1948	Wild Cattle Creek	1988
Dolan Creek/Highway 1*	1988	Pacific Valley Unit	1994
Dolan Rock/Highway 1*	1988	Pacific Valley	1998
Big Creek/Highway 1*	1988	Jade Cove/Highway 1	1998
Vicente Creek/Highway 1*	1988	Willow Creek/Highway 1	1998

3 to 4 miles SE of Lucia

1980

*location not on Forest Service land

† Thought to be a mis-labeled locality

Loss or degradation of habitat for the Smith's blue butterfly on lands within the MRD has occurred as a result of grazing, wildfire suppression, recreation, maintenance, repair and use of existing trail and road systems, and establishment of non-native plant species. Grazing may result in loss of individuals and habitat for the Smith's blue butterfly. At the Salmon Creek Allotment, Norman (1994 in Forest Service 2000) reported that livestock impacts to the habitat for the Smith's blue butterfly were evident in some areas and that flower heads of seacliff buckwheat had been browsed and individual plants damaged by trampling. Two of the known locations of the Smith's blue butterfly are within the Alder Creek and Gorda grazing allotments (Table 1). On the Mill Creek unit of the Gorda allotment, Smith's blue butterflies have been documented along the Nacimiento-Ferguson Road. This narrow, paved road has numerous roadcuts that provide habitat for seacliff buckwheat. Fences prevent livestock from accessing the road and the seacliff buckwheat stands found along the road right-of-way.

Fire suppression activities may also be contributing to a decline in the amount of suitable habitat for the Smith's blue butterfly in coastal cliff side chaparral communities within the MRD. The recovery plan proposes the use of prescribed burns on a 30- to 50-year rotation to help re-establish a size and age-class mosaic of host plants that is more suitable for the Smith's blue butterfly (Service 1984).

Maintenance of roads and trails is an ongoing cause of loss of seacliff buckwheat plants and potentially Smith's blue butterflies. Recreational use of these trails, roads, and other areas within the MRD is also an ongoing threat to the Smith's blue butterfly. Pedestrians, equestrians, and bicyclists trample plants, cause erosion, and facilitate the establishment of invasive plants.

The establishment of noxious weeds such as kikuyu grass, French broom, and pampas grass within the MRD has resulted in a gradual reduction in the abundance of seacliff buckwheat. This change is especially evident along the Highway 1 corridor and the newly acquired Rocky Cove Allotment. Non-native annual grasses form dense ground covers that severely limit, and often prohibit, seedlings of native perennial plants, including seacliff buckwheat, from becoming established. Seedlings of native species often cannot compete for resources with weedy annuals because of the latter's faster growth rates. Although landslides and other erosional features can provide areas for seacliff buckwheat to become established at an early successional stage of the plant community, these disturbed sites are also vulnerable to invasion by noxious weeds which can colonize faster than native species and reduce the regeneration of seacliff buckwheat stands. Several areas of coastal bluffs that were documented as being occupied by seacliff buckwheat and the Smith's blue butterfly in 1989 have been overtaken by non-native plants, particularly pampas grass, and no longer support seacliff buckwheat (C. Sculley, D. Pratt, wildlife biologists, Service, pers. obs. 2000).

The Forest Service has implemented management actions and research that have benefitted Smith's blue butterflies. In July 1999, the Forest Service completed a watershed analysis report for Forest Service lands from the west fork of Limekiln Creek south to San Carpofo Creek. This analysis identifies key questions and issues regarding the conservation and recovery of the Smith's blue butterfly within the watershed (Forest Service 1999). It also outlines recommendations for watershed improvement, including measures that would directly benefit the Smith's blue butterfly.

The Forest Service has sponsored two studies to map and describe the distribution of seacliff buckwheat. Results of these efforts will be used to determine appropriate management actions for the portions of the MRD that are potential habitat for the Smith's blue butterfly. The Forest Service has contracted with the Service to conduct a status review of the Smith's blue butterfly within the MRD. The status review will 1) ascertain credibility of information on locations reported to be occupied, currently or historically, by the Smith's blue butterfly, 2) evaluate potential habitat for the Smith's blue butterfly on Forest Service lands using maps provided by the Forest Service, 3) prioritize areas to be surveyed and monitored for Smith's blue butterflies, and 4) verify the status of recovery objectives for Forest Service lands that were set forth in the recovery plan for the Smith's blue butterfly.

