Entry and Inspection of Facilities.
Section .46
Financial Responsibility for Petroleum UST Owners and Operators.
Section .48
Severability.

[FR Doc. 97–1763 Filed 1–23–97; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AC50

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Two Insects From the Santa Cruz Mountains of California

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) determines endangered status pursuant to the Endangered Species Act of 1973, as amended (Act), for the Mount Hermon June beetle (*Polyphylla barbata*) and Zayante band-winged grasshopper (*Trimerotropis infantilis*). These two insect species are restricted to the Zayante sand hills ecosystem endemic to inland marine sand deposits in the Santa Cruz Mountains of Santa Cruz County, California. The species are in danger of extinction principally because of ongoing and future habitat loss to sand mining and urban development. This rule implements Federal protection and recovery provisions afforded by the Act for each of these animals. The proposal to list the Santa Cruz rain beetle (*Pleocoma conjungens conjungens*) as an endangered species is being withdrawn and will appear in a separate section of this publication.

EFFECTIVE DATE: February 24, 1997.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Ventura Field Office, 2493 Portola Road, Suite B, Ventura, California 93003.

FOR FURTHER INFORMATION CONTACT: Carl Benz, Assistant Field Supervisor (see **ADDRESSES** section, telephone 805/644–1766).

SUPPLEMENTARY INFORMATION:

Background

The Mount Hermon June beetle (*Polyphylla barbata*) and Zayante band-winged grasshopper (*Trimerotropis infantilis*) are endemic to the unique Zayante sand hills ecosystem associated with isolated sandstone deposits in the Santa Cruz Mountains, Santa Cruz County, California.

The Santa Cruz Mountains are a geologically young range composed of igneous and metamorphic rocks overlaid by thick layers of sedimentary material uplifted from the ocean floor and ancient shoreline zone (Caughman and Ginsberg 1987). These Miocene marine terraces, called the Santa Margarita formation (Clark 1981; Marangio 1985), persist as pockets of sandstones and limestones geologically distinct from the volcanic origins of the Santa Cruz Mountains. Soils that formed from these sandstone deposits occur in scattered pockets covering approximately 3,400 hectares (ha) (8,400 acres (ac)), and are called the Zayante soil series (USDA Soil Conservation Service 1980). Zayante soils are endemic to Santa Cruz County and occur in three primary clusters. The largest cluster is in the vicinity of the communities of Ben Lomond, Felton, Mount Hermon, Olympia, and Scotts Valley. A second cluster is located in the Bonny Doon area. The third, and smallest, cluster is found near the community of Corralitos. Zayante soils are deep, coarse-textured, poorly developed, and well drained (USDA Soil Conservation Service 1980).

Predominant vegetation of the Santa Cruz Mountains consists of coast redwood forest (Zinke 1988) and mixed evergreen forest (Sawyer *et al.* 1988). However, the coarse, sandy, Zayante soils create a warmer and drier microclimate that supports a uniquely adapted flora distinctly different from the surrounding forest and chaparral communities (Marangio 1985; Davilla 1990). The Zayante soils in the Ben Lomond-Mount Hermon-Scotts Valley and Bonny Doon regions harbor a complex vegetation mosaic dominated by maritime coast range ponderosa pine forest and northern maritime chaparral (Griffin 1964; Holland 1986). The distributions of northern maritime chaparral and maritime coast range ponderosa pine forest overlap to form a complex and intergrading mosaic of communities variously referred to as ''ponderosa sand parkland,'' ''ponderosa pine sandhills,'' and ''silver-leafed manzanita mixed chaparral.'' These habitats will be collectively referred to as ''Zayante sand hills habitat'' or the ''Zayante sand hills ecosystem.'' The Corralitos cluster of Zayante soils is distant and does not support similar vegetation. Therefore, that cluster is not included in the Zayante sand hills ecosystem.

