DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AH40

Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for the Sacramento Mountains Checkerspot Butterfly and Proposed Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: 12-month finding and proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to list the Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*) as endangered with critical habitat under the authority of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This species is restricted to meadows within the mixed-conifer forest at approximate elevations between 2,450 and 2,750 meters (m) (8,000 and 9,000 feet (ft)) in the vicinity of the Village of Cloudcroft, Otero County, New Mexico. The species is threatened by destruction and fragmentation of habitat from private and commercial development, habitat degradation and loss of host plants from grazing, encroachment of conifers and nonnative vegetation into non-forested openings, over collection, and, due to its limited range, vulnerability to local extirpations from extreme weather events or catastrophic wildfire including fire suppression activities. This proposal, if made final, would extend the Federal protection and recovery provisions of the Act to this species.

DATES: Comments from all interested parties received by November 5, 2001 will be considered. Public hearing requests must be received by October 22, 2001.

ADDRESSES: If you wish to comment, you may submit your comments and materials concerning this proposal to the Field Supervisor, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, 2105 Osuna NE, Albuquerque, New Mexico, 87113.

FOR FURTHER INFORMATION CONTACT: Eric Hein, Endangered Species Biologist, New Mexico Ecological Services Field Office, at the above address (telephone 505/346–2525, ext. 135; facsimile 505/346–2542).

SUPPLEMENTARY INFORMATION:

Background

The Sacramento Mountains checkerspot butterfly (*Euphydryas anicia* (=*chalcedona*) *cloudcrofti*) is a member of the brush-footed butterfly family (Nymphalidae). The adults have a wingspan of approximately 5 centimeters (cm) (2 inches (in)) and they are checkered with dark brown, red, orange, white, and black spots and lines. The taxon was described in 1980 based on 162 adult specimens (Ferris and Holland 1980).

The Sacramento Mountains checkerspot butterfly inhabits meadows within the mixed-conifer forest (Lower Canadian Zone) at an elevation between 2,450 and 2,750 m (8,000 and 9,000 ft) in the vicinity of the Village of Cloudcroft, Otero County, New Mexico. The adult butterfly is often found in association with the larval food plants New Mexico penstemon (*Penstemon neomexicanus*) and valerian (*Valeriana edulis*), and adult nectar sources such as sneezeweed (*Helenium hoopesii*). New Mexico penstemon is a narrow endemic species (Sivinski and Knight 1996), restricted to the Sacramento Mountains of south-central New Mexico. Other plants that have been documented in butterfly habitat include: arrowleaf groundsel (*Senecia triangularis*), curly-cup gumplant (*Grindelia squarrosa*), figworts (*Scrophularia* sp.), penstemon (*Penstemon* sp.), skyrocket (*Ipomopsis aggregata*), milkweed (*Asclepias* sp.), Arizona rose (*Rosa woodsii*), and Wheeler's wallflower (*Erysimum capitatum*) (U.S. Forest Service (FS) 1999d).

Adult butterflies apparently lay their eggs on *Penstemon neomexicanus* and perhaps *Valeriana edulis*, the known larval host plants. After hatching, larvae feed on host plants and, during the 4th or 5th instar (the period between molts in the larval stage of the butterfly), enter an obligatory and extended diapause (maintaining a state of extended inactivity), generally as the food plants die back in the fall from freezing. Some larvae may remain in diapause for more than one year, depending on environmental conditions. During diapause, larvae probably remain in leaf or grass litter near the base of shrubs, under the bark of conifers, or in the loose soils associated with pocket gopher (*Thomomys bottae*) mounds (Moore 1989; T. Narahashi, Lincoln National Forest, pers. comm. 1999; G. Pratt, University of California, pers. comm.1998; C. Nagano, Fish and Wildlife Service, pers. comm. 1999, E. Hein, Fish and Wildlife Service, pers. obs.). Once larvae break diapause, they feed and grow through three or four more instars before pupating (entering the inactive stage within a chrysalis) and emerging as adults. Diapause is generally broken in late spring (March-April) and adults emerge in mid-summer (June-July).

The extent of the historical range of the Sacramento Mountains checkerspot butterfly is not known due to limited information collected on this subspecies prior to its description (Ferris and Holland 1980). However, based upon the location of its meadow habitat, the general trend of commercial and private development in suitable habitat, and the encroachment of conifers into suitable habitat due to fire suppression on public and private lands, we believe that it once occupied a more extensive, but still limited area. This conclusion that the butterfly likely had a continuous distribution within currently developed areas and that its range was more extensive is further supported by the following considerations. First, extensive recent searches of apparently suitable habitat failed to locate the species (FS 1999d; 2000a; 2000d; Hager and Stafford 1999; Holland 1999; Ferris and Holland 1980; Toliver *et al.* 1994; Cary and Holland 1992; C. Nagano, pers. obs.; E. Hein, pers. obs). Second, butterflies in the genus *Euphydryas* are known to be restricted to specific habitats and are widely collected and well studied (Ehrlich *et al.* 1975; Cullenward *et al.* 1979; Murphy and Weiss 1988). If the Sacramento Mountains checkerspot butterfly were more widespread and common in areas north of the Mescalero Nation or further south of Cloudcroft below the known elevational range of the butterfly, we would expect specimens to have been collected or reported. However, this has not been the case despite the fact that butterflies in this genus are very popular to collect (C. Nagano pers. comm. 1999), and lepidopterists have surveyed and collected throughout the Sacramento Mountains (Ferris and Holland 1980; Cary and Holland 1992; Toliver *et al.* 1994; Hager and Stafford 1999).

The type locality for the butterfly is Pines Campground, and its description is based upon individuals collected at that location in 1964, 1976, and 1978. Although the Sacramento Mountains were extensively surveyed by lepidopterists, the known range of the butterfly in 1980 was described as, ''* * * an area of perhaps 1–2 square miles (mi) (2.6 to 5.2 square kilometers (km)) around the type locality'' (Ferris and Holland 1980). Toliver *et al.* (1994) published all of the known location records, and the estimated extent of the range of the butterfly prior to 1997 was about 8 hectares (ha) (20 acres (ac)),

primarily from two campgrounds (Holland 1999). From 1981 to 1996, there were no documented surveys for the butterfly (R. Holland, Albuquerque, New Mexico, pers. comm. to R. Galeano-Popp Lincoln National Forest 1997; FS 2000). By 1997, the known range of the species had decreased to less than one-half ha (Holland 1999). However, in 1997, the FS and Holland conducted limited surveys for the Sacramento Mountains checkerspot butterfly. The FS also conducted surveys during 1997, 1998, 1999, and 2000 to estimate the range of the butterfly (FS 1999d, 2000a, 2000d). Based on data gathered by the FS during 1997–1999, Holland (1999) described the range of the butterfly as, ''* * * now known to extend as much as 8 km (5 mi) away from the Village of Cloudcroft'' but he still considered the range '' * * * remarkably limited.''

The subspecies has been documented at 15 general localities (i.e., the geographic extent of occupied areas were not delimited and discrete populations were not identified) (FS 1999a, 1999b, 1999d, 2000a, 2000d). The known range of the butterfly is within an 85 square km (33 square mi) area, within which the distribution of the butterfly is patchy and disjunct. The known range of the butterfly is delimited on the north by the Mescalero Apache Nation lands, on the west by Bailey Canyon at the mouth of Mexican Canyon, on the east by Spud Patch Canyon and on the south by Cox Canyon (FS 2000a, 2000d). The potential range of the butterfly to the east and west is likely restricted because the non-forested areas are below 2,450 m (8,000 ft) in elevation and the majority of Sacramento Mountains checkerspot butterflies have been consistently documented at higher elevations (FS 1999a 1999b, 1999d, 2000a, 2000d). We do not know if the range of the butterfly extends into the lands owned by the Mescalero Apache Nation because, to our knowledge, no surveys have been conducted on their lands. It is also unknown whether suitable habitat is present on the lands owned by the Mescalero Apache Nation (Holland 2001). Nevertheless, there does not appear to be a significant amount of suitable habitat present on the lands owned by the Mescalero Apache Nation within the known elevational range of the Sacramento Mountains checkerspot butterfly (i.e., between 2,450 and 2,750 m (8,000 and 9,000 ft)) and proximal (i.e., provides connectivity) to butterfly localities. We solicited, but have not received, any information or comments from the Mescalero Apache Nation. More information would help clarify the status of the butterfly on these lands.

The FS used a Geographic Information System (GIS) to model the extent of existing Sacramento Mountains checkerspot butterfly habitat (FS 1999b). The model was built using non-forested openings visible on 1:24,000 scale orthophoto quadrangles, elevation, and known occupied locales. Based on the model, the FS estimated there were 2,104 ha (5,198 ac) of potential habitat, composed of 1,034 and 1,070 ha (2,553 and 2,645 ac) on private and FS lands, respectively (FS 1999b).

Extensive surveys for larvae and the adult butterflies were conducted within and outside of the modeled potential butterfly habitat during the Sacramento Mountains checkerspot butterfly's seasons of activity in 1997, 1998, 1999, and 2000 (FS 1999b, 1999d, 2000a, 2000d). These surveys partially ground-truthed the GIS model and documented that the distribution of the butterfly within the known range is patchy, disjunct, and generally located in non-forested openings along drainages, roadways, campgrounds, and valleys. The butterfly was documented on both FS and private lands (FS 1999a, 1999b, 1999d, 2000a, 2000d). We believe the modeled potential habitat is an accurate representation of suitable habitat (habitat that can be used by the butterfly). Based on GIS maps and the model provided by the FS, about 46 of 202 ha (114 of 498 ac) and 240 of 813 ha (592 of 2,010 ac) of suitable habitat surveyed during 1998 and 1999, respectively, were occupied by the butterfly. Seven hundred acres were surveyed during 2000, but it is unknown what proportion of the suitable habitat is currently used by the butterfly (i.e., the data only indicate the total acres surveyed and do not differentiate between areas currently used or unused by the butterfly) (FS 2000d). Nevertheless, survey areas during 1999 and 2000 overlapped and went beyond the boundary of the areas surveyed in 1998. Therefore, these data represent the best available information on the area used by the butterfly (determined by surveys) within suitable habitat. Based on these data, it appears that 15 to 35 percent of suitable habitat is currently used by the Sacramento Mountains checkerspot butterfly. Thus, we estimate that 316 to 736 ha (780 to 1,819 ac) of the suitable 2,104 ha (5,198 ac) are currently used by the Sacramento Mountains checkerspot butterfly.

Although the surveys conducted by the FS were directed at estimating the range of the Sacramento Mountains checkerspot butterfly, the individuals seen were also estimated. In 1997 and 1998, 595 adults and 114 larval tents (communal webs that contain larvae) were documented at 15 general localities, whereas the surveys in 1999 documented 1,629 adults, 26 post-diapause larvae, 800 pre-diapause larvae, and an unknown number of larval tents at generally the same localities, and surveys during 2000 documented approximately 1,000 adults, 26 post-diapause larvae, and 157 larval tents (FS 1999a 1999b, 1999d, 2000a, 2000d; Pittenger 1999). No new butterfly localities were documented during the 2000 field season, although the known range of the butterfly was expanded slightly (FS 2000d). Surveys were also conducted by the FS on 231 ha (570 ac) within the Smokey Bear Ranger District, north of the Mescalero Apache Nation during 1999, but did not document any Sacramento Mountains checkerspot butterflies (FS 2000a). None of these data provide a basis for estimates of actual population size, because no formal population estimation procedures were used. The surveys conducted by the FS are the result of one or more surveyors walking through suitable habitat and counting or estimating the number of individuals observed.

Because the Sacramento Mountains checkerspot butterfly has a life history pattern similar to other butterflies in the genus *Euphydryas* that exist as metapopulations, it is likely that this butterfly has a metapopulation structure (Murphy and Weiss 1988; Harrison 1989; Hanski and Gilpin 1991). A metapopulation is a set of local populations within an area, where typically migration from one local population to other areas containing suitable habitat is possible, but not routine. Movement between areas containing suitable habitat (i.e., dispersal) is restricted due to inhospitable conditions around and between areas of suitable habitat. Because many of the areas of suitable habitat may be small, and support small numbers of butterflies, local extinction of these small populations may be common. A metapopulation's persistence depends on the combined dynamics of these local extinctions and the subsequent recolonization of these areas by dispersal (Hanski 1999, Hanski and Gilpin 1991, 1997, McCullough 1996). We believe habitat loss has reduced the size of and connectivity between patches of suitable butterfly habitat. The reduction in the extent of meadows and other suitable non-forested areas has likely eliminated

connectivity among some localities and may have increased the distance beyond the normal dispersal ability of the Sacramento Mountains checkerspot butterfly, making recolonization of some patches following local extinction more difficult (Cullenward *et al.* 1979; Hanski 1999). In addition, habitat reduction lowers the quality of remaining habitat by reducing the diversity of microclimates and food plants for larvae and adult butterflies (Murphy and Weiss 1988; Thomas *et al.* 1996; Hanski 1999).

Based on available information on topography, soils, and vegetation, it is likely that the distribution of the Sacramento Mountains checkerspot butterfly was more extensive and continuous prior to the increase in commercial and private development, construction of roads, overgrazed range conditions, and the encroachment of conifers and subsequent decrease in the amount of non-forested lands. Many of the remaining Sacramento Mountains checkerspot butterfly populations are likely small and/or not viable (i.e., are likely to become extirpated in the near future). The isolated localities and limited geographic range of the butterfly indicate that the species is particularly vulnerable to perturbations (disturbances that impact the habitat and host plants associated with the species), which could lead to extinction (Ehrlich *et al.* 1972; Thomas *et al.* 1996).