The biological assessment ranks the quality of habitat of the Smith's blue butterfly according to definitions developed by Arnold for a study of the Smith's blue butterfly colony at Garland Ranch, a regional park located between the Monterey Peninsula and the MRD (Arnold 1991). At this site, Arnold determined that high-quality habitat consists of seacliff buckwheat stands with more than 300 plants with 70 percent of the plants being mature. Medium-quality habitat is defined as those areas with stands consisting of 26 to 300 plants. Low-quality habitat consists of areas of an acre or less with fewer than 25 plants. Breeding did not occur in low-quality stands; however, these areas remained useful as nectaring sites for adults. Arnold's standards have not been tested to determine their accuracy or applicability at locations beyond Garland Park. The population dynamics of the Smith's blue butterfly, including population size, rates of dispersal, and distance of dispersal, may vary in different portions of the species' range. These differences may be a result of variation in climate, topography, soil type, vegetation types, and growth characteristics of seacliff buckwheat. Therefore, the standards of habitat quality determined for Garland Park may not be applicable to lands within the MRD. For the purpose of this biological opinion, we will consider references of high, medium, or low-quality habitat provided by the Forest Service to document only the presence of seacliff buckwheat and thus indicate the potential for the Smith's blue butterfly to occur at a given location.

EFFECTS OF THE ACTION

Maintenance, Repair, and Use of the Existing Forest Service Road System

Effects from maintenance, repair, and use of the existing Forest Service road system are likely to be minimal because only 12 roads occur within potential habitat for the Smith's blue butterfly, the footprint for road maintenance and repair would be narrow, and road use is infrequent. Of the 12 roads, seacliff buckwheat has only been verified to grow alongside Sycamore Canyon

Road. Vehicle use and road maintenance could adversely affect portions of at least eight stands of seacliff buckwheat located along Sycamore Canyon Road. The other roads have either not been surveyed or are known not to have seacliff buckwheat growing adjacent to them. Seacliff buckwheat plants that encroach into areas of road maintenance would be removed, which could result in the death of larvae or eggs of the Smith's blue butterfly if they had colonized those plants. Adult Smith's blue butterflies may be killed by moving vehicles. Vehicle use and road maintenance generates road dust that drifts on to adjacent stands of seacliff buckwheat. The presence of dust may affect Smith's blue butterfly adults and may cause them to leave the area. Deposition of dust on seacliff buckwheat may reduce the palatability of seacliff buckwheat for feeding larvae. The amount of habitat that could be degraded by dust has not been quantified.

Disturbance from road maintenance may produce conditions suitable for the germination and establishment of seacliff buckwheat; however, any plants that become established along roads are consequently subject to destruction by road maintenance and vehicle use. Conversely, road maintenance may produce conditions suitable for establishment of invasive plant species that may spread and outcompete seacliff buckwheat that is growing nearby. The Forest Service proposes to minimize the effects of road maintenance by removing seacliff buckwheat plants and placing them adjacent to other seacliff buckwheat plants that will not be affected by maintenance to provide an opportunity for any larvae to relocate. Larvae may move from the uprooted plant to the adjacent plant to feed; however, we are uncertain whether larvae can and will relocate successfully. The overall consequence of roads to local populations would vary depending on the size of the affected stand, the number of plants damaged within a stand, and the importance of that stand for local colonies of the Smith's blue butterfly. Because the conditions and number of stands is dynamic, we cannot precisely determine the effect of habitat or number of Smith's blue butterflies that may be affected at any given time, although we generally anticipate that a small portion of the available habitat would be located within roads.

Use of Existing Developed Recreation Sites

Public use in and around the Pfeiffer, Sand Dollar, and Willow Creek Day Use areas places at least some seacliff buckwheat plants at risk of being damaged or killed due to trampling, removal, and soil compaction. At Willow Creek, use along the fringes of high-quality habitat is likely to destroy a few plants and could degrade this habitat patch through the introduction of non-native plants. Foot and bike traffic on Sand Dollar Beach have physically damaged seacliff buckwheat plants. At Pfeiffer Day Use Area, four plants are found in a level area that may be affected by public use. In total, the Forest Service estimates that less than 200 seacliff buckwheat plants are susceptible to direct and indirect impacts from the use of developed recreation sites. This estimate must be considered as valid for a single point in time, given the dynamic nature of vegetation communities in this region. A more long-term and deleterious effect from disturbance associated with these developed sites is the increased potential for the introduction of non-native plant species.

The risk of adverse impacts to habitat for the Smith's blue butterfly has been reduced in the Willow Creek Day Use Area by the use of informational signs. A fence barrier deters cross-

country travel onto a stand of seacliff buckwheat that borders the day use area. Similar use of signs and barriers is planned for Pfeiffer Beach when funding is received to implement the Pfeiffer Beach Day Use Area Project. The Service issued a biological opinion for the latter project in 1995.

Maintenance, Repair, and Use of the Existing Forest Service Trail System

The removal of individual seacliff buckwheat stands during trail maintenance activities may result in mortality of Smith's blue butterfly larvae if they are feeding on the plants at the time of removal. The Forest Service has proposed to attempt to minimize this effect by removing vegetation by hand and placing cut seacliff buckwheat plants adjacent to other existing seacliff buckwheat plants to provide an opportunity for any larvae on the removed plants to relocate to living plants. However, we are uncertain whether larvae can and will relocate successfully.