The occurrence of ponderosa pine (*Pinus ponderosa*) in this region represents a disjunct, remnant occurrence of the species in the Santa Cruz Mountains, reflective of the unique edaphic conditions on Zayante soils. Here, maritime coast range ponderosa pine forest occurs as open, park-like stands with low densities of ponderosa pines occasionally interspersed with knobcone pines (*Pinus attenuata*) and, at some sites, the federally endangered Santa Cruz cypress (*Cupressus abramsiana*). The presence of knobcone pines and Santa Cruz cypress, which require periodic fires for reproduction (Vogl *et al.* 1988), suggests that fire may play an important role in the maintenance of the Zayante sand hills habitat mosaic (Griffin 1964; Marangio 1985; Holland 1986).

Northern maritime chaparral on Zayante soils is dominated by the silver-leafed manzanita (*Arctostaphylos silvicola*), a candidate for Federal listing endemic to the region. It may occur as monotypic stands or be mixed with *Ceanothus* sp., *Adenostoma* sp., *Eriodictyon* sp., and other shrub species. Knobcone pine may occasionally be present (Morgan 1983; Marangio 1985; Lee 1994).

The Zayante sand hills ecosystem harbors a diversity of rare and endemic plant species and disjunct populations (Thomas 1961; Griffin 1964; Morgan 1983). In addition to the endemic silver-leafed manzanita and the disjunct population of ponderosa pine, Zayante soils support the federally endangered *Erysimum teretifolium* (Ben Lomond wallflower), *Chorizanthe pungens* var. *hartwegiana* (Ben Lomond spineflower), and *Chorizanthe robusta* var. *hartwegii* (Scotts Valley spineflower). Because of the unique flora found there, the Zayante sand hills are considered to be ''biological islands'' (Marangio 1985).

A unique habitat within the Zayante sand hills ecosystem is sand parkland characterized by sparsely vegetated, sandstone-dominated ridges and saddles that support a wide array of annual and perennial herbs and grasses. Scattered ponderosa pine trees are often present. Although overall vegetation cover is generally less than 20 percent, sand parkland supports over 90 specifically adapted plant species (Morgan 1983; Davilla 1990).

The ranges of the Mount Hermon June beetle and Zayante band-winged grasshopper are highly restricted within the Santa Cruz Mountains. The Mount Hermon June beetle is limited to the Zayante sand hills ecosystem. It is found in sand parkland and other sandy

areas within chaparral and ponderosa pine stands. The Zayante band-winged grasshopper is more narrowly distributed, known only from seven patches of sand parkland.

The Mount Hermon June beetle was first described by Cazier (1938) from Mount Hermon, Santa Cruz County, California. The adult male is a cryptic small scarab beetle with a black head, dark blackish-brown elytra (thick leathery forewings) clothed with scattered long brown hair, and a striped body. Elytral vittae (stripes) are broken, often reduced to discontinuous clumps of scales, but still form identifiable lines (Cazier 1938; Young 1988). Females are larger, with a black head, chestnut-colored clypeus (plate on lower part of face) and elytra, and golden hairs on the head, thorax, and legs (Young 1988). The single adult female described was 22 by 11 millimeters (mm) (0.87 by 0.43 inches (in.)), while the holotype male was 20 by 9.7 mm (0.79 by 0.39 in.) (Young 1988).

The Mount Hermon June beetle is 1 of 28 species of *Polyphylla* in North America north of Mexico, and 1 of 15 species of the *diffracta* complex within the genus *Polyphylla* (Young 1988). The status of *P. barbata* as a full species was supported by Cazier (1940) and again by Young (1988), who recently made several nomenclatural adjustments to the genus *Polyphylla* but retained *P. barbata*. Three other wide-ranging species of *Polyphylla* occur in the Ben Lomond-Mount Hermon-Scotts Valley area—*P. crinita*, *P. nigra*, and *P. decemlineata*. The Mount Hermon June beetle is distinguished from other species of *Polyphylla* by the presence of relatively dense, long, erect hairs scattered randomly over the elytra and short erect hairs on the pygidium (abdominal segment) (Young 1988).