Previous Federal Action

On January 28, 1999, we received a petition from Mr. Kieran Suckling of the Southwest Center for Biological Diversity in Tucson, Arizona, dated November 1998, which requested that we emergency list the Sacramento Mountains checkerspot butterfly as endangered. The petitioner stated that the species merits listing because of its restricted range, adverse impacts resulting from a proposed FS land transfer, improvements to a FS campground, construction of homes and other structures, aggressive nonnative weeds that may be affecting the larval food plants and adult nectar sources, global climate change, and livestock overgrazing. The petitioner requested emergency listing due to the perceived immediate threats to the species' continued existence from a proposed land transfer between the FS and the Village of Cloudcroft in the Sacramento Mountains in Otero County, New Mexico.

In accordance with section 4(b)(3)(A) of the Act, we published notice of our finding in the **Federal Register** on December 27, 1999 (64 CFR 72300), that the petitioner presented substantial information indicating that listing may be warranted, but that emergency listing was not warranted, and commenced a status review. In that notice we requested any additional data or scientific information concerning the status of the species including additional historical and current population data, pertinent information on biology or life history, information on habitat requirements, and information on immediate and future threats to the butterfly and areas inhabited by the species. During the two-month comment period, we received eight comments from individuals or agencies. One commentor supported, and four opposed listing the species; one requested the references cited; and two provided general comments or data on the Sacramento Mountains checkerspot butterfly. We received most substantive data relating to life history, current range, and threats from the Lincoln National Forest. The Sacramento Ranger District in the Lincoln National Forest has been instrumental in avoiding or minimizing some recent potential impacts to the butterfly on their lands. We incorporated these and other pertinent data into this proposal.

Section 4(b)(3)(B) of the Act requires the Secretary of the Interior to reach a final decision on any petition accepted for review within 12 months of its receipt. That decision, to be published in the **Federal Register**, must be one of the following findings: (1) The petitioned action is not warranted; (2) the petitioned action is warranted (a proposed regulation is published); or (3) the petitioned action is warranted, but the immediate proposal is precluded by listing actions of higher priority. On July 31, 2001, the United States District Court for the District of New Mexico, in *Center for Biological Diversity* v. *Gale A. Norton*, CIV 01–0258 PK/RLP ordered us to complete and submit for publication to the **Federal Register** a 12-month finding for the Sacramento Mountains checkerspot butterfly within 30 days. This proposed rule constitutes our 12-month petition finding that listing as endangered is warranted for the Sacramento Mountains checkerspot butterfly.

Peer Review

In accordance with interagency policy published on July 1, 1994 (59 FR 34270), upon publication of this proposed rule in the **Federal Register**, we will solicit expert reviews by at least three specialists regarding pertinent scientific or commercial data and assumptions relating to the taxonomic, biological, and ecological information for the Sacramento Mountains checkerspot butterfly. The purpose of such a review is to ensure that decisions are based on scientifically sound data, assumptions, and analyses, including the input of appropriate experts. We will send these peer reviewers copies of this proposed rule immediately following publication in the **Federal Register**. We will invite these peer reviewers to comment, during the public comment period, on the specific assumptions and conclusions regarding the proposed designation of critical habitat.

Summary of Factors Affecting the Species

Section 4 of the Endangered Species Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. 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). These factors and their application to the Sacramento Mountains checkerspot butterfly are as follows:

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

The threats that have been identified are commercial and private development, FS activities, fire suppression and wildfire, highway and forest road reconstruction, recreational impacts, domestic livestock grazing, nonnative vegetation, and insect control.

Commercial and Private Development

Commercial and private development is a significant threat to the Sacramento Mountains checkerspot butterfly. Habitat conversion activities from commercial and private development have likely already reduced many historic Sacramento Mountains checkerspot butterfly localities to non-viable states. Approximately fifty percent of all lands that might support the butterfly are in private ownership, subject to ongoing and future development activities. Much of these private lands are currently being developed for residential or commercial uses (FS 1986; FS 1997; E. Hein, pers. obs.; Holland 2001). Commercial and private development has been and is currently encouraged by the Village of Cloudcroft (Southeastern New Mexico Economic Development District 1974; Cloudcroft Area Sustainability Team 1995; J. Wilson, Lincoln National Forest, pers. comm. 2000). Within the known range of the Sacramento Mountains

checkerspot butterfly, there are two golf courses, at least 12 private developments, the Village of Cloudcroft, schools, several recreational parks, a ski area, and a network of paved, gravel, or dirt roadways.

The elevation, habitat, soils, and topography of these developed areas appear similar to areas that are known to be used by the butterfly and are either fragmenting or near to localities that support butterflies. For example, a subdivision on the east side of the Village of Cloudcroft is currently developing and eliminating approximately 10 ac of suitable, and likely currently used, butterfly habitat. This and other recent or proposed developments have or will likely fragment the distribution of the butterfly and eliminate butterfly localities or prevent the Sacramento Mountains checkerspot butterfly from moving between areas of suitable habitat (Murphy and Weiss 1988). Therefore, we believe that these private and commercial development activities have likely eliminated or interrupted dispersal of butterflies between suitable habitat patches and thus affected the metapopulation dynamics of the Sacramento Mountains checkerspot butterfly.

The construction of homes, businesses, and associated infrastructure in the habitat of the Sacramento Mountains checkerspot butterfly could directly affect the species through mortality or result in indirect effects, such as the introduction of nonnative plants and animals or loss of movement corridors (Holland 2001). Ground disturbance and vegetation clearing for commercial or private development can disturb soils, remove or eliminate diapause sites (i.e., leaf litter and grasses) and larval or adult food plants, and kill or injure individuals (Wilcox and Murphy 1985; Murphy and Weiss 1988; C. Nagano, pers. comm., E. Hein, pers. obs.). We have observed non-forested areas of private lands that historically were probably suitable butterfly habitat; however, some of these areas currently contain thick mats of oat grass (*Arrhenatherum elatius*), pastures devoid of vegetation from livestock grazing, and filled stock ponds and/or dammed wetlands that have eliminated suitable habitat of the Sacramento Mountains checkerspot butterfly.

The butterfly likely occupies a significant amount of private lands since habitat used by the butterfly occurs on FS land that is immediately adjacent to these areas and the elevational and habitat characteristics are contiguous (FS 2000a). Based on a GIS model, the FS estimated that there were 1,034 ha (2,553 ac) of potential habitat on private lands (FS 1999b). Because of the ground-truthing and butterfly surveys conducted using the model, we believe that this amount is a reasonable approximation of the maximum amount of suitable habitat present on private lands. Based upon butterfly and habitat surveys conducted by the FS, we have estimated that between 15 to 35 percent of suitable habitat is occupied by the Sacramento Mountains checkerspot butterfly (E. Hein, pers. obs.). Therefore, 155 to 362 ha (383 to 894 ac) of private land may be occupied by the butterfly and nearly all of the suitable habitat on private land is at risk from commercial and private development and the direct or indirect impacts thereof.

The population of the Village of Cloudcroft and vicinity has increased by 34 percent since 1970, and the number of housing units that were constructed during this period has increased by 50 percent (U.S. Census Bureau 1998; New Mexico Economic Development Department 1999). Based upon electrical power service and demand, the Village of Cloudcroft and surrounding areas within the range of the butterfly have sustained population growth of about 2.5 percent per year; these levels are projected to increase (FS 1999e). New subdivisions currently are being constructed on private land and there are many properties for sale ranging from less than 1 ha (2.5 ac) to at least 100 ha (250 ac) that appear to contain suitable non-forested habitat. Further, a 9-hole golf course is being discussed as a community recreational goal and objective for the Village of Cloudcroft in 2005 (Cloudcroft Area Sustainability Team 1995). Non-forested lands within the range of the Sacramento Mountains checkerspot butterfly are generally preferred by commercial and private developers, because these areas are less costly to develop (i.e., there are no trees to clear and the land generally lacks steep topography and is accessible from roads). This may result in a disproportionate impact on butterflies and their habitat. For example, Holland (1999, 2001) reported that the butterfly historically occurred in two meadows totaling 8 ha (20 ac) in the early 1980s; these areas were reduced by private development to less than 0.4 ha (1 ac) by July 1997.

In addition, heavy clearing and mowing activities on improved (i.e., with existing structures) or unimproved private lands, to reduce the threat of wildfire or improve the residential appearance, could eliminate larval or adult food plants and/or localities that are used by the Sacramento Mountains checkerspot butterfly. Additionally, the conversion of native landscapes to nonnative vegetation (e.g., lawns or gardens) could fragment localities, eliminate movement corridors, cause additional loss of suitable habitat (Wood and Samways 1991, Holland 2001). Developing areas reduce blocks of native vegetation to fragments that are insularized, creating a matrix of native habitat islands that have been altered by varying degrees from their natural state. Given the development pressures and history of construction in the vicinity of the Village of Cloudcroft, the remaining butterfly localities are at risk of extirpation.

FS Activities

We are aware of FS projects proposed within the known range of the butterfly that have the potential to adversely affect the Sacramento Mountains checkerspot butterfly. For example, the following projects are in various stages of planning or construction: (1) A capital improvement project for three campgrounds; (2) a new power line, service road, and corridor; (3) livestock grazing activities in several allotments, one of which encompasses over 44,921 ha (111,000 ac); and (4) a land transfer to the Village of Cloudcroft (FS 1999a, 1999b, 1999f, 2000; Service 1999, 2001).

One campground located near the Village of Cloudcroft contains one of the greatest known concentrations of the Sacramento Mountains checkerspot butterfly. Reconstruction activities in this campground are proposed for the year 2003, including replacement of existing or construction of new bathroom facilities, traffic control barriers, picnic tables, and campfire pits (FS 1999a, 1999b). Similar to trampling (see discussion below), these ground disturbance activities have the potential to directly (e.g., by crushing larvae) and indirectly (e.g., by destroying food plants) impact this species. We are providing technical assistance to the FS in an attempt to avoid or minimize adverse impacts to the Sacramento Mountains checkerspot butterfly. The FS intends to begin work on a management plan to address the conservation of the Sacramento Mountains checkerspot butterfly and to address future potential impacts in the near future (M. Crites, Lincoln National Forest, pers comm. 2000); however, no plan has been developed to date.

The FS is proposing to transfer land pursuant to the Townsite Act to the Village of Cloudcroft (FS 1997; 2001a). The proposed land transfer would involve 33 ha (81 ac) on 5 different parcels. Sacramento Mountains

checkerspot butterflies have been observed on three of the five parcels (numbers 3, 4, and 5) and in adjacent lands (FS 1997, 1999a, 1999b, 1999d, 2000, 2001a, E. Hein, pers. obs.). The Village of Cloudcroft and the FS agreed to eliminate from the current land transfer proposal three other parcels (numbers 6, 7, and 8), in which a number of Sacramento Mountains checkerspot butterflies have been observed (FS 1999a, 1999b, 2001a). The stated purpose for the proposed land transfer is to provide additional land for commercial, industrial, educational, and recreational expansion and permit controlled growth (Village of Cloudcroft 1996). Development of these parcels would be consistent with past and current community development policies and objectives of encouraging commercial and private development in and around the Village of Cloudcroft (Southeastern New Mexico Economic Development District 1974; Village of Cloudcroft 1996; J. Wilson, pers. comm. 2000). A decision on the five parcels will be finalized this fiscal year (FS 2001a). If the parcels of land currently used by the butterfly are transferred and subsequently developed, habitat used by the butterfly could be further degraded or eliminated, suitable habitat further fragmented, and the movement of butterflies between local populations may be restricted.

The FS has eliminated some proposed projects (e.g., the construction of new administrative building) in habitat used by the butterfly. They have also taken some actions to protect and manage the Sacramento Mountains checkerspot butterfly, including instituting a butterfly closure order (see discussion below), fencing a portion of one butterfly locality, and conducting butterfly surveys to determine range and occupancy (FS 1999a, 1999b, 1999h, 2000a, 2000d). These actions have been beneficial, especially for increasing our knowledge of this species. However, we believe that other multiple use priorities on FS lands, such as range management, road maintenance, or capital improvement projects, may adversely impact this species (e.g., see discussion on road maintenance below).

Fire Suppression and Wildfire

The results of 100 years of fire suppression in the Sacramento Ranger District currently threatens the Sacramento Mountains checkerspot butterfly. Fire exclusion and suppression have reduced the size of grasslands and meadows by allowing the encroachment of conifers, and these trends are projected to continue (FS 1995, 1999h). Officials on the Lincoln National Forest reported that high forest stand densities exist on 35 percent of mixed conifer forests and 22 percent of ponderosa pine forests, and that insect and dwarf mistletoe infestations occur on 57 and 64 percent of their ponderosa pine forests, respectively (GAO 1999a). The natural fire regime historically maintained non-forested openings and meadows. Prior to 1900, the mean natural fire interval for forests in the Sacramento Mountains was about 4 to 5 years (Kaufmann et al. 1998). These frequent, low-intensity, surface fires historically maintained a forest that was more open (i.e., more non-forested patches of different size, more large, older trees, and fewer dense thickets of evergreen saplings) than it is currently (Kaufmann et al. 1998). Such low-intensity fires are now a rare event.

It is likely that fire exclusion and cattle grazing have severely altered and increased the threat of wildfire in ponderosa pine (*Pinus ponderosa*) and mixed conifer forests in the semi-arid western interior forests, including New Mexico (Belsky and Blumenthal 1997). For example, ponderosa pines have increased from 19 to 64 trees per ha (46 to 158 per ac) from 1911 to 1995, and mixed conifers increased from 92 to 192 trees per ha (227 to 475 per ac) from 1906 to 1995, in the Sacramento District of the Lincoln National Forest (FS 1999h). Further, there has been a general increase in the dominance of woody plants, with a decrease in the herbaceous (non-woody) ground cover (FS 1995) used by the butterfly (FS 2000a). These data indicate that the quality and quantity of the available butterfly habitat is decreasing range wide. Alternatively, restoration of natural processes and conditions may be difficult because of permanent impairment of areas from soil loss; the presence or dominance of noxious weeds, and the need to protect existing homes and businesses (FS 1995). Therefore, we believe that fire exclusion has substantially affected the species and will likely continue to significantly degrade the quality and quantity of suitable habitat. Additionally, future actions to manage or reduce the threat of wildfire will likely be more difficult to implement because of continued private development and the risk of fires escaping.