Foot and hoof traffic along trails physically damages and sometimes kills individual seacliff buckwheat plants that germinate and become established on or immediately adjacent to the trail tread. The intensity and extent of impacts at trail heads and along trails is unlikely to affect the overall distribution and abundance of the Smith's blue butterfly, although individual eggs, larvae, and pupae may be harmed or killed by foot and hoof traffic. Additionally, the Smith's blue butterfly may be adversely affected by the occasional browsing of plants by pack and saddle stock, either directly due to ingestion or indirectly due to loss of potential habitat.

Maintenance or recreational use of trails could adversely affect the Smith's blue butterfly by facilitating the spread of exotic species. This effect would be reduced by the Forest Service's continuing efforts to map the distribution of non-native invasive weeds within the range of the Smith's blue butterfly and use of this information to develop and prioritize proposals to eliminate non-native invasive weeds from habitat for the Smith's blue butterfly.

Indirectly, disturbance from trail maintenance produces conditions suitable for the germination and establishment of seacliff buckwheat, especially where overstory vegetation has been removed. As noted for roads, plants that establish as a result of this disturbance are often removed by the next cycle of use or maintenance. Also, invasive plant species may become established in areas disturbed by trail maintenance.

Wildfire and Prescribed Burning

Wildfires can burn large blocks of habitat supporting the seacliff buckwheat. The back fires, staging areas or drop-off points, and construction of handlines and bulldozer lines used during a fire fight can cause additional habitat loss. Aerial fire retardant may injure or result in mortality of the larvae and adults of the Smith's blue butterfly. Smoke from wildfires may cause adults to leave their host plants or die from smoke inhalation. Large wildfires are likely to affect more colonies of the Smith's blue butterfly than are smaller fires. The effects of wildfire on the Smith's blue butterfly would be minimized by many of the measures that the Forest Service has proposed to use when fighting fires within suitable habitat: briefing fire personnel on habitat for

the Smith's blue butterfly locations; using water rather than retardant to fight fire where possible; avoiding establishment of basecamps, helibases, staging areas, hand lines, bulldozer lines, and backfires in seacliff buckwheat stands where possible; constructing waterbars to avoid directing runoff into seacliff buckwheat stands; and monitoring the effectiveness of these measures after the fire.

Fire influences the structure, composition, and function of ecosystems, including coastal sage scrub and grassland ecosystems. The frequency of fires in the ecosystems inhabited by the Smith's blue butterfly has, in general, decreased because of the prompt and effective suppression of fire. Because of this decrease, wildfires now tend to be larger in size and of higher intensity due to the buildup of live and dead fuels in the area where fire has been excluded. Consequently, the effects noted in the previous paragraph are exacerbated.

Changes in the fire regime affect the Smith's blue butterfly by increasing the likelihood that large-scale, high-intensity wildfires could occur and cause changes in the structure, composition, and function of the ecosystem. These changes could increase the risk of local extirpations of colonies and the distances that unaffected individuals would need to disperse to recolonize affected habitats. Consequently, wildfire could decrease the range and distribution of the Smith's blue butterfly. The temporal extent of these decreases would depend on many factors, such as the extent of erosion resulting from the fire and the fire fight, invasions by non-native plants, climatic factors following the fire, and the distance to existing colonies of Smith's blue butterflies.

The exclusion of fire could affect the Smith's blue butterfly by allowing seacliff buckwheat stands to become senescent or be replaced by taller, longer-lived shrubs. To prevent both of these adverse effects of altered fire regimes, the recovery plan for the Smith's blue butterfly recommends the use of prescribed fire for creating desired age class mosaics in seacliff buckwheat stands. The adverse effects to the Smith's blue butterfly from the exclusion of fire would be minimized if the analysis proposed by the Forest Service, to determine how prescribed fire could maintain and enhance seacliff buckwheat stands, results in the implementation of appropriate management actions.

Grazing by Livestock

Utilization of seacliff buckwheat by livestock varies from site to site and is influenced by the relative amount, availability, and palatability of other forage plants present in the area. Norman (1994 in Forest Service 1999) reported large impacts from the Salmon Creek Allotment, minor impacts on the Alder Creek Allotment and the Pacific Valley unit of the Gorda Allotment, and no adverse impacts on the Buckeye Allotment. Although the Alder Creek allotment has a documented Smith's blue butterfly colony (Arnold and Kiel 1994 in Forest Service 1999), this colony is inaccessible to livestock due to the terrain. The rest of the allotment has not been surveyed for the Smith's blue butterfly. Due to the implementation of the utilization standards discussed in the Description of the Proposed Action portion of this biological opinion, livestock

would be unlikely to graze seacliff buckwheat for more than incidental feeding because the primary forage species will be available and these plants are more palatable and attractive to livestock. However, the Forest Service acknowledges that use of the standard will not preclude all risk to the Smith's blue butterfly. In addition to eating host plants (and eggs, larvae, and pupae on those plants), livestock can directly destroy seacliff buckwheat through trampling as they move through habitat. Livestock trails can cause erosion and allow for further degradation of habitat by providing opportunities for the invasion by non-native plants.