Like other *Polyphylla* species, the Mount Hermon June beetle is believed to require about 2 to 3 years to mature from an egg through the adult form. However, the rate of growth of laboratory-reared larvae suggests that the Mount Hermon June beetle may complete its life cycle within 1 year (W. Hazeltine, *in litt.* 1994). Most of the life cycle is spent in larval stages. The larvae are subterranean and feed on plant roots. While *Polyphylla* larvae are generally considered to be grass and pine root feeders (F. Andrews, California Department of Food and Agriculture, pers. comm. 1993; A. Evans, Los Angeles Museum of Natural History, pers. comm. 1993), the Mount Hermon June beetle also may feed on the roots of monkeyflower, oak, fern, and other plants found in the Zayante sand hills ecosystem (W. Hazeltine, *in litt.* 1993).

During summer, Mount Hermon June beetles emerge as imagos (adult forms) to reproduce. Males are strong fliers, emerging from their burrows to fly low to the ground in search of females (W. Hazeltine, *in litt.* 1994). Females are thought to be fossorial, remaining just below the surface in burrows. Females may not fly due to their large body size (A. Evans, pers. comm. 1993; A. Hardy, California Department of Food and Agriculture, pers. comm. 1993). Like other *Polyphylla* species, males are believed to locate females by tracking female pheromone signals (Fowler and Whitford 1981; Hazeltine 1993); such a mechanism would ensure reproductive success within the limited time period for mating (Lilly and Shorthouse 1971). The flight season generally extends from mid-June to late July. The flight time of males appears restricted to evening, being observed only between 8:45 and 9:30 pm; flights may occur later during the latter part of the flight season (Hazeltine 1993).

The small mouthparts and limited flight period of Mount Hermon June beetles suggest that adults of this species do not feed (W. Hazeltine, *in litt.* 1993). Adults of the related *Polyphylla decemlineata* are known to feed on the leaves of trees (Johnson 1954). At the end of the flight period each evening, males burrow back into the soil, emerging repeatedly on subsequent evenings to search for mates until their nutrient reserves expire (Hazeltine 1993). Females are believed to lay eggs at the bottom of their burrows and die a short time later. The life cycle continues as newly hatched larvae tunnel from the burrow in search of roots.

Habitat of the Mount Hermon June beetle is described as ponderosa pine-chaparral habitat with sandy soil and open, sparsely vegetated areas (Hazeltine 1993; W. Hazeltine, pers. comm. 1994; J. Hoekstra, U.S. Fish and Wildlife Service, pers. obs. 1994). Mount Hermon June beetles also may occur in more vegetated areas of chaparral (D. Russell, Miami University, Ohio, pers. comm. 1994). Common vegetation found in these open areas includes bracken fern (*Pteridium aquilinum*), monkeyflower (*Diplacus* sp.; *Mimulus* sp.), grasses, and small annual forbs (J. Hoekstra, pers. obs. 1994). While not always present, silver-leafed manzanita seems to be a good indicator of suitable habitat (Hazeltine 1993; J. Hoekstra, pers. obs. 1994) All of these descriptions are consistent with those of Zayante sand hills habitat.

Most *Polyphylla* species have narrow distributions. Of 28 North American species, 20 have restricted ranges; 15 of these are endemic to isolated sand deposits (Young 1988). The restricted distributions of these species are likely due to various factors including substrate and food preferences, edaphic tolerances, and the low mobility of fossorial larvae and females. Most *Polyphylla* species seem to prefer sand and grass or sand, grass, and conifer associations similar to those found in the Zayante sand hills ecosystem (Borror *et al.* 1976; Young 1988; A. Hardy, pers. comm. 1993).

The range of the Mount Hermon June beetle is restricted to the Zayante sand hills habitat of the Ben Lomond-Mount Hermon-Scotts Valley area. Historically, specimens were known only from ''sandhills'' at the type locality of Mount Hermon in Santa Cruz County, California (Cazier 1938, 1940; Young 1988). A single historic specimen collected in 1968 and labeled only ''Santa Cruz'' has been reported (S. McCabe, California Native Plant Society, *in litt.* 1991). This specimen was not helpful in the Service's range analysis because of its non-specific location label.