The Sacramento Mountains checkerspot butterfly is extremely vulnerable to catastrophic (i.e., high-intensity and large) wildfires in suitable butterfly habitat. Fire has caused the extirpation of populations of other butterflies in the genus *Euphydryas* (Murphy and Weiss 1988; 62 FR 2313). Future wildfires within the known range of the Sacramento Mountains checkerspot butterfly will likely be large scale, and, under current conditions, are imminent (FS 1999h). Large fuel accumulations (e.g., the encroachment of conifers into meadows and the development of mats of Kentucky blue grass (*Poa pratensis*) and oat grass (*Arrhenatherum elatius*)) can lead to intense soil heating and deep heat penetration, which could be lethal to the food plants and the various life stages of the Sacramento Mountains checkerspot butterfly (Society of American Foresters 1984). During the last 50 years in the Sacramento Mountains, at least nine catastrophic wildfires have burned over 34,000 ha (90,000 ac) (Kaufmann *et al.* 1998). In the next few years, the Sacramento Ranger District may have a catastrophic burn that eliminates some or all of the remaining butterfly habitat.

From 1.2 to 14.3 percent of various forest cover types totaling about 202,347 ha (0.5 million ac) are predicted to burn between 1994 and 2005 in the southwestern region of the FS (FS 1995). The Government Accounting Office (GAO) (GAO 1999a, 1999b) reported that the FS and scientists generally agree that the efforts to reduce the threat of large, intense, uncontrollable, destructive wildfire will likely fail because funding is inadequate for a cohesive fire management strategy to be implemented. In completing its Forest Plan, the Lincoln National Forest selected an alternative that had one of the highest overall fire risks, because the proposed fire protection and suppression budget provided less protection than most of the other alternatives considered (FS 1986). The FS concluded that the preferred alternative had one of the greatest probabilities of serious uncontrolled wildfires relative to other alternatives considered (FS 1986). Whether recent funding increases for FS fire risk reduction actions can result in sufficient implementation to reduce fire threats to the butterfly over the short-term is unclear.

For instance, the threat of wildfire has been recognized as significant since the latest Lincoln National Forest Plan (FS 1986). The Sacramento Ranger District of the Lincoln National Forest has recently approved a long-term fire management plan to reduce the threat of catastrophic wildfire in the wildland-urban interface (FS 1999h). This plan will treat about 5,666 ha (14,000 ac) of about 202,347 ha (0.5 million ac) that were the subject of a fire danger assessment on the Sacramento Ranger District. The District's assessment found about 53,419 ha (132,000 ac) had a high

risk potential for fire ignitions, and about 89,032 ha (220,000 ac) had high fuel characteristics. The project proposes to reduce the high fire risk on the District through thinning and prescription burns on about 15 percent of the 142,452 ha at risk (352,000 ac) (FS 1999h). The FS has also recently proposed thinning 97 ha (239 ac) on the western edge of the Village of Cloudcroft (FS 2000c). The FS concluded that these projects are not expected to change the existing habitat conditions for the butterfly, or positively or negatively impact the butterfly (FS 1999h, G. Garcia, pers. comm. 2000).

Recently, the Southwestern Region of the FS initiated a program to reduce the risk of catastrophic crown fire in the wildland urban interface (FS 2000e). This program is designed to reduce fuel loads to protect life, property, and natural resources. Approximately 1.9 million acres are proposed for fuel load reduction within the National Forests in Arizona and New Mexico. These treatments are anticipated to be implemented slowly, with 20 to 30 projects beginning this fiscal year 2001, and the remainder of the projects spread over a 5 to 8 year period (J. Agyagos, FS, pers. comm.). The GAO also recently reported that Federal agencies are not organized to effectively and efficiently implement the national fire plan (GAO 2001). Therefore, it is unknown whether the proposed treatments will effectively reduce the risk of catastrophic wildfire to the butterfly or its habitat.

We believe that the reduction of fire risk may be very limited in geographic extent; consequently, the only potential for short term benefits for the butterfly may be a decrease in the amount of at-risk area and/or interrupting or reversing the encroachment of conifers in some areas to create or enlarge non-forested areas suitable for the butterfly. There are no fire risk reduction projects at nine of the known butterfly localities, and the prescriptions near the other six localities will be limited. Therefore, we concur with the FS that it is highly probable that the overall risk of fire or the encroachment of conifers will not be significantly reduced or eliminated by these efforts. We are not aware of any other projects to address the risk of fire on the Sacramento Ranger District. FS officials agree that when catastrophic fires occur, they will likely permanently damage soils, habitat, and watershed functioning (FS 1986; GAO 1999a).

The GAO reported that only 10–25 years remain to resolve the increasing threats of catastrophic wildfire before widespread damage from uncontrollable wildfires becomes inevitable. A random event, such as catastrophic fire, is highly probable and could easily destroy part of a Sacramento Mountains checkerspot butterfly locality or entire localities, or decrease a locality to so few individuals that risk of extirpation from genetic and demographic problems would increase.

The GAO concluded that the FS will likely not be able to meet its goal of reducing the threat of wildfire by 2015 because efforts and resources will need to be divided between reducing accumulated fuels on high-risk areas and maintaining low-risk conditions on other areas. For instance, the budget for fire suppression in the Lincoln National Forest plan was nearly double that of hazard protection (FS 1986). The GAO concluded that the threats and costs associated with wildfires, together with the urgent need to reduce the threats, make them the most serious immediate problem related to forest health in the interior West. We believe that this risk of wildfire is one of the most significant threats facing this species and projects resulting from increased fire risk funding will need to be implemented before significant risk reduction for the butterfly is achieved.

Highway and Forest Road Reconstruction

Construction of roadways has historically eliminated or reduced the quality or quantity of Sacramento Mountains checkerspot butterfly habitat (see also Factor E) (Pittenger 1999; E. Hein, pers. obs.), increasing the risk of extinction throughout all or a significant portion of the species' range. The reconstruction of forest roads is a threat to the Sacramento Mountains checkerspot butterfly, causing elimination of larval food and adult host plants, crushing of butterflies, and increasing the amount of soil erosion or dust. Because roads are usually sited in open non-forested areas, larval food and adult nectar plants are frequently found in large concentrations along roadways (E. Hein, pers. obs.). These areas can similarly contain aggregations of pre- and post-diapause larvae, because bare soils provide sites for thermoregulation (maintenance of a constant internal body temperature regardless of environmental temperature) (Porter 1982). Therefore, activities that disturb suitable habitat adjacent to roadways can impact very high quality sites, important for the development of various life history stages (e.g., pre-diapause instar development). We have recently observed road grading activities on FS and private lands that cleared at least 1 ha (2.4 ac) of larval and adult food plants, and may have directly killed individual larvae through crushing (E. Hein, pers. obs.). Butterflies in the adjacent non-graded areas may also be indirectly affected by soil erosion or dust covering and killing food plants (Farmer 1993). We believe that road maintenance activities can cause localized adverse impacts to the Sacramento Mountains checkerspot butterfly.

The New Mexico State Highway and Transportation Department (NMSHTD) recently improved portions of an approximately 3.2 km (2 mi) long stretch of State Highway 130 between the Village of Cloudcroft and the intersection of SH 130 and Sunspot Road (Metric Corporation 1996; Steve Reed, NMSHTD, pers. comm. 1999). The project cleared all vegetation by scraping and widening the road and shoulders, constructing retaining walls, adding drainage ditches and culverts, and reconstructing a curve. In 1998 and 1999, Sacramento Mountains checkerspot butterflies were located within the construction footprint (FS 1999a, 1999b; 1999d, E. Hein, pers. obs.); however, none were observed during surveys in 2000 and 2001 (E. Hein, pers. obs.). In July 1999, topsoil and vegetation were scraped and Sacramento Mountains checkerspot butterflies were likely killed (E. Hein, pers. obs.). Some topsoil and larval food plants were stockpiled and used in the revegetation when the project was completed. However, fewer than 10 New Mexico penstemon were replanted in the revegetation effort and the area is currently overgrown by noxious weeds (see discussion below). In addition, extensive retaining walls and roadsides were constructed with rocks and little to no soils may preclude revegetation in some areas that were likely used by the Sacramento Mountains checkerspot butterfly as corridors (Haddad and Baum 1999; Haddad 1999). The NMSHTD will monitor the revegetation areas for the recruitment and survival of larval food plants and adult nectar sources, and to determine whether the butterfly recolonizes the area. The NMSHTD is also conducting a five-year study on the natural history of the butterfly to increase the knowledge of the species (NMSHTD 2000; Pittenger 2001).

Recreational Impacts

Off-highway vehicles (OHVs) pose a threat to the butterfly through direct crushing of eggs, larvae, pupae, or thermoregulating adults located on bare soils, leaves, or grasses within or adjacent to trails and roads. Because each larval web of the butterfly contains from 10 to 100 pre-diapause larvae (T.

Narahashi, pers. comm. 1999), hundreds to thousands of individuals could potentially be impacted in some localities. Thermoregulation sites are chosen by some *Euphydryas* sp. larvae for their solar radiation absorbance characteristics (Porter 1982). This site selection behavior is likely to occur with the Sacramento Mountains checkerspot butterfly because of relatively low temperatures during spring and summer months (E. Hein, pers. obs.). Post-diapause larvae in the genus *Euphydryas* can also be gregarious and cluster in areas of open soils, such as trails and roads, to thermoregulate (C. Nagano, pers. obs.; E. Hein, pers. obs.; Porter 1982; Weiss *et al.* 1987; Osborne and Redak 2000). We know of other butterflies that have also been impacted from OHVs (e.g,. *Neonympha mitchellii mitchelli*, 56 FR 28825; *Glaucopsyche lygdamus palosverdesensis*, Arnold 1987; *Apodemia mormo langei*, Fish and Wildlife Service 1984; *Euphydryas editha quino*, 62 FR 2313; G. Pratt, pers. comm. 1998; M. Elvin, Fish and Wildlife Service, pers. comm. 2000).

Off-highway vehicle use is increasing in many western states (GAO 1995), and on the Lincoln National Forest (FS 1986, 1993). The FS estimated there were 1,368 km (850 mi) of OHV routes on their lands in the Southwestern region, with at least 80 km (50 mi) being added annually (FS 1986). OHVs can cause significant environmental damage to both vegetation and animals (including butterflies) (Webb and Wilshire 1983), and are causing vegetation and erosion on FS land, primarily in meadows, riparian areas, and steep slopes (FS 1986). The authorized and unauthorized use of OHVs can adversely affect Sacramento Mountain checkerspot localities (FS 2000a). Executive Orders 11644 and 11989 were issued in the 1970s to establish policies and procedures for regulating OHVs. Compliance with these executive orders has been mixed; for example, incomplete inventories of open and closed OHVs routes, inadequate mapping and signing of routes, and limited monitoring of the effects of OHVs on natural resources have been the primary deficiencies (GAO 1995). Similar OHV problems exist on the Sacramento Ranger District, where, despite efforts by the FS to alleviate OHV-related impacts to the Sacramento Mountains checkerspot butterfly, problems are still occurring. For example, the FS recently posted signs indicating that OHVs were not allowed in an area that currently supports the Sacramento Mountains checkerspot butterfly after noticing OHV tracks through a monitoring plot (FS 2000a). Although the Lincoln National Forest has closed areas to OHVs in the past, these efforts have not been effective in stopping unauthorized OHV use in non-forested areas (Fish and Wildlife Service 1994; Forest Guardians 1999), even when the area was partially fenced (T. Fiedler-Harper, pers. obs. 1999).

The Sacramento Mountains checkerspot butterfly may also be threatened by impacts from mountain bikes. The butterfly is found along and adjacent to several popular mountain biking routes, including trails that are traversed in an annual 2-day bike race during mid-May when post-diapause larvae are actively thermoregulating in these areas (FS 2000a; M. Crites, pers. comm. 1999; E. Hein, pers. obs). This race regularly attracts several hundred racers.

Mountain bikes may be directly or indirectly affecting larval food plants, nectar sources, or various life stages of the butterfly through the development trail ruts, the loss of residual topsoil and vegetation, increased erosion, the creation of stretches of standing water or muddy trail/road conditions, the development of parallel tracks, and the establishment of unauthorized trails (Cessford 1995). For example, following the bike race, we found crushed larval food plants along part of the race course that bisects one of the campgrounds that currently supports the butterfly (E. Hein, pers. obs.). Moreover, a recent study found that 58 percent of National Forests surveyed reported evidence of resource damage from mountain bikes (Chavez 1996).

Although the potential impact of mountain biking activities on butterflies has been infrequently studied, we know of other invertebrates that are impacted by bicycle traffic (e.g. *Cicindela ohlone*) (65 FR 6952). Moreover, mountain bike impacts are similar to other recreational impacts, and are likely to result in soil compaction, erosion, or the elimination or reduction of vegetation (Liddle 1975; Cessford 1995; Trails and Wildlife Task Force 1998). The significance of direct mortality on population viability is unknown at this time, but is considered a potential threat to the butterfly, particularly if bicycle traffic through areas used by the butterfly increases.

Hiking and camping pose a threat to the butterfly because of the development of trails, barren areas, and trampling, but the potential significance of these impacts has not been quantified. The development of parallel tracks, muddy trails, and erosion through meadows and non-forested areas may affect the butterfly through the reduction or elimination of larval and adult food plants (Boyle and Samson 1985; Kuss 1986; Hampton and Cole 1988). Cole (1995) reported that erect vegetation is readily damaged by trampling, with erect forbs, similar to the food plants of the butterfly, less resistant than those with matted or rosette (circular cluster of plant parts or leaves) growth. Meadows or non-forested areas, which may also be suitable habitat or support the Sacramento Mountains checkerspot butterfly, are favored locations for many campers (Hampton and Cole 1988; Cole 1989 and references therein). We observed a variety of these impacts (e.g., barren ground, trampled food plants, multiple trails, vehicle tracking, etc.) in areas used by larval and adult life stages of the Sacramento Mountains butterflies; these impacts are likely reducing the quality or quantity of suitable habitat in and around developed campgrounds or undeveloped campsites known to support the Sacramento Mountains checkerspot butterfly (E. Hein, pers. obs.). The FS indicated they would monitor trampling impacts at two campgrounds (FS 1999j). Although we have not received any information from the FS regarding trampling, we have documented larval webs and food plants within campsites that were trampled or crushed (E. Hein, pers. obs.).