In general, the Forest Service notes that many stands of seacliff buckwheat are on steep slopes inaccessible to livestock, and, on gentler terrain, the availability of more palatable forage reduces grazing pressure in most areas. The Forest Service attempts to minimize the harmful effects to the Smith's blue butterfly from grazing by locating salt or watering sites away from seacliff buckwheat habitat and by limiting use when monitoring of utilization meets established standards. Some subspecies of the blue butterfly are attracted to water, especially puddles, near salt licks, because they can obtain sodium and moisture at these sites (C. Sculley, pers. obs. 1999); we are uncertain whether this behavior occurs on the MRD and, if it does, how it may affect the distribution of Smith's blue butterflies in this region. The biological assessment notes that livestock grazing and monitoring data on all allotments are periodically reviewed to ensure compliance with laws, regulations, the Forest Plan, and site-specific objectives.

The Forest Service notes that browsing of seacliff buckwheat encourages twig growth at the expense of flowers and fruits and, on a small scale, potentially reduces the number of flowers available for feeding by the larvae and adult life stages of the Smith's blue butterfly. Studies conducted by Arnold (1978 in Forest Service 1999) found that adult Smith's blue butterflies leave host plants for evening roosts in adjacent grassy areas. Generally, the roosting sites were somewhat sheltered from the prevailing winds by taller vegetation. The shorter vegetation used for roosting was near the ground, which radiated heat accumulated during the day. Heavy use of these roost sites by cattle could have an adverse impact on this microhabitat. The magnitude of these effects has not been quantified.

Introduced Species

Non-native plants are contributing to the fragmentation of habitat for the Smith's blue butterfly; the quality of the remaining suitable habitat is degraded and the distance dispersing adults must travel to reach other suitable habitat is increased. The presence of non-native species increases the likelihood that any area disturbed by either natural or human-caused processes will be converted to a higher percentage of non-native individuals and species; this process further exacerbates habitat degradation. For these reasons, the Service considers the spread of invasive plant species to be the single greatest threat to the Smith's blue butterfly on the MRD.

Recreation, which is the primary land use within the habitat of the Smith's blue butterfly, may introduce and spread non-native plants. Use by recreationists along trails and roads and near

day-use areas and campgrounds can result in disturbances to the land that are suitable for the germination and establishment of non-native plants. Use by livestock can also result in the introduction and spread of non-native plants. The extent to which implementation of the LRMP is resulting in the establishment of non-native plants and noxious weeds in suitable habitat for the Smith's blue butterfly has not been quantified.

The continuous erosion and alteration of slopes as a result of road maintenance and natural erosion has created bare slopes, which non-native plants can easily colonize. Much of the corridor along Highway 1 has been infested with non-native plant species, mostly pampas grass and Cape ivy. The importance of seacliff buckwheat along the Highway 1 corridor in maintaining Smith's blue butterflies throughout the MRD is unknown. Smith's blue butterflies may be dispersing along the relatively continuous patches of seacliff buckwheat that occur along Highway 1. If this is the case, these seacliff buckwheat plants would be extremely important in maintaining dispersal, colonization events, and genetic exchange among colonies of the Smith's blue butterfly. The loss of seacliff buckwheat along large portions of this corridor as a result of infestations of invasive plants could dramatically affect the long-term survivability of the Smith's blue butterfly within the MRD.

Dispersed Recreation Use

Cross-country hiking, walking, photography, and camping likely result in occasional trampling of seacliff buckwheat plants, dislodging of eggs or larvae from the plants, and crushing of eggs, larvae, and pupae. The extent of these effects has not been quantified, but most impacts of this nature are likely restricted to the edges of campgrounds, trails, and dispersed recreation sites.

Special Uses

The effects of issuing special use permits for driveway access to private residences and for the maintenance and use of Highway 1 are similar to those caused by road use. These unpaved roads are known anecdotally to have seacliff buckwheat present on the road sides at scattered locations. Approximately 5 miles of this type of access road are located in the coastal scrub communities of the MRD. Parking of vehicles, vehicular traffic, and road maintenance can result in the destruction of seacliff buckwheat. The distribution and abundance of the seacliff buckwheat along these roads and the magnitude of these potential impacts are not known.