Between 1989 and 1994, Mount Hermon June beetles were collected at 28 of 43 sites surveyed. Records include results of a regional survey and incidental collections (S. McCabe 1991; Hazeltine 1993; W. Hazeltine, pers. comm. 1994; D. Russell, pers. comm. 1994). Twenty six of the 28 collection locations were on mapped Zayante soils in the primary cluster of the Ben Lomond-Mount Hermon-Scotts Valley area. The other two collection records were within the same area, in proximity to mapped Zayante soils (Hoekstra 1994). All sites were similarly characterized by sparsely vegetated sandy substrate with silver-leafed manzanita or ponderosa pine (Hazeltine 1993; J. Hoekstra, pers. obs. 1994). Mount Hermon June beetles were not found in surveys of suitable Zayante sand hills habitat outside the Ben Lomond-Mount Hermon-Scotts Valley area; nor were they found at locations with habitat not characteristic of the Zayante sand hills ecosystem (Hoekstra 1994).

Over 40 percent of Zayante sand hills habitat is estimated to have been lost to, or altered by, human activities including—sand mining, urban development, recreational activities, and agriculture. Historically, Zayante sand hills habitat was estimated to have covered 2533 ha (6265 ac) (Lee 1994). Currently, 1459 ha (3608 ac) remain in a natural state (Lee 1994). Portions of

the Zayante sand hills ecosystem are protected under public ownership in only three locations—the Quail Hollow Ranch, owned by the County of Santa Cruz; Bonny Doon Ecological Preserve, managed by the California Department of Fish and Game; and Henry Cowell Redwoods State Park (Marangio 1985; Lee 1994). However, the Mount Hermon June beetle is not known to occur in either the Bonny Doon Ecological Preserve or Henry Cowell Redwoods State Park. The majority of Zayante sand hills habitat is on privately owned properties and is susceptible to continued sand mining and urban development. No Federal land is located in the region.

The Zayante band-winged grasshopper was first described from a sand parkland area near Mount Hermon in the Santa Cruz Mountains, Santa Cruz County, California (Rentz and Weissman 1984). The body and forewings are pale gray to light brown with dark crossbands on the forewings. The basal area of the hindwings is pale yellow with a faint thin band. The hind tibiae (lower legs) are blue-gray and the eye is banded. It is one of the smallest species in the genus. Males range in length from 13.7 to 17.2 mm (0.54 to 0.68 in.); females are larger, ranging in length from 19.7 to 21.6 mm (0.78 to 0.85 in.) (Otte 1984; Rentz and Weissman 1984).

The Zayante band-winged grasshopper is 1 of 56 species in the genus *Trimerotropis* (Rentz and Weissman 1984). This species is similar in appearance to *Trimerotropis occulans* and *Trimerotropis koebelei*; neither of these species is known from the Zayante sand hills region (Otte 1984; Rentz and Weissman 1984). *Trimerotropis thalassica* and *Trimerotropis pallidipennis pallidipennis* have been caught nearby but are not considered sympatric (Rentz and Weissman 1984).

The flight season of the Zayante band-winged grasshopper extends from late May through August with peak activity during July and August (White 1993; R. Morgan, *in litt.* 1994). Specimens have been collected as late as November 1 (White 1993). When flushed, individuals generally fly 1 to 2 meters (m) (3 to 7 feet (ft)), stridulating (producing a buzzing sound) in flight (Rentz and Weissman 1984). Band-winged grasshoppers often alight on bare ground, and are conspicuous in flight because of the color of the hind wings and the crackling sound made by the wings (Borror *et al.* 1976). No additional information on the life cycle of this species is available.

Habitat of the Zayante band-winged grasshopper was originally described as ''sandy substrate sparsely covered with *Lotus* and grasses at the base of pines'' (Rentz and Weissman 1984). Subsequent reports describe habitat as open sandy areas with sparse, low annual and perennial herbs on high ridges with sparse ponderosa pine. Such descriptions are consistent with those of sand parkland. Surveys also report that the Zayante band-winged grasshopper co-occurs with *Erysimum teretifolium* (Ben Lomond wallflower), a federally endangered plant (White 1993; R. Morgan, *in litt.* 1994). The significance of such an association is unknown.