Recreational resource damage and impacts to the Sacramento Mountains checkerspot butterfly are likely to increase in the near future. For example, the Forest contained 240 km (150 mi) of managed trails in 1986; however, the need for future trails is expected to increase and at least 25 percent more trail miles are needed to match demand (FS 1986). Developed (e.g., campground stays) and dispersed recreation (i.e., hiking, backpacking, camping, trail biking) in 1986 were projected to rise over 2.4 and 1.4 times, respectively, through the first quarter of the 21st century (FS 1986). In fact, by the end of the projected 50-year period of the Lincoln National Forest Plan (2036), the demand for dispersed recreation was expected to continue increasing and would exceed the projected capacity by 26 percent (FS 1986). In fact, the demand for developed recreation, which is generally greatest from May through September (the same activity period for the Sacramento Mountains checkerspot butterfly), often exceeded capacity in 1986. Moreover, the FS reported that the amount of recreational use left limited opportunity for a site to rest and rehabilitate during peak activity and use periods (FS 1986).

We are aware of other sensitive butterflies that have been similarly impacted in and around developed FS campgrounds (e.g., *Pyrgus ruralis lagunae,* G. Pratt pers. comm. to E. Hein, 1998). Although proposed capital improvement projects for several FS campgrounds are needed to offset the high demand for developed recreation, these projects and the associated recreational impacts also have the potential to adversely affect the Sacramento Mountains checkerspot butterfly (see discussion under FS activities). We believe impacts to the butterfly from these recreational uses is ongoing and will continue.

Domestic Livestock Grazing

The Sacramento Mountains checkerspot butterfly has been and continues to be adversely affected by domestic livestock grazing. Grazing can eliminate or reduce the food plants used by larvae and the nectar plants used by adults, compact the soil, and eliminate or reduce ground cover by herbaceous plant and litter (Scholl 1989; Fleischner 1994; Belsky and Blumenthal 1997; Donahue 1999). The effects of grazing on the Sacramento Mountains checkerspot butterfly are largely a result of range management of domestic livestock. If domestic livestock are closely managed to minimize the loss or elimination of native vegetation used by the butterfly, then range management will likely have a negligible affect on the Sacramento Mountains checkerspot butterfly. Overgrazing has occurred in the valleys of the Sacramento Ranger District of the Lincoln National Forest over the last several decades (Fish and Wildlife Service 1993). Furthermore, overgrazing by stock animals has led to extinctions of some butterfly populations in the United States, including butterflies in the genus *Euphydryas* (Ehrlich 1989; Murphy and Weiss 1988; Weiss *et al.* 1991).

Overgrazing in the Lincoln National Forest has likely eliminated or reduced larval host plant and adult nectar sources of the Sacramento Mountains checkerspot butterfly. Similarly, overgrazing has compacted soils, decreased water infiltration, and increased water runoff, erosion, and dense conifer recruitment, severely altering the entire forest and meadow landscape in semi-arid western interior forests, including those in New Mexico (Belsky and Blumenthal 1997). In fact, herbaceous plants and grasses have been effectively removed from the Sacramento Ranger District by intensive overgrazing (FS 1995). Overgrazing can substantially reduce the availability of native nectar plants for some butterfly species and could be contributing to regional declines and extinctions (e.g,. *Euphydryas editha bayensis*; Murphy and Weiss 1988; *Speyeria zerene myrtleae*; Launer *et al.* 1992). The availability of nectar and the amount consumed by female butterflies greatly influences the number of eggs produced and subsequent adult recruitment and long term population survival (Murphy *et al.* 1983; Boggs and Ross 1993 cited in Launer *et al.* 1992;).

We believe that widespread and intensive livestock grazing, leading to a reduction or elimination of residual plant or ground cover (i.e., little to no leaf or grass litter), has been detrimental for this butterfly, because the quality and quantity of larval and adult food plants and diapause sites have been reduced or eliminated. For example, the only variables that are consistently documented with Sacramento Mountains checkerspot butterfly presence are the occurrence of *Helenium hoopesii* (adult nectar source), mesic (neither extremely wet or extremely dry) soils, canopy cover less than 5 percent, and greater than 70 percent herbaceous cover (FS 2000a). Past and current range management within the range of the Sacramento Mountains checkerspot butterfly has led to the reduction or elimination of *Helenium hoopesii* and herbaceous ground cover (FS 1995; Belsky and Blumenthal 1997; Lincoln National Forest 1999). Trampling, primarily from cattle, can also kill butterfly larvae, eggs, and pupae (White 1986; Weiss 1999). White (1986) estimated that up to 35 percent of the total population of various life stages of butterflies in the genus *Euphydryas* can be lost to crushing in areas where heavy grazing occurs.

The amount of *Helenium hoopesii*, an adult nectar source, on range allotments in the Sacramento Ranger District is lower than it was in the 1970s and 1980s and the current range condition of four cattle allotments within the known range of the Sacramento Mountains checkerspot butterfly are poor to fair (R. Newman, Lincoln National Forest, pers. comm. 1999). Present range conditions within non-forested areas are declining (R. Newman, pers. comm. 1999), probably because cattle tend to concentrate in these areas (Belsky and Blumenthal 1997). Both larval and adult food plants are needed to sustain viable butterfly populations. For example, in some areas, if larval food plants are present, but nectar sources are absent, the habitats for other butterflies in the genus *Euphydryas* have remained unoccupied for at least a decade (Brown and Ehrlich 1980). In the Lincoln National Forest, permitted cattle grazing in 1980 exceeded capacity by about 33,000 AUMs and was projected to continue until about 2026 (FS 1986). Similarly, excessive forage utilization has been occurring since at least 1991 on the Sacramento allotment, the largest allotment in the Sacramento Ranger District (64 FR 24132).

A low to moderate level of grazing can sometimes be beneficial for sensitive butterflies in systems where nonnative grasses are palatable to domestic livestock or native ungulates or if native ungulate grazing (e.g., elk (*Cervus elaphus*)) was a component of the historical ecosystem (Weiss 1999, Weiss *et al.* 1991). Grazing levels in the known range of the Sacramento Mountains checkerspot butterfly continue to degrade the quantity and quality of suitable habitat. However, if a decrease in domestic livestock use is offset by an increase in native ungulate use, the result may be similarly degraded range conditions. This has been observed for at least one allotment within the range of the butterfly (R. Newman, pers. comm. 1999). Additionally, cattle must be properly managed during drought to avoid adversely affecting butterfly populations by overgrazing food plant and nectar sources. The lack of range management adjustments on the Lincoln National Forest during drought has resulted in extensive resource damage from domestic livestock grazing (Kaufmann *et al.* 1998).

Cattle grazing currently occurs in allotments where butterflies have been observed (FS 1999a, 1999b, 1999d 1999i, 2000a, 2000d). Data are lacking on long-term trends for Sacramento Mountains checkerspot butterfly localities that are grazed, but a study has recently been initiated to determine the effect of grazing on the Sacramento Mountains checkerspot butterfly (FS 2001b). Nevertheless, the co-occurrence of butterflies and domestic livestock does not demonstrate that the Sacramento Mountains checkerspot butterfly is not being adversely impacted by current range management. It is possible that these areas could be population sinks (i.e., areas where the presence of butterflies is only being maintained by immigration from other source populations) (Boughton 1999). We recently assisted the Forest Service in designing an experiment to investigate the influence of range management activities on the butterfly and its food plants (Service 2001).

Nonnative Vegetation

Nonnative vegetation threatens the Sacramento Mountains checkerspot butterfly by out-competing and reducing

or eliminating food plants for larvae and nectar plants used by adults (FS 1995; **Federal Register** 62:2313; Weiss 1999). A significant long-term threat to the Sacramento Mountains checkerspot butterfly is the change in community structure due to invasive nonnative plants. On the Lincoln National Forest, 12 aggressive nonnative plant species, including Russian knapweed (*Acroptilon repens*), musk thistle (*Carduus nutans*), oat grass, and teasel (*Dipsacus sylvestris*) have increased by 30 percent since the early 1990s; this trend is expected to increase (GAO 1999a). An estimated 3,238 ha (8,000 ac) of private lands are similarly infested with noxious weeds within the Smokey Bear and Sacramento Districts, and a minimum of 1,244 ha (3,075 ac) of FS lands are infested within the Sacramento District (FS 1996). A 1993 FS survey found that approximately 737 ha (1,822 ac) in the vicinity of the Village of Cloudcroft had infestations of noxious weeds (FS 1999a). Infestations are expanding in non-forested openings and within road rights-of-way, with the densities of weeds increasing where they have not been treated (FS 1999a). Russian knapweed, musk thistle, oat grass, and teasel are found along major roads within rights-of-way or mountain meadows, and small openings in the forest, from 2,130 to 2,750 m (7,000 to 9,000 ft) (Fish and Wildlife Service 1993; FS 1996). These four plants are the most common noxious weeds within the range of the butterfly in the Lincoln National Forest. Nonnative vegetation has caused the extinction of some populations of butterflies in other areas (Weiss 1999).

These nonnative plants can significantly affect the plant community structure. For example, Russian knapweed produces compounds that suppress the growth of other plant species, allowing it to form dense stands (FS 1996). Other species, such as musk thistle and teasel, can also reduce grass and native forb production and change meadow/grassland habitats structurally and compositionally (FS 1995). Moreover, nonnative grasses, such as oat grass, can outcompete native forbs through the buildup of thatch (Huenneke *et al.* 1990). Nearly 30 percent of mountain meadows and over half of some individual meadows were dominated by noxious weeds on the Sacramento Ranger District in 1995 (FS 1995). The Lincoln National Forest treated 992 ha (2,452 ac) of noxious weeds annually from 1997 to 1999 (FS 2000b). However, these treatments eliminated only 116 ha (287 ac), and another 91 ha (225 ac) of noxious weeds were documented (FS 2000b). These data indicate the severity of noxious weed infestations within the known range of the Sacramento Mountains checkerspot butterfly. These infestations threaten the butterfly, primarily through the reduction or elimination of larval or adult food plants.

The application of herbicides to control nonnative vegetation may also be a threat to the Sacramento Mountains checkerspot butterfly. The NMSHTD and the FS both use herbicides and mowing to control noxious weeds. The herbicides Escort and Round-Up have been used by the FS to control nonnative plants, primarily Russian knapweed, musk thistle, and teasel in canyons and along highway rights-of-way within the range of the butterfly. About 1,416 ha (3,500 ac) above 2,450 m (8,000 ft) have been treated (FS 1999a). The toxicity of Escort for insects is low to moderate, depending on application rate and timing (Dupont 1999). Alternatively, control of musk thistle on about 162 ha (400 ac) of private lands within the District is accomplished using picloram and/or 2, 4-D (FS 1996), and musk thistle has also been controlled on FS lands using glyphosphate (FS 1993). The herbicide 2,4-D is detrimental to native plants and has a moderate toxicity for insects (Cornell University 1998c), such as butterflies. Glyphosphate has low toxicity, but is a non-selective systemic herbicide (Cornell University 1998d). One area, which is proximate to habitat that supports the butterfly, was treated with glyphosphate in 1993. In 1999, the area contained almost no Sacramento Mountain checkerspot butterflies (FS 2000a). It is unknown if this absence is related to the herbicide application. Nevertheless, there is a potential for direct and indirect impacts on the Sacramento Mountains checkerspot butterfly from the application of herbicides.

Insect Control

The application of carbaryl and Bacillus thuringensis (BT) to control insects poses a threat to the Sacramento Mountains checkerspot butterfly. The petitioner reported that the entire Douglas-Fir forest in the Sacramento Mountains was treated in 1984 with either carbaryl or BT to control an outbreak of forest insects. Carbaryl is considered moderately to highly toxic and is lethal to many non-target insects, whereas BT can kill the larval stage of many insects, including butterflies (Cornell University 1998a, 1998b). These insecticides were applied during months when butterfly larvae were not in diapause; however, the areas which were treated with carbaryl or BT were heavily wooded and are not areas that were inhabited by the butterfly. Nevertheless, drift of these insecticides into areas used the butterfly could have occurred. It is unknown what affect these treatments may have had on the Sacramento Mountains checkerspot butterfly because we have no pretreatment data for comparison. There has been a recent outbreak of tussock moth (*Orgyia pseudotsugata*) in the Sacramento Mountains (G. Garcia, pers. comm. 2000). The FS may attempt to control the outbreak using a virus specific to the tussock moth, BT, or an application of insecticide (G. Garcia, pers. comm. 2000). Future applications of carbaryl or BT may pose a potential risk for the viability of Sacramento Mountain checkerspot butterfly localities.

Conclusion for Factor A

The Sacramento Mountains checkerspot butterfly appears to exhibit much of the same behavior, life history, and patchy distribution as other well-studied species in this genus. The patchy distributional pattern is expected in many butterflies in the genus *Euphydryas* and other species, because they exist as metapopulations and at any instant butterflies may be using some areas and not others (Hanski and Gilpin 1991). Suitable habitat within the range of the species can play a pivotal role in maintaining natural metapopulations, especially butterflies that may have limited dispersal abilities (Murphy and Weiss 1988; see discussion below). However, if populations are extirpated and the metapopulation becomes so fragmented that individuals are unable to disperse between suitable patches, natural recolonization probability will not offset the extinction probability, and will result in population extinction. Some butterfly localities may be linked by linear or open patches of suitable, non-forested areas, such as highway rights-of-way (Haddad 1999; Haddad and Baum 1999). If movements through these linkages are disrupted or precluded (e.g., by commercial or private development), then the stability of the metapopulation (i.e., the exchange of individuals between populations) will be affected (Murphy and Weiss 1988). Isolation, whether by geographic distance or ecological factors, will prevent the influx of new genetic material, and can result in inbreeding and extinction (Saccheri *et al.* 1998; Nieminen *et al.* 2001).