Analysis of Collective Effects

The maintenance, repair, and use of existing roads and trails, the use of existing developed and dispersed recreation sites, and activities associated with special uses are likely to directly affect localized groups of seacliff buckwheat and the Smith's blue butterflies which may be using these plants. Although seacliff buckwheat plants and Smith's blue butterflies are likely to be destroyed by these activities, the overall effect of such losses is expected to be minor because most of the plants that would be destroyed are individuals that have colonized previously disturbed areas. As a result, the number of Smith's blue butterflies that are affected is likely a small portion of the

individuals inhabiting that locality.

The use of roads, trails, and recreation sites could indirectly affect the long-term survival of the Smith's blue butterfly by serving as focal points for the introduction and spread of invasive exotic plant species. Eliminating this potential effect, which would involve strict control of all use and screening of all users to remove any potential material which could cause the spread of non-native species, is not feasible. The Forest Service's biological assessment recommends mapping of the distribution of and the development of site-specific proposals for controlling or eliminating invasive weeds within the range of the Smith's blue butterfly. Such actions could slow the spread of these species because the potential points of introduction, such as along roads and trails and at developed and recreational sites, are relatively accessible.

The potential impacts of exotic plants, wildfires, fire fights, and grazing, individually and collectively, pose more substantial threats to the long-term survival of the Smith's blue butterfly. As previously discussed in this biological opinion, the spread of exotic plants can cause loss and fragmentation of habitat of the Smith's blue butterfly. The altered fire regime is likely to result in larger and more intense wildfires. Protecting habitat of the Smith's blue butterfly from the adverse effects of a fire fight may not be possible in the event of a large, fast-moving fire. The post-fire effects of a large fire and fire fight may allow for substantial invasions of exotic species. Because Smith's blue butterflies exist in a mosaic of small habitat patches along the coast, these larger scale effects have the potential to extirpate colonies. As habitat is degraded, the spread of invasive plants may preclude establishment of seacliff buckwheat; additionally, the limited vagility of the Smith's blue butterfly may limit the colonization of the patches of habitat that are established because of the greater distances between existing colonies and new habitat.

Finally, although livestock may consume seacliff buckwheat only on an occasional basis, they have been shown to trample plants. Their trails through habitat for the Smith's blue butterfly cause increased erosion and provide additional sites for the introduction and spread of invasive exotic plant species.

The measures that the Forest Service has recommended as management tools to assist in conserving the Smith's blue butterfly are well-intentioned but tend to treat the habitat as being static. For example, several measures base management decisions on the distance of an activity to medium to high-quality stands of seacliff buckwheat. The habitats along the Monterey coast are dynamic and seacliff buckwheat generally appears in the early successional stage of habitat; low or high-quality stands of seacliff buckwheat will not remain in those conditions permanently. To adequately manage for the Smith's blue butterfly, the Forest Service must better understand the population dynamics of the species within the MRD. Without knowledge of the distribution, population abundances, and habitat preferences and requirements of the Smith's blue butterfly, the Forest Service will not be able to prioritize management actions that will be most beneficial to the species. The development of a survey protocol for the Smith's blue butterfly on the MRD is a first step towards understanding the population dynamics of this species.

The ongoing threat of colonization by non-native plants, the altered fire regime, the limited

vagility of the Smith's blue butterfly, and the limited ability of the Forest Service to monitor all potential habitat areas for the Smith's blue butterfly for the potential effects of its activities also argue for the need to manage for the long-term conservation of the Smith's blue butterfly in a more comprehensive manner. We acknowledge that some of the measures proposed by the Forest Service with regard to grazing could be useful in reducing adverse effects to the Smith's blue butterfly; some amount of grazing may also be useful in reducing fuel loads and in altering successional stages to favor seacliff buckwheat. However, the level of study needed to ascertain the required balance is likely beyond the capability of the Forest Service's budget and staff levels.

The status of the Smith's blue butterfly may remain stable under the current management scenario. More likely, the spread of non-native plant species will continue to degrade habitat quality. Continued grazing, maintenance and use of trails and roads, and the spread of non-native plants will likely cause a decline in abundance of seacliff buckwheat and Smith's blue butterflies. Additionally, until an active fire management program is implemented, the risk of a catastrophic wildfire remains. The overall effect of such a fire would depend greatly upon the location of such a fire and whether substantial erosion and invasion of exotic plant species follow.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. At this time, the Service is not aware of any actions by non-federal entities that are reasonably certain to occur which could result in substantial adverse effects to the Smith's blue butterfly.

CONCLUSION

After reviewing the current status of the Smith's blue butterfly, the environmental baseline for the action area, the effects of the ongoing activities within the MRD, and the cumulative effects, it is the Service's biological opinion that the continuation of these ongoing activities by the Forest Service is not likely to jeopardize the continued existence of the Smith's blue butterfly.