The Zayante band-winged grasshopper is narrowly restricted to sand parkland habitat found on ridges and hills within the Zayante sand hills ecosystem. The species was described from specimens collected in 1977 on sparsely vegetated sandy soil above the Olympia sand quarry. Other historic specimens were labeled only ''Santa Cruz Mts., no date''; ''Alma, 1928''; ''Felton, 1959''; and ''Santa Cruz, 1941'' (Rentz and Weissman 1984). Because no specific location or habitat descriptions accompanied the historic specimens, they were not considered in the assessment of current range and status of the species. The ''Alma 1928'' record may suggest distributional outliers, but no subsequent collections have been recorded to substantiate the current existence of such a population. Furthermore, the town of Alma currently is inundated by a reservoir, and the cited specimens cannot be located in the listed depository for verification (W. Hazeltine, *in litt.* 1994; D. Weissman, California Academy of Sciences, pers. comm. 1994).

Between 1989 and 1994, Zayante band-winged grasshoppers were found at 10 of 39 sites sampled during two independent regional surveys (White 1993; R. Morgan, *in litt.* 1994). All 10 collection locations were on Zayante series soils (Hoekstra 1994). The habitat at these sites was consistently described as a sparsely vegetated sandy substrate or sand parkland (White 1993; R. Morgan, *in litt.* 1994). The association and restriction of the Zayante band-winged grasshopper to sand parkland was further corroborated by an overlay of collection locations on maps delineating sand parkland habitat (Marangio 1985; R. Morgan, *in litt.* 1994; Lee 1994). All 10 collection locations fell within 7 discrete areas of sand parkland habitat (Hoekstra 1994).

Over 60 percent of sand parkland is estimated to have been lost to, or altered by, human activities including sand mining, urban development, recreation, and agriculture (Marangio and Morgan 1987; R. Morgan, pers. comm. 1992; Lee 1994). Approximately 200 to 240 ha (500 to 600 ac) of sand parkland existed historically (Marangio and Morgan 1987). By 1986, only 100 ha (250 ac) of sand parkland remained intact (Marangio and Morgan 1987). By 1992, sand parkland was reportedly reduced to only 40 ha (100 ac) (R. Morgan, pers. comm. 1992). A more recent assessment revised that estimate up to 78 ha (193 ac) because of identification and inclusion of additional lower quality sand parkland (Lee 1994). Evaluation of sand parkland quality was based upon vegetation structure and species composition. Only 20 ha (49 ac) of sand parkland habitat are publicly owned—1.2 ha (3 ac) of high quality and 2.4 ha (6 ac) low quality habitat are protected within the Quail Hollow Ranch, owned by the County of Santa Cruz; 8 ha (20 ac) of low quality sand parkland are protected in the Bonny Doon Ecological Preserve, managed by the California Department of Fish and Game (Lee 1994); and approximately 8 ha (20 ac) of low quality habitat occur in Henry Cowell Redwoods State Park (S. Steinmetz, Henry Cowell Redwoods State Park, pers. comm. 1993). The Zayante band-winged grasshopper does not occur in the Bonny Doon Ecological Preserve or Henry Cowell Redwoods State Park. The remaining 58 ha (143 ac) of sand parkland are privately owned and at risk of loss to sand mining and urban development (D. Hillyard, California Department of Fish and Game, pers. comm. 1993; Lee 1994).

Previous Federal Action

The Service included the Mount Hermon June beetle as a category 2 candidate species in the January 6, 1989 (54 FR 554) and November 21, 1991 (56 FR 58804) Animal Notices of Review. Category 2 species were those for which information in the Service's possession indicated that listing was possibly appropriate, but for which substantive data on biological vulnerability and threats were not available to support proposed rules.

On February 11, 1991, the Service was petitioned by Mr. Stephen McCabe, California Native Plant Society, to emergency list the Mount Hermon June beetle as an endangered species. The Service made a 90-day finding on June 10, 1991, that although an emergency situation did not exist, substantial information had been presented indicating that listing may be warranted, and announced this decision in the August 19, 1992, **Federal Register** (57 FR 37513). The Service initiated a status review of the Mount Hermon June beetle at that time.