We believe that some of the butterfly localities consist of very small numbers of butterflies that are isolated and

vulnerable to natural perturbations that could quickly eliminate them. Likewise, butterfly populations in the genus *Euphydryas* are known to undergo extreme variations in population size and are subject to extinction even when populations are greater than 50,000 individuals in preceding years (Weiss 1999). The mechanisms controlling population stability among species of butterflies in the genus *Euphydryas* are not well understood and may vary; however, it is known that small populations are particularly vulnerable to extinction (Murphy and Weiss 1988; 62 FR 2313) and some of the highest-density populations at high elevations (i.e., 2,000–3,000 m) can be the most susceptible to extinction (Thomas *et al.* 1996).

Much of the remaining suitable butterfly habitat, and the long-term persistence of the species, is threatened by the direct and indirect effects of commercial and private development, FS projects (e.g., campground reconstruction, powerline construction, road maintenance), catastrophic wildfire, fire suppression activities, highway reconstruction, off-highway vehicle use, trampling, overgrazed range conditions, and nonnative vegetation. Development of private land continues to increase within the known range of the butterfly, potentially rendering much of the butterfly habitat unsuitable. Village of Cloudcroft construction since the mid-1970s and the number of housing units has doubled. The limited geographic range of the Sacramento Mountains checkerspot butterfly increases the threat of extinction for this species given the expected continuing loss and degradation of suitable habitat and increased risks of extinction from random events, such as catastrophic fire, irreversibly eliminating vast amounts of habitat or localities. Considering the magnitude, imminence, and irreversibility of threats to habitat and the vulnerability of extant localities, we conclude that the Sacramento Mountains checkerspot butterfly is now in danger of extinction in all or a significant portion of its range.

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

Some collectors likely have high interest in the Sacramento Mountains checkerspot butterfly due to its extremely restricted distribution and low numbers. Both adult and larval stages of the species have been collected for scientific research and, similar to other narrowly endemic butterfly species, might be collected for recreational cultivation (i.e., raising butterflies for pleasure). We know of at least one person who collected an unknown number of Sacramento Mountains checkerspot butterfly larvae and others who have collected adults or have threatened to collect within the range of this species (Ferris and Holland 1980; R. Holland, pers. comm. to R. Galeano-Popp 1997; G. Pratt, pers. comm. 1999; FS 1999c). Additionally, some collectors prefer to eclose (emergence of an adult butterfly from a chrysalis) butterflies in captivity, thus reducing the risk of damage to the wings of adults, making for higher-quality individuals, prized by collectors. Specimens of other subspecies of the anicia checkerspot butterfly have been offered for sale (Kral 1987, 1989; Capps 1991). High prices for prized species can provide an incentive for illegal take and trade, and is sometimes referred to as market collecting (Erhlich 1989). Listing can increase the publicity and interest in a species' rarity, and thus may directly increase the value and demand for specimens.

Collecting from small colonies or repeated handling and marking, particularly of females in years of low abundance, could seriously damage populations through loss of individuals and genetic variability (Duffey 1968; Hayes 1981; Singer and Wedlake 1981; Gall 1984b; Murphy 1988; Hein and Myers 2000). We know of some butterfly populations (Mitchell's satyr, Saint Francis' satyr) that have been extirpated by collectors, possibly leading to extinction (57 FR 21564; 60 FR 5264).

The threat of collecting populations to extinction for a butterfly species is partly related to capture probability, which is influenced by the behavior of larvae or adults (Gall 1984a). Ehrlich *et al.* (1975) reported that adult mortality was not a major factor in population dynamics of *Euphydryas editha bayensis*, but this was probably related to the inability to capture more than 5 to 25 percent of the population. Yet, in a species such as the Sacramento Mountains checkerspot butterfly, individuals thermoregulate in early mornings or on cloudy days, making them more susceptible to capture. Throughout the day, adults are frequently found nectaring and are sedentary (E. Hein, pers. obs.; FS 1999d). We also know of other sensitive species where larvae are particularly easy to locate and have been heavily collected (*Euphydryas editha quino, Euphyes vestris harbisoni*, E. Hein, pers. obs.; *Hesperilla flavescens flavescens, Glaucopsyche lygdamus palosverdesensis*, T. Longcore, University of California, pers. comm. 2000).

Thomas (1989) outlined characteristics of butterfly species that would place them at risk from collectors. These characteristics include closed populations (i.e,. little immigration or emigration), sedentary behavior, less than 250 adults in the population, and populations that are located in small areas of accessible terrain. The Sacramento Mountains checkerspot butterfly fulfills most if not all of these traits, suggesting that the species is at risk to over collection. Since the known localities of the Sacramento Mountains checkerspot butterfly occur in areas frequented by butterfly collectors (Toliver *et al.* 1994) such as in public campgrounds, along public roadways, or in other readily accessible areas, the species is easily collected, and the limited numbers and distribution of this species make it attractive to collectors and vulnerable to over collection.

In an attempt to limit the threat of overcollection, the FS issued a closure order from April 1999 to April 2000 for the collection of any butterflies without a permit on the Smokey Bear and Sacramento Districts of the Lincoln National Forest (FS 1999a, 1999b). A closure order was implemented in April 2000 throughout the same region that restricts the collection of the Sacramento Mountains checkerspot butterfly without a permit (G. Garcia, Lincoln National Forest, pers. comm. 2000). This closure order may offer protection from butterfly collecting; however, some butterfly collectors are known to have intentionally violated a similar closure order in the Uncompahgre National Forest in Colorado in order to collect the endangered Uncompahgre fritillary butterfly (*Boloria acrocnema*) (U. S. Department of Justice 1993). Furthermore, there is a perception from some lepidopterists who fervently collect (e.g., one individual has greater than 25,000 butterfly specimens) that the closure order on the Lincoln National Forest or other public lands are overly restrictive and should not apply to them (Wells 1996; see also Lep News 1996). Similarly, a recent editorial published the location of a butterfly locale, and encouraged the public to ''* * * plan a vacation to Cloudcroft and add this variation to (your) collection'' (Wood 1999).

C. Disease or Predation

Wasps of the genus *Apanteles* and *Trichogramma* have been documented parasitizing the Sacramento Mountains checkerspot butterfly. Spiders, pocket gophers, ants, and birds are documented predators for butterflies in the genus

Euphydryas (Ehrlich 1965; Brown and Ehrlich 1980; Moore 1987; Moore 1989). There are no indications at this time that parasites or predators might be a limiting factor for the Sacramento Mountains checkerspot butterfly.

D. The Inadequacy of Existing Regulatory Mechanisms

The Sacramento Mountains checkerspot butterfly occurs on private and FS lands. Existing regulatory mechanisms do not fully protect this species or its habitat on any of these lands. The FS has the authority to manage the land and activities under their administration to conserve the butterfly. For example, this species was placed on the Regional Forester's Sensitive Species List, and the FS has minimized or avoided potentially adverse impacts to the butterfly by altering or canceling several recently proposed projects (see discussion above). The FS is required to maintain or enhance the viability of species on this list by considering species in their project biological evaluations and mitigate actions that adversely impact the species. The FS currently does not have a management plan that addresses specific conservation and recovery needs for the butterfly, nor have they developed population viability objectives or management guidelines. The development of a management/conservation plan for the Sacramento Mountains checkerspot butterfly was scheduled for December 2000, but has not yet been completed (FS 2000a).

Private lands constitute about 50 percent of the estimated range of the butterfly (FS 1999b). These lands play a substantial role in the Sacramento Mountains checkerspot butterfly's continued existence. There are no local or state regulatory mechanisms pertaining to the butterfly on State or non-Federal lands. The Sacramento Mountains checkerspot butterfly is not listed as threatened or endangered under the New Mexico Wildlife Conservation Act, and it receives no formal protection for take of individuals or habitat.

It is unknown whether suitable habitat is present on the Mescalero Apache Nation lands. However, there does not appear to be a significant amount of contiguous land present with elevations between 2,450 and 2,750 m (8,000 and 9,000 ft)) and proximal to butterfly localities. Nevertheless, these lands are managed by the Mescalero Apache Nation in accordance with tribal goals and objectives and within the framework of applicable laws. These lands are not Federal public lands or part of the public domain. The Mescalero Apache Nation is a sovereign government with inherent powers to make and enforce laws and manage and control their natural resources. We have initiated contact with the Mescalero Apache Nation, but have not had formal Government-to-Government contact over the status of the Sacramento Mountains checkerspot butterfly on their lands.

E. Other Natural or Manmade Factors Affecting its Continued Existence

Extreme Weather

Periodic droughts (e.g., resulting in little to no snowpack and early snow melt), such as those that occurred in recent years in New Mexico, or late snow storms or summer frosts, pose a threat to the Sacramento Mountains checkerspot butterfly. Drought is known to cause a decrease in the size of populations of some butterfly species (C. Nagano, pers. obs., 1999) and cause population extinctions (Murphy and Weiss 1988; Thomas *et al.* 1996; Boughton 1999). In addition to killing larvae by dessication, drought conditions may—(1) cause the early senescence or death of the larvae food plant prior to the completion of larval development; (2) result in an early flight season prior to the availability of any nectar sources, causing mass starvation; or (3) lower the nutritional quality of the host plant (e.g., water content).

Holland (1999) believes that emergence of butterfly larvae from diapause above 2,450 m (8,000 f) might not be directly linked to precipitation, but driven more by photoperiodism (the relative periods of light and darkness associated with day and night) and warmth; hence, early flight seasons probably occur during years of light snow pack, increasing the risk of local extirpation and extinction. Moreover, almost all adult Sacramento Mountains checkerspot butterflies that were observed nectaring used *Helenium hoopesii*, and this species may not reach peak flowering abundance until after rains begin in July (FS 2000a). If summer rains are delayed or below average, it is highly possible that one or all of the above examples could occur. Late snow storms, summer frosts, and unusually cold or rainy weather can also lead to direct mortality of larval food plants, nectar sources, eggs, larvae, pupae, and/or adults (Ehrlich *et al.* 1972; White 1986; Thomas *et al.* 1996; Boughton 1999). Although the Sacramento Mountains checkerspot butterfly has evolved in an environment subject to periodic atypical weather events, it is believed that habitat fragmentation has increased the species' susceptibility to certain weather extremes. Moreover, it appears that New Mexico may be headed into a long-term drought (Fleck 2000).

Dispersal is normally a rare event in the genus *Euphydryas*, possibly resulting from extreme weather events or emigration from high density populations. Further, normal daily movements in *Euphydryas anicia* adults probably are less than 300 m (984 ft), suggesting that adults are somewhat sedentary and likely do not disperse more than a km (Cullenward *et al.* 1979). Because patches of forests may define the boundaries of the habitat, reduce immigration out of an area (M. Singer, University of Texas, pers. comm. to G. Pratt 1999), and are not readily crossed by butterflies that inhabit open meadows (Kuussaari *et al.* 1996), some Sacramento Mountains checkerspot butterfly localities are probably demographically isolated.

Roads

The Sacramento Mountains checkerspot butterfly may be killed by vehicles driving through habitat that supports the butterfly (E. Hein, pers. obs. 1999; W. Murphy, Southwestern Regional Office, FS, pers. comm. 2000). Roads are a significant source of mortality for many species of wildlife (Case 1978; Ashley and Robinson 1996; Hourdequin 2000), including butterflies (Ries *et al.* In press; Service 1996). Roads can also modify animal (including butterflies) behavior, alter the physical and chemical environment, and spread nonnative plant species (Trombulak and Frissell 2000). Roads limit movements and dispersal of insects, effectively fragmenting and isolating populations (Mader 1984; Mader *et al.* 1990).

Increases in the population in and around the Village of Cloudcroft (U.S. Census Bureau 1998; FS 1999e) have led to increases in traffic. For example, the average annual daily traffic along habitat adjacent to highway 130 was 1,956 vehicles in 1995 and is projected to double by 2015 (Metric Corporation 1996), especially with proposed private developments (e.g., Woodlands, The Lodge, etc.). The normal flight behavior of *Euphydryas anicia* suggests that butterflies found along roads may attempt to cross and increase their risk of death from passing vehicles. Roads could also indirectly affect the butterfly by increasing the deposition of dust on food plants for larvae and adults. Dust can affect plants by blocking photosynthesis, respiration, and transpiration and reducing growth or causing injuries (Farmer 1993). The direct and indirect impact of roads on

the Sacramento Mountains checkerspot butterfly are presently unknown.

Given the low probability of improving the status of the Sacramento Mountains checkerspot butterfly in the next few years (e.g., the high risk of a catastrophic wildfire in the next few years, the continued elimination of suitable habitat by development, the likelihood of an extreme weather event occurring, the reduction or elimination of larval or adult food plants by grazing and/or nonnative plants), this species is vulnerable to extinction throughout all or a significant portion of its range. We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats facing the Sacramento Mountains checkerspot butterfly in determining to propose listing. Based on this evaluation, we propose to list the Sacramento Mountains checkerspot butterfly as endangered. Although we have considered all available alternatives to this action, such alternatives would not be in accordance with the Act or the definitions therein. Based on the information available, not listing the species as endangered or listing the species as threatened would not accurately reflect the status of the Sacramento Mountains checkerspot butterfly.

Critical Habitat

Critical habitat is defined in section 3(5)(A) of the Act as—(i) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. The term ''conservation,'' as defined in section 3(3) of the Act, means ''to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary'' (i.e., the species is recovered and removed from the list of endangered and threatened species).

Section 4(b)(2) of the Act requires that we base critical habitat proposals upon the best scientific and commercial data available, taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. We can exclude areas from critical habitat designation if we determine that the benefits of exclusion outweigh the benefits of including the areas as critical habitat, provided the exclusion will not result in the extinction of the species.