In reaching this conclusion, we have considered the relatively brief period of time that is likely to elapse between issuance of this biological opinion and revision of the LRMP. During this period, the Forest Service will likely conduct or permit few activities that are likely to result in direct removal of habitat of the Smith's blue butterfly, except for in areas where seacliff buckwheat is colonizing areas of human use.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and must be undertaken by the Forest Service or made binding conditions of any authorization issued to permittees or contractors, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest Service has a continuing duty to regulate the activities covered by this incidental take statement. If the Forest Service fails to assume and implement the terms and conditions or fails to require its permittees or contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or contract, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Forest Service must report the progress of the actions and their impacts on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

The Service anticipates that the take of Smith's blue butterflies may result from the ongoing actions conducted or permitted by the Forest Service within the MRD in the form of harm or mortality. The number of Smith's blue butterflies that may be taken cannot be determined because eggs, larvae, and pupae are generally not visible and their numbers vary from year to year. The amount of habitat supporting Smith's blue butterflies that may be degraded cannot be determined because the area occupied by seacliff buckwheat changes fairly frequently as stands change in quality or size. The following statements describe the activities and locations where incidental take may occur.

1. All Smith's blue butterflies within existing roads, trails, developed and dispersed recreational sites, and areas affected by existing special uses through harm or mortality as a result of maintenance activities and authorized use. We anticipate that the level of take will be a small percentage of the overall population because take will only occur within previously disturbed areas; therefore, portions of colonies outside of the roads, trails, and recreation sites are unlikely to be disturbed.
2. We cannot predict the size, location and frequency of wildfires that could occur, the level of effort and types of activities required to fight these wildfires, or the effects of fire

fighting on the Smith's blue butterfly within the MRD. Therefore, we will not anticipate a level of take associated with fire-fighting activities. If fire fighting efforts may affect the Smith's blue butterfly, the Forest Service is required to request emergency consultation, pursuant to the implementing regulations for section 7(a)(2) of the Act (50 CFR 402.05).

3. All Smith's blue butterflies within occupied grazing allotments that are consumed or trampled by cattle up until 10 days after the utilization standard is met. We anticipate that the amount of take that will occur will be a small percentage of the overall population because livestock are present in relatively small numbers, are not expected to eat seacliff buckwheat when more preferred plants are present in high enough densities, and tend to use their existing paths to at least some degree.
4. We cannot predict the amount of habitat for the Smith's blue butterfly that would be lost as a result of invasion of non-native species; therefore, we will not anticipate a level of incidental take associated with the spread of non-native plant species.

REASONABLE AND PRUDENT MEASURES

We believe the following reasonable and prudent measures are necessary and appropriate to minimize take of Smith's blue butterflies during ongoing activities conducted by the Forest Service within the MRD:

1. The Forest Service shall use well-defined operational procedures, education programs, and qualified personnel to minimize the incidental take of Smith's blue butterflies during the ongoing maintenance of trails, roads, and recreation sites.
2. The Forest Service shall manage livestock grazing in a manner that minimizes effects to Smith's blue butterflies and their habitat and, where possible, enhances habitat for the species.
3. The Forest Service shall enhance and restore habitat for the Smith's blue butterfly when undergoing vegetation management activities in areas that historically or presently support seacliff buckwheat. As part of this effort, the Forest Service shall investigate opportunities to use prescribed burning as a management tool.

Our evaluation of the effects of the proposed actions includes consideration of the measures developed by the Forest Service, and repeated in the Description of the Proposed Action portion of this biological opinion, to minimize the adverse effects of ongoing actions to the Smith's blue butterfly. Any subsequent changes in the minimization measures proposed by the Forest Service may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to clarify or supplement the protective measures that were proposed by the Forest Service as part of the proposed actions.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Forest Service must comply with or ensure the any permittees or contractors comply with the following terms and conditions, which implement the reasonable and prudent measures described above and the reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:
 - a. Only qualified biologists authorized under this biological opinion shall survey for seacliff buckwheat, remove seacliff buckwheat plants, and collect and place duff. The Forest Service shall supply the credentials of these biologists to the Service for its review and approval at least 15 days prior to the onset of the activities for which authorization is being sought. Once the Service has approved an individual to conduct removal of seacliff buckwheat plants and collection and placement of duff materials, this person may direct non-approved individuals in these activities while on-site.
 - b. The Forest Service biologist shall conduct a pre-project survey of any maintenance areas to determine whether seacliff buckwheat is present. If this species is present, the Forest Service biologist shall mark areas where seacliff buckwheat grows with flagging.
 - c. The Forest Service biologist shall instruct maintenance workers on how best to conduct activities and reduce impacts to the seacliff buckwheat plants.
 - d. If seacliff buckwheat plants need to be removed for maintenance activities, the Forest Service biologist shall cut the plant at the base of the stem. The cut plants shall be placed as close as possible to, but not on, living seacliff buckwheat plants in an area that will not be affected by maintenance activities.
 - e. If duff under seacliff buckwheat plants that have been cut will be compacted, removed, or otherwise altered, the Forest Service biologist shall collect and scatter the duff in a thin layer on the ground as close as possible to living seacliff buckwheat plants that will not be affected by maintenance activities. Duff shall not be placed directly under living seacliff buckwheat plants.
2. The following terms and conditions implement reasonable and prudent measure 2:
 - a. When medium or high-quality stands of seacliff buckwheat exist in portions of allotments that meet the minimum capability criteria to support livestock, key areas shall be designated within 100 feet of these stands of seacliff buckwheat.
 - b. On a yearly basis, the location of key areas shall be reviewed and new key areas