The Service was petitioned on July 16, 1992, by Dr. David Weissman, California Academy of Sciences, to list the Zayante band-winged grasshopper as an endangered species. No separate 90-day finding was published for this species; final finding for the petitioned action was contained in a proposed rule, which included listing the Zayante band-winged grasshopper as endangered (59 FR 24112).

The Service learned of the status of, and threats to, the Santa Cruz rain beetle (*Pleocoma conjungens conjungens*) during status reviews of the Mount Hermon June beetle and Zayante band-winged grasshopper. During the status reviews of the three taxa, the Service examined the available literature and data on life history, ecology, locality records, and species' ranges. Sources of status and threat information for the Mount Hermon June beetle, Zayante band-winged grasshopper, and Santa Cruz rain beetle included reports and plans supplied by proponents of the listing and reviewing agencies' plans for development projects within the range of these three species, and reviewing published and unpublished data from scientists with expertise on these taxa and their habitat needs.

On May 10, 1994, the Service published a proposed rule in the **Federal Register** (59 FR 24112) to list the three insects as endangered. The proposed rule constituted the final finding for the petitioned actions for the Mount Hermon June beetle and Zayante band-winged grasshopper, in accordance with section 4(b)(3)(B)(ii) of the Act. The proposed rule opened a public comment period through July 11, 1994, to allow submission of new and additional information on the species and written comments from the public. A public hearing was requested by Dr. William Hazeltine of Oroville, California on May 30, 1994. A Notice of Public Hearing and Extension of Public Comment Period was published on June 29, 1994 (59 FR 33484). This notice extended the public comment period through August 1, 1994. The public hearing was held on July 18, 1994, in Santa Cruz, California and allowed presentation of both oral testimony and written comments. A notice reopening the public comment period through October 31, 1994, was published on September 1, 1994 (59 FR 45254). The comment period was reopened to allow submission of additional comments and information concerning the proposed rule.

Based upon information received during the cited public comment periods, the proposed listing of the Santa Cruz rain beetle has been withdrawn by the Service. A notice withdrawing the proposal is published in the **Federal Register** concurrently with this final rule.

Summary of Comments and Recommendations

In the May 10, 1994, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate Federal and State agencies, County and local governments, scientific organizations, and other interested parties were contacted and requested to comment. The initial 60-day comment period was extended through August 1, 1994 (59 FR 33484), and reopened from September 1, 1994, through October 31, 1994, to allow submission of additional comments (59 FR 45254). Newspaper notices were published in the Santa Cruz Sentinel on September 22, 1994, and in the San Jose Mercury News on September 30, 1994, inviting general public comment.

The Service received a written request from Dr. William Hazeltine of Oroville, California for a public hearing. The public hearing was held on July 18, 1994, at the Santa Cruz County Government Building in Santa Cruz, California. Each speaker was provided 5 minutes to present oral testimony concerning the proposed rule; written comments also were accepted at the public hearing. Approximately 40 individuals attended the public hearing; 17 presented statements.

Seventy three comments, including those of 1 Federal agency, 1 State agency, 3 local government officials, and 50 private groups and individuals, were received during the comment periods and public hearing. Several people submitted more than one comment to the Service. Forty one comments supported, 27 expressed concerns, and 5 were neutral on the proposed action. Several comments contained significant data and information concerning the biology, ecology, range, and distribution of the subject species. This information was evaluated and incorporated into the final determination as appropriate.

Written comments and oral statements presented at the public hearing and received during the comment periods are addressed in the following summary. Written and oral comments were given full and equal consideration. Comments of a similar nature or point are grouped into a number of general issues. These issues and the Service's response to each are discussed below.