Critical habitat designation, by definition, directly affects only Federal agency actions through consultation under section 7(a)(2) of the Act. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, we designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when one or both of the following situations exist—(1) the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species.

In the last few years, a series of court decisions have overturned Fish and Wildlife Service determinations that designation of critical habitat would not be prudent for a variety of species (e.g., *Natural Resources Defense Council* v. *U.S. Department of the Interior* 113 F. 3d 1121 (9th Cir. 1997); *Conservation Council for Hawaii* v. *Babbitt*, 2 F. Supp. 2d 1280 (D. Hawaii 1998)). Based on the standards applied in those judicial opinions, we have examined the question of whether critical habitat for the Sacramento Mountains checkerspot butterfly would be prudent.

Due to the small number of butterfly localities, the Sacramento Mountains checkerspot butterfly is vulnerable to unrestricted collection, vandalism, or other disturbance. Rare butterflies are highly prized by collectors and we have specific evidence for Sacramento Mountains checkerspot butterfly of collection and trade of this species or similarly situated species (see Factor B). We are concerned that these threats might be exacerbated by the publication of critical habitat maps and further dissemination of locational information. However, this information has already been published and available (Ferris and Holland 1980; Toliver *et al.* 1994; Wood 1999). Consistent with recent case law, we must weigh the benefits in proposing to designate critical habitat for the Sacramento Mountains checkerspot butterfly against the harm which could be caused by disclosure of its location.

The primary regulatory effect of critical habitat is the section 7 requirement that Federal agencies consult with us to ensure that their proposed actions will not destroy or adversely modify critical habitat. While a critical habitat designation for this species in currently occupied habitat would not be likely to change the section 7 consultation outcome because an action that destroys or adversely modifies such critical habitat would also be likely to result in jeopardy to the species, there may be instances where section 7 consultation would be triggered only if critical habitat is designated. Examples could include unoccupied habitat or occupied habitat that may become unoccupied in the future. Both of these situations are expected because of the metapopulation structure of butterflies in the genus *Euphydryas* (e.g., Harrison 1989, Hanski and Gilpin 1991). There may also be some educational or informational benefits to designating critical habitat. Consequently, we find that these benefits outweigh the risk of increasing collection because the locations are already known and available to the public. Therefore, we find that critical habitat is prudent for the Sacramento Mountains checkerspot butterfly.

The Act requires that, to the maximum extent prudent and determinable, we designate critical habitat at the time a species is listed. Although we will make a detailed determination of the habitat needs of a listed species during the recovery planning process, there is no provision in the Act to delay designation of critical habitat until such time as a recovery plan is prepared. We reviewed the available information pertaining to habitat characteristics where this species has been recently located, including material received during the comment period for the 90-day petition finding. This and other information represent the best scientific and commercial data available, and led us to conclude that the designation of critical habitat is both prudent and determinable for the Sacramento Mountains checkerspot butterfly. Therefore, we propose to designate critical habitat pursuant to the Act for the Sacramento Mountains checkerspot butterfly.

Designation of critical habitat can help focus conservation activities for a listed species by identifying areas that contain the physical and biological features that are essential for

conservation of that species. Designation of critical habitat alerts the public as well as land-managing agencies to the importance of these areas. Critical habitat also identifies areas that may require special management considerations or protection, and may provide protection to areas where significant threats to the species have been identified.

Critical habitat receives protection from destruction or adverse modification through required consultation under section 7 of the Act, with regard to actions carried out, funded, or authorized by a Federal agency. Section 7 also requires conferencing on Federal actions that are likely to result in the adverse modification or destruction of proposed critical habitat. Aside from the protection that may be provided under the section 7 adverse modification standard, designation of critical habitat does not provide prohibitions beyond those available from the listing of a species as endangered or threatened.

Designating critical habitat does not, in itself, lead to recovery of a listed species. Designation does not create or mandate a management plan, establish numerical population goals, prescribe specific management actions (inside or outside of critical habitat), or directly affect areas not designated as critical habitat. Specific management recommendations for critical habitat are most appropriately addressed in recovery plans and management plans, and through section 7 consultation.

Because of this species' precarious status, mere stabilization of the Sacramento Mountains checkerspot butterfly at its present level will not achieve survival and recovery. Protection and enhancement of the existing localities, plus reestablishment of localities in suitable areas of its known range, are necessary for its survival and recovery. One of the most important goals to be achieved toward recovery is establishment of secure self-reproducing localities in areas from which the species is no longer found, and may have been extirpated. We, therefore, determine that areas that may or may not be used by butterflies every year are essential for the conservation of the species and are proposed as critical habitat.

Methods

The proposed critical habitat described below constitutes our best assessment of areas needed for the conservation of the Sacramento Mountains checkerspot butterfly and is based on the best scientific and commercial information available to us concerning the species' known present and historic range, habitat, biology, and threats. We have emphasized known butterfly localities, especially areas that were identified in the FS GIS model (FS 1999b). To maintain genetic and demographic interchange that will help maintain the viability of a regional metapopulation, we included dispersal areas adjacent to or linking localities that have some or all of the above elements and are sufficient to provide for connectivity between areas of butterfly habitat. The proposed areas are essential to the conservation of the species because they either currently support localities of the butterfly, or because they currently support the necessary requirements for survival, growth, and reproduction of the butterfly (see description of primary constituent elements, below). Despite extensive surveys and ongoing research, we currently are not aware of any areas outside the geographical area occupied by the Sacramento Mountains checkerspot butterfly that provide the primary constituent elements essential to the life cycle needs of the species (see ''Primary Constituent Elements'' section) and that are essential for the conservation of the butterfly. To the extent feasible, we will continue, with the assistance of other Federal, State, and private researchers, to conduct surveys and research on the species and its habitat. If new information becomes available that indicates that other areas or habitat types within the Sacramento Mountains checkerspot butterfly's historic range are essential to the conservation of the species, we will revise the designated critical habitat for the Sacramento Mountains checkerspot butterfly accordingly. Important considerations in selection of areas proposed in this rule include factors such as connectivity, habitat diversity, and potential for restoration and repatriation. The proposed critical habitat reflects the need for localities of sufficient size to provide habitat for Sacramento Mountains checkerspot butterfly localities—large enough to be self-sustaining over time, despite fluctuations in local conditions. Many areas are or have the potential to be interconnected so that butterflies are able to move among localities, at least during certain seasons. The ability of the species to repopulate areas where they are depleted or apparently extirpated is vital to recovery. Some areas proposed as critical habitat may not have substantial amounts of presently suitable foraging or breeding habitat, but instead provide dispersal corridors important for the maintenance of the butterfly's metapopulation structure.

The areas we propose to designate as critical habitat include areas containing all known remaining localities used by the species. We believe it is important that the areas selected for proposed critical habitat designation include a representation of each locality within the range of the species. Nevertheless, uncertainty on the complete distribution limits of some known localities or currently unknown localities may result in small areas of habitat used by the butterfly being outside the designation. Further, this proposed critical habitat designation includes areas that may not currently support the butterfly every year, but are necessary for the conservation and recovery of the species. The inclusion of these types of areas in this proposed critical habitat designation for the Sacramento Mountains checkerspot butterfly are essential for the conservation of the species. The Sacramento Mountains checkerspot butterfly is in danger of extinction, and although additional localities of the butterfly have been found since 1997, their contribution to the status of the species may be offset by the magnitude and imminence of the threats facing the species. Additional localities/populations must be established to conserve and recover the Sacramento Mountains checkerspot butterfly.

If this proposed rule is finalized and the Sacramento Mountains checkerspot butterfly is added to the lists of threatened and endangered species and we develop a recovery plan for the species, areas may be identified that are suitable for reintroduction. However, until a recovery plan is completed, we believe that this proposed critical habitat designation for the Sacramento Mountains checkerspot butterfly will provide for the protection of habitat essential for the species' conservation. If information becomes available that indicates additional or fewer areas would provide for the species' conservation, we may revise the proposed critical habitat designation.

We propose the area described below as critical habitat for Sacramento Mountains checkerspot butterfly (see the Regulation Promulgation section of this rule for exact descriptions of boundaries). The proposed critical habitat designation includes the area found within an approximate 140 square km (54 square mi) polygon centered around the Village of Cloudcroft, Otero County, New Mexico, south of the Mescalero Apache Nation boundary. Mescalero Apache Nation lands are not included in the proposed

designation because it is unknown if these lands contain suitable habitat. The proposal includes those areas that currently support localities of the butterfly, as well as some that may not currently support the butterfly, but which are considered essential for reestablishment to conserve the species. Not all of the areas we are proposing to designate as critical habitat for the butterfly provide the primary constituent elements necessary for this species. For example, forested areas (i.e., canopy cover greater than 5 percent), meadows with elevation above or below 2,450 and 2,750 m (8,000 and 9,000 ft), and other areas that do not provide the habitat for the Sacramento Mountains checkerspot butterfly do not contain the primary constituent elements. Therefore, Federal actions with effects limited to the areas that do not contain the primary constituent elements would not be subject to section 7 consultation. The areas are described more precisely in the Regulation Promulgation section of this rule.

We did not map critical habitat in sufficient detail to exclude all developed areas (e.g., see features or structures defined below) and other lands unlikely to contain primary constituent elements essential for Sacramento Mountain checkerspot butterfly conservation. Within the proposed critical habitat boundaries, only lands containing some or all of the primary constituent elements (defined below) are proposed as critical habitat. Existing features and structures within proposed critical habitat, such as buildings, roads, cultivated agricultural land, residential landscaping (e.g., mowed nonnative ornamental grasses), ponds, wetlands (i.e., a lowland area that is permanently saturated with water), forests, and other features, do not contain, and are not likely to develop, some or all of the primary constituent elements. Therefore, these areas are not proposed for critical habitat.

The habitat features (primary constituent elements) that provide for the physiological, behavioral, and ecological requirements essential for the conservation of the species are described at 50 CFR 424.12, and include the following: space for individual and population growth, and for normal behavior; food, water, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species.

We determined the primary constituent elements for the butterfly from field studies and population biology including, but not limited to, Cullenward *et al.* 1979; Ferris and Holland 1980; Cary and Holland 1992; Toliver *et al.* 1994; and FS 1999a, 1999d, 2000a, 2000d. These primary constituent elements of critical habitat for the Sacramento Mountains checkerspot butterfly include those habitat components providing for breeding, ovipositing (egg laying), diapausing, roosting or resting, or foraging areas and are described below. The proposed critical habitat designation includes the area found within an approximate 140 square km (54 square mi) polygon centered around the Village of Cloudcroft, Otero County, New Mexico. The primary constituent elements are: (1) elevation between 2,450 and 2,750 m (8,000 and 9,000 ft) within the mixed-conifer forest (Lower Canadian Zone) and within an approximate 140 square km (54 square mi) polygon centered around the Village of Cloudcroft, Otero County, New Mexico, south of the Mescalero Apache Nation boundary; (2) drainages, meadows, or grasslands; (3) supporting the known food plants New Mexico penstemon (*Penstemon neomexicanus*), sneezeweed (*Helenium hoopesii*), or valerian (*Valeriana edulis*); (4) less than 5 percent canopy cover; and (5) composed of plants such as arrowleaf groundsel (*Senecia triangularis*), curly-cup gumplant (*Grindelia squarrosa*), figworts (*Scrophularia* sp.), penstemon (*Penstemon* sp.), skyrocket (*Ipomopsis aggregata*), milkweed (*Asclepias* sp.), Arizona rose (*Rosa woodsii*), or Wheeler's wallflower (*Erysimum capitatum*). Areas adjacent to or linking areas that have some or all of the above elements and are sufficient to provide for dispersal between areas of butterfly habitat are necessary for the conservation of the species and thus are proposed as critical habitat. Habitat that provides for dispersal may not support all of the other primary constituent elements.

Due to the patchiness and small size of the areas providing suitable habitat for the Sacramento Mountains checkerspot butterfly, we have elected to designate an inclusive area that still provides habitat for the species as critical habitat rather than attempt to identify each individual meadow separately. Regulations at 50 CFR 424.12(c) require that we define the specific limits of critical habitat by using reference points and lines as found on standard topographic maps of the area(s). Because of the variety of meadow sizes, the difficulties in trying to obtain precise legal descriptions on the smaller meadows, the limited number of suitable habitat patches, and for ease of reference, we did not map critical habitat in sufficient detail to exclude land that is not likely to contain all of the primary constituent elements essential for the conservation of the Sacramento Mountains checkerspot butterfly. Consequently, the areas we are designating as critical habitat also include areas of unsuitable habitat; for example, forests (i.e., areas with cover greater than 5 percent), meadows with elevation above or below 2,450 and 2,750 m (8,000 and 9,000 ft), and other areas that do not provide the habitat for the Sacramento Mountains checkerspot butterfly. Federal actions with effects limited to these other habitat types, therefore, would not trigger a section 7 consultation. Please note, however, that any activity authorized, funded, or carried out by a Federal agency that has a potential to affect the constituent elements of designated critical habitat, regardless of the activity's location in relation to designated critical habitat, will require a consultation with us, as required under the provisions of section 7 of the Act (see ''Effects of Critical Habitat Designation'' section). Prior to finalizing this rule, we will seek ways to refine our mapping in order to exclude, from within the critical habitat boundary, developed areas or other areas that do not contain the primary constituent elements and therefore, would not be considered to be critical habitat.

Land Ownership

Proposed critical habitat for the Sacramento Mountains checkerspot butterfly encompasses the localities where the species has been collected in the recent past, where it is currently known to exist, where it is reasonably likely to occur currently, or where it may occur in the future. All of the land is within the administrative boundaries of the Sacramento Ranger District of the Lincoln National Forest. However, within this area are also lands of the Village of Cloudcroft, a number of smaller unincorporated communities, and a large number of other private landowners within the jurisdiction of Otero County, New Mexico. Private lands are primarily used for grazing and agriculture, but also include small-residence lots, larger ranchettes, and businesses.