shall be designated if new stands of seacliff buckwheat have been mapped or if additional key areas are necessary to monitor appropriately the effects of livestock grazing in habitat for the Smith's blue butterfly.

- c. Livestock shall be removed from individual pastures within 10 days of when the utilization standards described previously have been reached.
 - d. Grazing activities shall be monitored to ensure that utilization standards are not exceeded and impacts to the Smith's blue butterfly as a result of these activities are minimized. Monitoring shall be conducted in the following manner:
 - i. **Implementation Monitoring:** Within the first month of start of the grazing season, allotments occupied with cattle shall be visited. During this visit, the amount of forage available throughout the allotment shall be documented and utilization levels for all key areas within 100 feet of high- or medium-quality stands of seacliff buckwheat shall be measured. Utilization standards shall be measured at each of these key areas at least once during each two-month interval of the grazing season.
 - ii. **Effectiveness Monitoring:** Within two weeks before or after the closing date of the season of use, measurements at key areas shall be taken at key areas to monitor whether the utilizations standards were met.
 - iii. All monitoring activities associated with grazing activities shall be conducted, or assigned to another staff person, by the Forest Officer in charge of administering the District grazing program.
3. The following terms and conditions implement reasonable and prudent measure 3:
- a. Seeds of seacliff buckwheat used for revegetation projects on roadsides, roadcuts, and other erosional features that need to be stabilized to meet other resource objectives shall be collected within three miles of the project area.
 - b. An area analysis using a Geographic Information System shall be conducted to determine the necessity and usefulness of prescribed fire to maintain and enhance habitat for the Smith's blue butterfly and to reduce the likelihood of catastrophic wildfires. If prescribed burns are determined to be useful or necessary, opportunities to conduct burns shall be identified. The area analysis shall be submitted to the Service within two years of the issuance of this biological opinion.

REPORTING REQUIREMENTS

The Forest Service shall provide a written report to the Service on an annual basis during the period that this biological opinion is in effect. The first report shall be due one year after the

issuance date of this biological opinion. This report shall describe activities that were conducted under the auspices of this biological opinion, including activities that were described in the proposed action and required under the terms and conditions, during the previous year. The report shall include the following items:

For maintenance, repair and use of the existing trail and road systems:

1. A general description of maintenance and repair activities and copies of pre-construction surveys that were conducted.
2. Estimates of the number of seacliff buckwheat plants removed or trimmed as a result of these activities.
3. A summary of any changes in the amount of use occurring on roads or trails that have seacliff buckwheat growing alongside them.
4. The status of the survey for seacliff buckwheat in the Mill Creek Day Use Area and Sycamore Canyon Road. The finalized survey shall be submitted to the Service by the end of 2001.
5. Status of field surveys conducted to determine the distribution and abundance of habitat (seacliff buckwheat) in trail and road corridors that have documented occurrences of invasive, non-native plants and for which knowledge regarding the distribution and abundance of seacliff buckwheat is incomplete.

For wildfire suppression activities:

1. A general description of wildfire and suppression efforts that occurred in known or potential habitat for the Smith's blue butterfly, including dates of wildfire occurrence, estimated acreage of areas burned and amount of habitat for the Smith's blue butterfly affected, maps of the areas burned, and maps of habitat for the Smith's blue butterfly within burned areas.
2. A general description of efforts to minimize effects of suppression efforts on the Smith's blue butterfly, including description of terms and conditions of this biological opinion that were implemented.
3. A summary of implementation and effectiveness monitoring as defined in the terms and conditions of this biological opinion.

For grazing activities:

1. A summary of the grazing activities that occur in each unit, including number and type of animals grazing and a map of grazing allotments.

2. A description and map of key areas identified for each allotment and a summary of the annual review of adequacy of the key areas.
3. A summary of the effects of grazing on habitat for the Smith's blue butterfly as determined by implementation and effectiveness monitoring as defined in the terms and conditions of this biological opinion.
4. The status of field surveys conducted to determine the distribution and abundance of habitat (seacliff buckwheat) in unsurveyed areas that are in or adjacent to suitable rangelands within active grazing allotments.