Issue 1: Numerous respondents concluded that listing the three insect species would have adverse economic and social effects. Several commenters felt that residential and commercial development would be stopped or hindered. Other commenters were concerned about effects to local mining and railroad businesses. Three commenters requested that the Service consider and analyze possible socioeconomic impacts. A representative of the Department of the Interior Bureau of Mines (Bureau) offered the Bureau's assistance with such analysis. Another commenter concluded that the Service failed to include Regulatory Flexibility Act analysis. Some commenters stated that the listing would turn public opinion against preservation of endangered species, and discredit conservation organizations, the Act, and other environmental organizations. Several commenters charged that the Act was being subverted by proponents of the listing and the Service for political purposes, including habitat protection, land use control, and development restriction. On the other hand, several respondents asserted that the economic effects of the listing were being exaggerated by opponents. They argued that individual property and homeowners would not be significantly affected since most of the known occurrences were on a small number of large properties. Proponents also cited the uniqueness of the ecosystem and its flora and fauna as a reason to list the species.

Service Response: These comments address a diversity of economic, social, and political issues. However, section 4(b)(1)(A) of the Act requires that a listing determination be based solely on the best scientific and commercial data available. The legislative history of this provision clearly states the intent of Congress to ''ensure'' that listing decisions are ''based solely on biological criteria and to prevent non-biological criteria from effecting such decisions'' (H.R. Rep. No. 97–835, 97th Cong. 2d Sess. 19 (1982)). As further stated in the legislative history, ''economic considerations have no relevance to determinations regarding the status of species.'' Because the Service is specifically precluded from considering economic impacts in a final determination on a proposed listing, possible economic consequences of listing the insects were not considered.

Issue 2: One commenter concluded that listing the Mount Hermon June beetle and Zayante band-winged grasshopper would usurp local land use planning authorities.

Service Response: The Act does not empower the Service or any other Federal agency with land use planning authorities. Therefore, local planning responsibilities would remain intact.

Issue 3: One commenter concluded that land owners would be required to prove a species not to be endangered as a condition of take permits.

Service Response: Section 10 of the Act describes procedures for permitting exemption from take prohibitions. Such permission may only be granted if the activity does not preclude the continued existence and eventual recovery of the listed species. Permit applicants are not required to demonstrate species' lack of endangerment.

Issue 4: Three commenters concluded that prohibitions against ''take'' of listed species, as defined in the Act, would violate constitutional prohibitions against take of private property without compensation. Two commenters requested that the Service conduct a takings implication analysis.

Service Response: If an action would not harass, harm, kill, or otherwise ''take'' a listed species, the prohibitions described in section 9 of the Act are not applicable. If an action would take a listed species, procedures for permitting exemptions from the Act's take prohibitions are established in section 10. The Attorney General of the U.S. has issued guidelines to the Department of the Interior (Department) regarding Taking Implications Assessments (TIAs). The Attorney General's guidelines state that TIAs used to analyze the potential for Fifth Amendment taking claims are to be prepared after, rather than before, an agency makes a restricted discretionary decision. In enacting the Act, Congress required the Department to list a species based solely upon scientific and commercial data indicating whether or not the species is in danger of extinction. The Service may not withhold a listing based upon economic concerns. Therefore, even though a TIA may be required, a TIA for a listing action is finalized only after the final determination whether to list a species is made.

Issue 5: One commenter concluded that recovery plans require coerced mitigation.

Service Response: Although recovery plans identify objectives, strategies, and specific actions necessary for the recovery of a species, the plans are guidance documents. Implementation of recovery plans is not mandatory under law.

Issue 6: Two commenters concluded that the Act was not intended for insects and that the species did not qualify under the definitions of the Act.

Service Response: The definition of ''fish and wildlife'' in the Act includes ''any member of the animal kingdom, including without limitation any mammal, fish, bird * * *, amphibian, reptile, mollusk, crustacean, arthropod or other invertebrate.'' The Phylum Arthropoda (arthropods) includes insects. Because the Mount Hermon June beetle and Zayante band-winged grasshopper are recognized as distinct species, both taxa qualify for listing consideration under the Act.

Issue 7: One commenter questioned the Service's ability to protect endangered species. Two commenters did not believe that funds would be available to monitor the species, enforce the Act, or develop a recovery plan for insect species.

Service Response: Measures by which the Service can protect endangered species are described in the Available Conservation Measures section of this document.

Issue 8: One commenter asserted that the use of consultation under section 7 of the Act was equivalent to *ad hoc* administration for listed species, and that it avoided National Environmental Policy Act (NEPA) review and taking issues.