About half of the suitable habitat for the Sacramento Mountains checkerspot butterfly occurs on private land and these areas are rather evenly distributed throughout the known range of the

butterfly. Although much of these lands have not been surveyed for the butterfly, because of a lack of access to private lands, these areas are within meadows that are adjacent to and contiguous with FS meadows, some with documented butterfly locations, and are also within the same elevational range where butterflies are consistently documented. For the reasons discussed above, we believe these areas are essential to the conservation of the species. The estimated land ownership for areas within the proposed critical habitat boundaries is approximately 1,033 ha (2,553 ac) of private lands and 1,070 ha (2,645 ac) of FS lands. These estimates reflect the gross total area of proposed critical habitat and not the net acreage containing the primary constituent elements. We do not currently have sufficient data, due to limited access to private land, to estimate the actual acreage within the boundaries of proposed critical habitat. We believe that about 1 percent (5,198 out of 34,560 ac) of the area we are proposing as critical habitat may contain the primary constituent elements. Estimates made for this proposal could differ from estimates in any final designation due to changes in the information available or improved calculation methods.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing and designation of critical habitat encourages and results in public awareness and conservation actions by Federal, State, and local agencies, private organizations, and individuals. The Act provides for possible land acquisition and cooperation with the states and requires that the we carry out recovery actions for all listed species. The protection required of Federal agencies and the prohibitions against certain activities are discussed, in part, below.

Listing of this butterfly would authorize development of a recovery plan for the butterfly. Such a plan would identify both State and Federal efforts for conservation of the butterfly and establish a framework for agencies and stakeholders to coordinate activities and cooperate with each other in conservation efforts. The plan would set recovery priorities and describe site-specific management actions necessary to achieve conservation and survival of the Sacramento Mountains checkerspot butterfly.

Section 7 Consultation

Section 7(a) of the Act requires Federal agencies, including the Fish and Wildlife Service, 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 or proposed. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. The conservation recommendations in a conference report are advisory. We may adopt the formal conference report as the biological opinion when the critical habitat is designated, if no significant new information or changes in the action alter the content of the opinion (see 50 CFR 402.10(d)).

If a species is listed or critical habitat is designated, section 7(a)(2) requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Such consultation would result in a biological opinion from us as to whether the proposed action would likely jeopardize the continued existence of the species or destroy or adversely modify its critical habitat.

When we issue a biological opinion concluding that a project is likely to result in jeopardy to the species or destruction or adverse modification of its critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that we believe would avoid jeopardizing the species or the destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Activities on Federal lands that may affect the Sacramento Mountains checkerspot butterfly or its critical habitat will require section 7 consultation. Activities on private lands requiring a permit from a Federal agency, such as a permit from the FS or from us (e.g., section 10(a)(1)(B) permits) or some other Federal action, including funding (e.g., Federal Highway Administration or Department of Agriculture Title IV Wildfire Suppression, Hazardous Fuels Reduction, or Rehabilitation projects, etc) will also be subject to the section 7 consultation process. Federal actions not affecting listed species or critical habitat and actions on non-Federal lands that are not federally funded or permitted do not require section 7 consultation.

Section 4(b)(8) of the Act requires us to describe in any proposed or final regulation that designates critical habitat those activities involving a Federal action that may destroy or adversely modify such habitat or that may be affected by such designation. Activities that may destroy or adversely modify critical habitat include those that alter the primary constituent elements to the extent that the value of critical habitat for both the survival and recovery of the Sacramento Mountains checkerspot butterfly is appreciably diminished. We note that such activities may also jeopardize the continued existence of the species. Actions authorized, funded, or carried out by a Federal agency that appreciably degrade suitable habitat, deter the use of suitable habitat areas by the Sacramento Mountains checkerspot butterfly, or otherwise affect the species require consultation under section 7 of the Act. Such activities may include, but are not limited to, the following—habitat restoration activities; activities associated with timber harvesting; livestock grazing and associated management activities; recreational activities or improvements; road or power line maintenance or construction; trail maintenance; fire suppression and fuel reduction; off-road vehicle management; and sale, exchange, or lease of Federal land containing suitable habitat. Some activities, for example, timber harvesting, thinning, or prescribed burning may benefit the species by creating or maintaining non-forested openings, as well as reducing conifer seed production and establishment or encroachment of conifer seedlings. However, these types

of activities need to be carefully planned because they also have the potential for adverse effects on the Sacramento Mountains checkerspot butterfly.

Conservation of this butterfly is consistent with some ongoing activities at localities that support the species; however, listing of the species and designating critical habitat may entail consultation in regard to activities taking place on Federal lands, such as those of the FS. We believe that listing the Sacramento Mountains checkerspot butterfly and designation of critical habitat could affect Federal agency activities including, but not limited to:

(1) Sale, exchange, or lease of lands owned by the FS;

(2) Regulation of grazing, recreation, off-road vehicle management, or timber management by the FS;

(3) Funding and implementation of disaster relief projects by the Federal Emergency Management Agency, including vegetation clearing to reduce the risk of catastrophic wildfire;

(4) Funding and regulation of new road construction by the Federal Highway Administration or State highway activity implemented by the State and partly funded by the Federal government, including highway maintenance activities, such as roadside vegetation control;

(5) Funding of low-interest loans to facilitate the construction of low income housing by the Department of Housing and Urban Development;

(6) Clearing of vegetation or fuel reduction by the FS; and

(7) Issuance of section 10(a)(1)(B) permits by the Fish and Wildlife Service for Habitat Conservation Plans.

The Act and its implementing regulations found at 50 CFR 17.21, 17.22, and 17.23 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. With respect to animal species listed as endangered, all prohibitions of section 9(a)(1) of the Act, implemented by 50 CFR 17.21, apply. These prohibitions, in part, make it illegal with respect to any endangered animal for any person subject to the jurisdiction of the United States to import or export; transport in interstate or foreign commerce in the course of a commercial activity; sell or offer for sale in interstate or foreign commerce; or take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect—or attempt any of these). Certain exceptions apply to our agents and State conservation agencies.

The Act and 50 CFR 17.22 and 17.23 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered animal species under certain circumstances. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities.

Section 10(a) of the Act authorizes us to issue permits for the taking of listed species incidental to otherwise lawful activities. Incidental take permit applications must be supported by a habitat conservation plan (HCP) that identifies conservation measures that the permittee agrees to implement for the species to minimize and mitigate the impacts of the requested incidental take. Currently, no approved HCPs cover the Sacramento Mountains checkerspot butterfly or its habitat. However, we expect critical habitat may be used as a tool to help identify areas within the range of the Sacramento Mountains checkerspot butterfly that are most critical for the conservation of the species. We will encourage development of HCPs for such areas on non-Federal lands because we consider HCPs to be one of the most important methods through which non-Federal landowners can resolve endangered species conflicts. We will provide technical assistance and work closely with applicants throughout development of HCPs to help identify special management considerations for the Sacramento Mountains checkerspot butterfly. We intend for HCPs to provide a package of protection and management measures sufficient to address the conservation needs of the species.

It is our policy, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of this listing on proposed and ongoing activities within the species' range. We believe that, based on the best available information, the following actions are not likely to result in a violation of section 9, provided these actions are carried out in accordance with existing regulations and permit requirements:

(1) Possession, delivery, or movement, including interstate transport and import into or export from the United States, involving no commercial activity, of dead specimens of this taxon that were collected prior to the date of publication in the **Federal Register** of a final regulation adding this taxon to the list of endangered species;

(2) Activities authorized, funded, or carried out by Federal agencies (e.g., grazing management, non-forested area management, private or commercial development, recreational trail or forest road development or use, road construction, prescribed burns, timber harvest, pesticide/herbicide application, or pipeline or utility line construction crossing suitable habitat) when such activity is conducted in accordance with a biological opinion from us on a proposed Federal action;

(3) Low-impact, infrequent, dispersed human activities on foot or horseback (e.g., bird watching, sightseeing, backpacking, hunting, photography, camping, hiking);

(4) Activities on private lands that do not result in the take of Sacramento Mountains checkerspot butterfly, including those activities involving loss of habitat, such as normal landscape activities around your own personal residence, proper grazing management, road construction that avoids butterfly habitat, pesticide/herbicide application consistent with label restrictions; and

(5) Activities conducted under terms of a valid permit issued by us pursuant to section 10(a)(1)(A) and 10(a)(1)(B) of the Act.

We believe that the following actions involving Sacramento Mountains checkerspot butterfly could result in a violation of section 9; however, possible violations are not limited to these actions alone:

(1) Capture (i.e., netting), survey, or collection of specimens of this taxon without a permit from us pursuant to section 10(a)(1)(A) of the Act;

(2) Incidental take of Sacramento Mountains checkerspot butterfly without a permit pursuant to section 10(a)(1)(B) of the Act;

(3) Sale or purchase of specimens of this taxon, except for properly documented antique specimens of this taxon at least 100 years old, as defined by section 10(h)(1) of the Act;

(4) Use of pesticides/herbicides that are in violation of label restrictions resulting in take of Sacramento Mountains checkerspot butterfly;

(5) Unauthorized release of biological control agents that attack any life stage of this taxon;

(6) Removal or destruction of the native food plants being utilized by Sacramento Mountains checkerspot butterfly, defined as *Penstemon neomexicanus, Helenium hoopesii*, or *Valeriana edulis*, within areas that are used by this taxon that results in harm to this butterfly; and

(7) Destruction or alteration of Sacramento Mountains checkerspot butterfly habitat by grading, leveling, plowing, mowing, burning, herbicide or pesticide spraying, intensively grazing,

or otherwise disturbing non-forested openings that result in the death of or injury to eggs, larvae, or adult Sacramento Mountains checkerspot butterflies through significant impairment of the species essential breeding, foraging, sheltering, or other essential life functions.

Questions regarding whether specific activities will constitute a violation of section 9 of the Act or destruction or adverse modification of critical habitat should be directed to the Field Supervisor of the New Mexico Ecological Services Field Office (see **ADDRESSES** section).

Requests for copies of the regulations concerning listed wildlife or inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Ecological Services, Endangered Species Permits, P.O. Box 1306, Albuquerque, New Mexico 87103 (telephone 505/248–6649; facsimile 505/248–6922).

Relationship of Critical Habitat to Incidental Take Permits Issued Under Section 10

As stated earlier, there are no approved HCPs within the proposed critical habitat designation. However, future HCPs are probable. In the event that future HCPs covering the Sacramento Mountains checkerspot butterfly are developed within the proposed critical habitat, we will work with applicants to ensure the HCPs provide for protection and management of habitat areas essential for the conservation of the butterfly, while directing development and habitat modification to nonessential areas of lower habitat value. The HCP development process provides an opportunity for more intensive data collection and analysis regarding the use of particular habitat areas by the Sacramento Mountains checkerspot butterfly. The process also enables us to conduct detailed evaluations of the importance of such lands to the long-term survival of the species in the context of constructing a biologically configured system of interlinked habitat blocks. We fully expect that HCPs undertaken by local jurisdictions (e.g., Otero County or the Village of Cloudcroft) and other parties will identify, protect, and provide appropriate management for those specific lands within the boundaries of the plans that are essential for the long-term conservation of the species.

Economic Analysis

Section 4(b)(2) of the Act requires us to designate critical habitat on the basis of the best scientific and commercial data available and to consider the economic and other relevant impacts of designating a particular area as critical habitat. We may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of specifying such areas as critical habitat. We cannot exclude such areas from critical habitat when such exclusion will result in the extinction of the species. We will conduct a robust economic analysis on the effects of the proposed critical habitat designation prior to a final determination. We will conduct an analysis that complies with the ruling by the Tenth Circuit Court of Appeals in *New Mexico Cattle Growers Association, et al.* v. *U.S. Fish and Wildlife Service*. When the draft economic analysis is completed, we will announce its availability with a notice in the **Federal Register**, and we will reopen the comment period at that time to accept comments on the economic analysis or further comment on the proposed rule.

Public Comments Solicited

We intend for any final action resulting from this proposal to be as accurate and as effective as possible. Therefore, we solicit comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule. Final promulgation of the regulations on Sacramento Mountains checkerspot butterfly will take into consideration any comments and any additional information we receive during the comment period, and such communications may lead to a final regulation that differs from this proposal. We particularly seek comments concerning:

(1) The reasons why any habitat should or should not be determined to be critical habitat for the Sacramento Mountains checkerspot butterfly as provided by section 4 of the Act, including whether the benefits of designation will outweigh any threats to the species due to designation;

(2) Depending on additional status information received (e.g., new localities) and the development and implementation of conservation agreements or management plans to reduce the threats to the Sacramento Mountains checkerspot butterfly, whether the development of a special rule under section 4(d) of the Act would promote conservation of this taxon;

(3) Biological, commercial, trade, or other relevant data concerning threats (or lack thereof) to the Sacramento Mountains checkerspot butterfly;

(4) Specific information on the amount, range, and distribution of Sacramento Mountains checkerspot butterflies and their habitat, and what habitat is essential to the conservation of the species and why;

(5) The location of any additional localities of Sacramento Mountains checkerspot butterfly;

(6) Current or planned activities in the subject area and their possible impacts on this taxon;

(7) Land use practices and current or planned activities in the subject areas and their possible impacts on proposed critical habitat;

(8) Any foreseeable economic or other impacts resulting from the proposed designation of critical habitat, in particular, any impacts on unincorporated communities, small entities (e.g., businesses), or individuals; and

(9) Economic and other values associated with designating critical habitat for the Sacramento Mountains checkerspot butterfly such as those derived from non-consumptive uses (e.g., hiking, camping, bird-watching, enhanced watershed protection, improved air quality, increased soil retention, ''existence values,'' or reductions in administrative costs).

Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the rulemaking record, which we will honor to the extent allowable by law. In some circumstances, we would withhold from the rulemaking record a respondent's identity, as allowable by law. If you wish for us to withhold your name and/or address, you must state this prominently at the beginning of your comment. However, we will not consider anonymous comments. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety. All comments must be received in our New Mexico Ecological Services Field Office by November 5, 2001.