For vegetation management practices:

1. A summary of the seed-collecting activities that have been undertaken in the previous year.
2. The status of the area analysis using Geographic Information Systems that is required in the terms and conditions. The final analysis shall be submitted to the Service within two years of the issuance of this biological opinion.

For information gaps:

1. Status of efforts to ground-truth stands of seacliff buckwheat that were identified using aerial photographs. The final report on these efforts shall be submitted to the Service by the end of 2005.
2. The status of the development of a survey protocol for the Smith's blue butterfly within the MRD. The survey protocol shall be completed by the end of 2002. A draft of the survey protocol shall be submitted to the Service for review by August 1, 2001.

For all activities:

1. A summary of how the conservation measures worked and any suggestions of how these measures could be changed to improve conservation of the Smith's blue butterfly while facilitating compliance with the Act. This summary will assist the Service and the Forest Service in evaluating the effectiveness of protective measures for conservation of the Smith's blue butterfly during future projects.

DISPOSITION OF DEAD SMITH'S BLUE BUTTERFLIES

Upon locating a dead Smith's blue butterfly, initial notification within three working days of its finding must be made in writing to the Service's Division of Law Enforcement (370 Amapola Avenue, Suite 114, Torrance, California 90501) and by telephone and writing to the Ventura Fish and Wildlife Office (2493 Portola Road, Suite B, Ventura, California, 93003, (805) 644-1766). The report shall include the date, time, location of the specimen, cause of death, if known and any other pertinent information.

Care must be taken in handling dead specimens to preserve biological material in the best possible state. The Forest Service shall endeavor to place the remains of Smith's blue butterflies with educational or research institutions holding the appropriate State and federal permits. Arrangements regarding proper disposition of potential museum specimens shall be made between the Forest Service and the institution as soon as possible after receipt of this biological opinion.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Implementation of conservation recommendations is discretionary on the part of the federal agency; these recommendations are intended to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The following recommendations should be implemented to learn more about the status of the Smith's blue butterfly within the MRD:

1. When the status review of the Smith's blue butterfly on the MRD is completed by the Service, the Forest Service should use this document to develop an overall conservation strategy for the subspecies on the MRD. This conservation strategy should focus on developing protocols to map the distribution of seacliff buckwheat and conduct surveys for the Smith's blue butterfly. By implementing these protocols, the Forest Service would gather data that are needed to determine the distribution, frequency and metapopulation dynamics of the Smith's blue butterfly on the MRD.
2. Academic institutions with resident entomological expertise should be contacted to investigate the possibility of having graduate and post-graduate students conduct research on the Smith's blue butterfly, especially in regards to parasitism by tachinid flies and commensal relationship with native ant species.

The following recommendation should be implemented to minimize the effects of grazing on the Smith's blue butterfly and its habitat:

1. Validation monitoring for livestock grazing should be conducted to determine whether the information upon which strategies, guidelines, and objectives are based is valid and

correct. This is a combination of long-term monitoring and review of the literature. Where objectives are not being approached or met, the Forest Service should work with its Pacific Southwest Research Station to investigate and modify guidelines.

2. The Forest Service should investigate the feasibility of constructing livestock exclosures to avoid the impacts associated with livestock grazing and trampling in medium to high-quality stands of seacliff buckwheat.

The following recommendations should be implemented to control the spread of non-native plant species and to promote the conservation of habitat for the Smith's blue butterfly within the MRD:

1. The Forest Service should implement a program to educate all visitors to and neighbors of the MRD about the threats to native species and communities posed by non-native species. Various facets of the education program should be directed at specific users such as recreationists, permittees, contractors, and neighbors. Informational kiosks and brochures should be developed to use in specific situations.
2. The Forest Service should continue to map the distribution of non-native invasive weeds within the range of the Smith's blue butterfly and continue its efforts to develop site-specific proposals for controlling and eliminating non-native invasive weeds from suitable habitat for the Smith's blue butterfly.
3. The Forest Service should use only seeds or outplantings of locally collected native species for revegetation and restoration projects within the range of the Smith's blue butterfly in the MRD. Where the habitat potential exists, the establishment of seacliff buckwheat should be encouraged.

The following recommendation should be implemented to assess the effect of wildfire on Smith's blue butterfly habitat within the MRD:

The Forest Service should conduct monitoring within Smith's blue butterfly habitat that is affected by wildfire to determine the effects of wildfire on the Smith's blue butterfly and its habitat.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the effects of ongoing activities within the MRD of the Los Padres National Forest of the Smith's blue butterfly. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or

extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. If you have any questions regarding your consultation, please contact Colleen Sculley of my staff at (805) 644-1766.

Sincerely,

/s/: Diane K. Noda

Diane K. Noda
Field Supervisor

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