We will consider all comments and information received during the 60-day comment period on this proposed rule during preparation of a final rulemaking. Accordingly, the final decision may differ from this proposal.

Public Hearings

The Act provides for one or more public hearings on this proposal, if requested by October 22, 2001. Should

a public hearing be requested, then we will announce the date, time, and place for the hearing in the **Federal Register** and local newspapers at least 15 days prior to the hearing.

Clarity of the Rule

Executive Order 12866 requires each agency to write regulations/notices that are easy to understand. We invite your comments on how to make this notice easier to understand including answers to questions such as the following: (1) Are the requirements in the notice clearly stated? (2) Does the notice contain technical language or jargon that interferes with the clarity? (3) Does the format of the notice (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce its clarity? (4) Is the description of the notice in the **SUPPLEMENTARY INFORMATION** section of the preamble helpful in understanding the notice? What else could we do to make the notice easier to understand?

Send a copy of any comments that concern how we could make this notice easier to understand to the Field Supervisor, New Mexico Ecological Services Field Office (see **ADDRESSES** section).

Required Determinations

Regulatory Planning and Review

In accordance with Executive Order 12866, this document is a significant rule and has been reviewed by the Office of Management and Budget (OMB), under Executive Order 12866.

(a) While we will prepare an economic analysis to assist us in considering whether areas should be excluded pursuant to section 4 of the Act, we believe that this rule will not have an annual economic effect of $100 million or more or adversely affect an economic sector, productivity, jobs, the environment, or other units of government. Under the Act, critical habitat may not be destroyed or adversely modified by a Federal agency action; the Act does not impose any restrictions related to critical habitat on non-Federal persons unless they are conducting activities funded or otherwise sponsored or permitted by a Federal agency. The Act prohibits us from considering the economic impacts that may result from listing the species.

(b) This rule, if finalized, will not create inconsistencies with other agencies' actions. As discussed above, Federal agencies would be required to ensure that their actions do not destroy or adversely modify designated critical habitat of the Sacramento Mountains checkerspot butterfly. Because of the potential for impacts on other Federal agencies activities, we will review this proposed action for any inconsistencies with other Federal agency actions.

(c) We believe that this rule, if finalized, will not materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients, except those involving Federal agencies which would be required to ensure that their activities do not destroy or adversely modify designated critical habitat. As discussed above, we do not anticipate that the adverse modification prohibition (from critical habitat designation) will have any significant economic effects, but will wait until completion of the economic analysis to fully evaluate expected effects.

(d) OMB has determined that the critical habitat portion of this rule will raise novel legal or policy issues and, as a result, this rule has undergone OMB review. The listing portion of this rule will not raise novel legal or policy issues. The proposed rule follows the requirements for proposing to list a species and determining critical habitat contained in the Endangered Species Act.

Regulatory Flexibility Act

Under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996) whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities. The following discussion explains our determination.

The areas we are proposing as critical habitat are already occupied, or used by the Sacramento Mountains checkerspot butterfly as corridors for movement between populations or suitable habitat. As a result, Federal agencies funding, permitting, or implementing activities in these areas will be required to consult with us under section 7 of the Act, to avoid jeopardizing the continued existence of this species, if the species becomes listed under the Act. While the designation of critical habitat will require that agencies ensure, through section 7 consultation, that their activities do not destroy or adversely modify critical habitat, for the reasons discussed above we do not believe this will result in any additional regulatory burden on the Federal agencies or their applicants. As a result, this proposed rule, if finalized, would not result in a significant economic burden on Federal agencies or their applicants. Additionally, the majority of businesses that support the approximately 700 residents living in the Village of Cloudcroft and an additional 2,300 people living in the small communities in the mountain area, are located within the limits of the Village of Cloudcroft. These businesses support tourism and the retirement community, which are the main sources of income for the Village of Cloudcroft (Clements and Sem 1997). The Village of Cloudcroft contains existing man-made structures and other features not containing one or more of the primary constituent elements are not considered critical habitat

Therefore, we are certifying that the proposed designation of critical habitat in this rule is not expected to have a significant adverse impact on a substantial number of small entities. Thus, no regulatory flexibility analysis is necessary.

Executive Order 13211

On May 18, 2001, the President issued an Executive Order (E.O. 13211) on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. Although this rule is a significant regulatory action under Executive Order 12866, it is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 ***et seq.***):

(a) This rule will not ''significantly or uniquely'' affect small governments. A Small Government Agency Plan is not required. Small governments will be affected only to the extent that any of their actions involving Federal funding or authorization must not destroy or adversely modify the critical habitat or take the species under section 9.

(b) This rule will not produce a Federal mandate of $100 million or greater in any year (i.e., it is not a ''significant regulatory action'' under the Unfunded Mandates Reform Act).

Takings

In accordance with Executive Order 12630, the rule does not have significant takings implications. A takings implication assessment is not required. As discussed above, the designation of critical habitat affects only Federal agency actions. This critical habitat rule will not increase or decrease the restrictions on private property concerning take of the Sacramento Mountains checkerspot butterfly. We do not anticipate that property values will be affected by critical habitat designation, but will analyze the effects in our economic analysis.

Federalism

In accordance with Executive Order 13132, this rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of the Interior policy, we requested information from and coordinated development of this proposal with appropriate resource agencies in New Mexico (i.e., during the 90-day finding comment period). We will continue to coordinate any future listing decisions or designation of critical habitat for the Sacramento Mountains checkerspot butterfly with the appropriate agencies. The designation may have some benefit to these governments in that the areas essential to the conservation of the species would be clearly defined, and the primary constituent elements of the habitat necessary to the survival of the species would be specifically identified.

Civil Justice Reform

In accordance with Executive Order 12988, the Office of the Solicitor has determined that this rule would not unduly burden the judicial system and would meet the requirements of sections 3(a) and 3(b)(2) of the Order. We propose to list a species and designate critical habitat in accordance with the provisions of the Act. The rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of the Sacramento Mountains checkerspot butterfly.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq*.)

This rule does not contain any new collections of information that require approval by the Office of Management and Budget (OMB) under 44 U.S.C. 3501 *et seq*. This rule will not impose new record-keeping or reporting requirements on State or local governments, individuals, businesses, or organizations.

National Environmental Policy Act

It is our position that, outside the Tenth Circuit, we do not need to prepare environmental analyses as defined by the NEPA in connection with designating critical habitat under the Endangered Species Act of 1973, as amended. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This assertion was upheld in the courts of the Ninth Circuit (Douglas County v. Babbitt, 48 F.3d 1495 (9th Cir. Ore. 1995), cert. denied 116 S. Ct. 698 (1996). However, when the range of the species includes States within the Tenth Circuit, such as that of the Sacramento Mountains checkerspot butterfly, pursuant to the Tenth Circuit ruling in *Catron County Board of Commissioners* v. *U.S. Fish and Wildlife Service*, 75 F.3d 1429 (10th Cir. 1996), we will undertake a NEPA analysis for critical habitat designation. We will notify the public of the availability of the draft environmental assessment for this proposal.

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951), E.O. 13175, and the Department of the Interior's requirement at 512 DM 2, we understand that recognized Federal Tribes must be related to on a Government-to-Government basis. We are not aware of any Tribal lands essential for the conservation of the Sacramento Mountains checkerspot butterfly. Therefore, we are not proposing to designate critical habitat for the Sacramento Mountains checkerspot butterfly on Tribal lands. Additionally, the proposed designation does not contain any lands that we have identified as impacting Tribal trust resources

References Cited

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

Author

The primary author of this proposed rule is Eric Hein, New Mexico Ecological Services Field Office (see **ADDRESSES** section) (telephone 505/346–2525).

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

For the reasons given in the preamble, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

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

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201—4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. Amend § 17.11(h) by adding the following, in alphabetical order under ''INSECTS'', to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or theatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
INSECTS							

Species		Historic range	Vertebrate population where endangered or theatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
Butterfly, Sacramento Mountains checkerspot.	*Euphydryas anicia cloudcrofti*.	U.S.A. (NM)	NA	E	.....	17.95(i)	NA
*	*	*	*	*	*	*	

3. Amend § 17.95(i) by adding critical habitat for the Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*) in the same alphabetical order as this species occurs in § 17.11(h), to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(i) *Insects.*

* * * * *

Sacramento Mountains Checkerspot Butterfly (*Euphydryas anicia cloudcrofti*)

1. Proposed critical habitat is depicted for Otero County, New Mexico, on the maps below.

2. Within these areas, the primary constituent elements of critical habitat for the Sacramento Mountains checkerspot butterfly are: (1) Levation between 2,450 and 2,750 m (8,000 and 9,000 ft) within the mixed-conifer forest (Lower Canadian Zone) and within an approximate 140 square km (54 square mi) polygon centered around the Village of Cloudcroft, Otero County, New Mexico, south of the Mescalero Apache Nation boundary; (2) drainages, meadows, or grasslands; (3) supporting the known food plants New Mexico penstemon (*Penstemon neomexicanus*), sneezeweed (*Helenium hoopesii*), or valerian (*Valeriana edulis*); (4) less than 5 percent canopy cover; and (5) composed of plants such as arrowleaf groundsel (*Senecia triangularis*), curly-cup gumplant (*Grindelia squarrosa*), figworts (*Scrophularia* sp.), penstemon (*Penstemon* sp.), skyrocket (*Ipomopsis aggregata*), milkweed (*Asclepias* sp.), Arizona rose (*Rosa woodsii*), or Wheeler's wallflower (*Erysimum capitatum*). Areas adjacent to or linking areas that have some or all of the above elements and are sufficient to provide for dispersal between areas of butterfly habitat are necessary for the conservation of the species and thus are proposed as critical habitat. Habitat that provides for dispersal may not support all of the other primary constituent elements.

3. Existing man-made structures and other features not containing one or more of the primary constituent elements are not considered critical habitat.

Map 1: Otero County, New Mexico. From USGS 7.5′ quadrangle map Cloudcroft, New Mexico, New Mexico Principal Meridian: T.15 S., R.13 E., sects 19–35; T.15 S., R.12 E., sects 20–29, 32–36; T.16 S., R.11 E., sects 1–2, 11–14; T.16 S., R.12 E., sects 1–11, 14–18.

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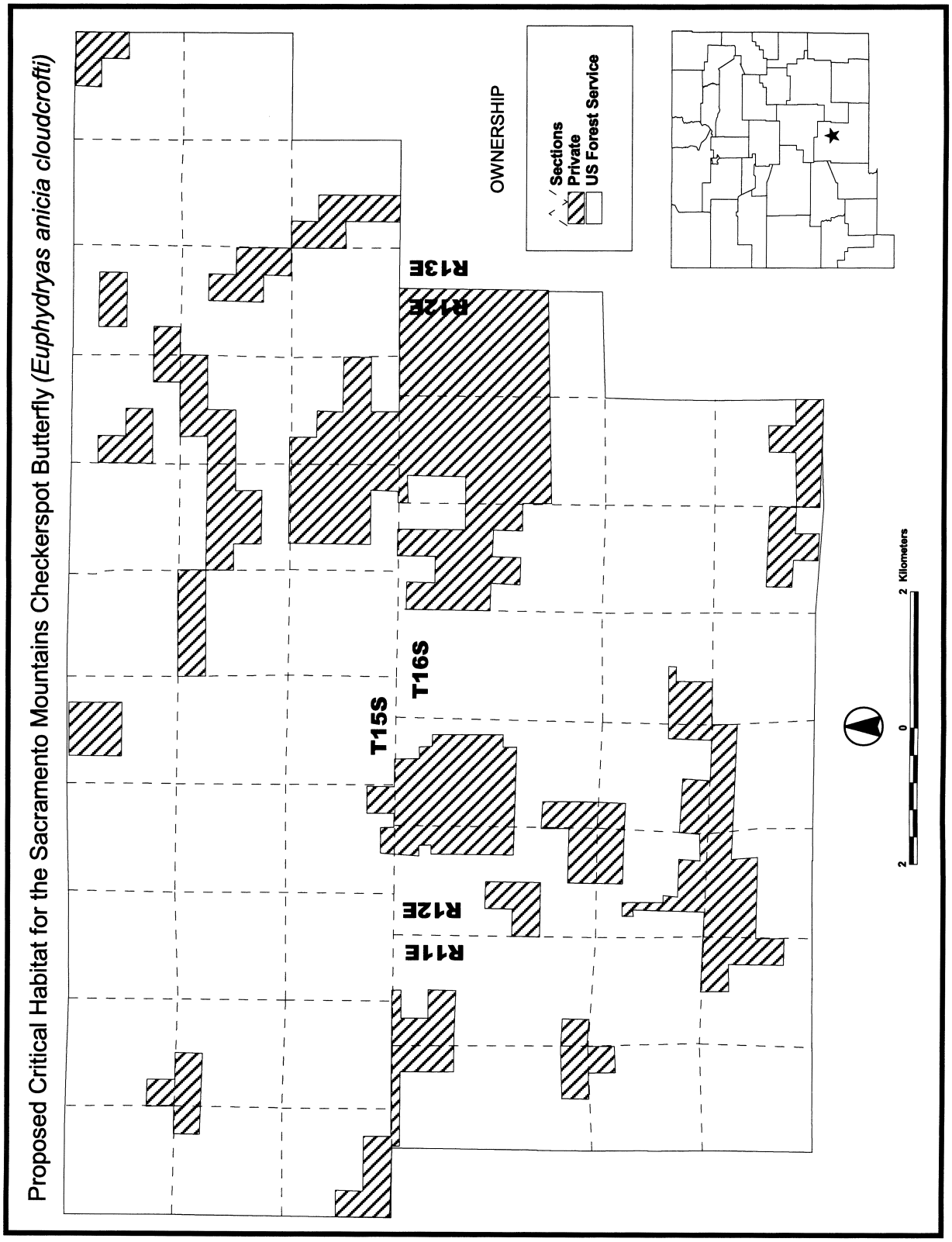

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Dated: August 30, 2001.

Marshall P. Jones, Jr.,

Acting Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 01–22340 Filed 9–5–01; 8:45 am]

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