Service Response: Consultation processes defined in section 7 of the Act provide for coordination between the Service and other Federal agencies to ensure that Federal actions do not jeopardize the continued existence of listed species. Recovery plan guidance helps ensure that proposed actions are consistent with and support the recovery goals and objectives for listed species. The consultation process in no way exempts Federal agencies from compliance with NEPA or consideration of taking issues if required for a proposed action.

Issue 9: A number of respondents urged the Service to base any listing decisions on sound science using expert data and opinions. Another concluded that the data and analyses used in the proposed rule did not meet scientific standards of review. Several commenters requested that the data undergo peer review to evaluate additional information and to reconcile an expert's disagreement with the Service's proposed rule. Two commenters requested that the Service delay a final determination to allow for adequate evaluation and review of data.

Service Response: To ensure that listing decisions are based on sound scientific data, principles, and analyses, and in accordance with Service policies, expert opinions of independent and appropriate specialists were solicited regarding pertinent data and assumptions used to make this final determination. All available data and assumptions concerning the biology and distribution of the species were provided to the reviewers. Their comments are summarized in the ''Peer Review'' section of this rule and have been incorporated as appropriate. As required by the listing regulations promulgated in 50 CFR part 424, the Service has evaluated the available information and presented the data and assumptions for independent scientific review.

Issue 10: Several respondents were concerned with the credibility of available data. Individual collectors were criticized by various commenters for lacking expertise or verifiable records. These collectors defended their credibility by citing professional qualifications and acceptance of data within the scientific community. Other commenters disputed the value of published versus unpublished data and documents.

Service Response: In making a listing determination, the Service is obligated to use the best available information. The quality and reliability of data used were evaluated against the following criteria—demonstrated experience or credentials of collectors, consistency with acceptable methodologies, and verifiability of data. If the quality or reliability of particular data was deemed to be inadequate, an appropriate explanation is provided. Similar standards were maintained for evaluation of published and unpublished material.

Issue 11: Three commenters cited unpublished reports that contained substantial information on the biology and range of the Mount Hermon June beetle and Santa Cruz rain beetle not included in the proposed rule. One commenter concluded that the Service ignored the reports and comments because the data refuted the proposed rule.

Service Response: Pertinent information contained in these reports has been incorporated into this final determination.

Issue 12: Several commenters felt that the proposed listing was based on erroneous assumptions and lack of collection. Two commenters contended that failure to collect specimens did not indicate absence of the species. Three commenters recommended that more thorough studies be conducted prior to a final determination.

Service Response: In preparing this final determination, the Service had available substantial collection data for

the two species, including data from the petition to list the Mount Hermon June beetle, incidental collection records of this species, and the results of a 1993 regional survey. In addition, the Service reviewed the results of two independent regional surveys for the Zayante band-winged grasshopper. These data were sufficient to determine the range and to evaluate the threats to the species. Peer reviewers concurred that assumptions were reasonable and appropriate.

Issue 13: Numerous commenters concluded that the proposed listing of the Mount Hermon June beetle was not supported by data and conclusions contained in survey reports and comments submitted by Dr. William Hazeltine, who studied the beetle from 1946 to 1952 and again from 1992 to 1994. These commenters, including Dr. Hazeltine, cited collections of Mount Hermon June beetles across a larger geographic range and in different habitat than the Zayante soils and sand parkland described in the proposed rule.

Service Response: The data contained in Dr. Hazeltine's 1993 survey report significantly expanded the known range of the Mount Hermon June beetle with 26 collection records reported from Ben Lomond to Scotts Valley. Hazeltine's data also showed the beetle to occur in chaparral habitats as well as sand parkland. However, Service analysis showed that the distribution of successful collection sites corresponded with the distribution of Zayante soils on which Zayante sand hills habitats are found. In addition, habitat on successful collection sites was described as sparsely vegetated sandy areas among chaparral and ponderosa pine. Service personnel visited the collection sites with Dr. Hazeltine and verified the habitats were consistent with descriptions of Zayante sand hills habitat. Thus, the Service concluded that the Mount Hermon June beetle is limited to Zayante sand hills habitat in the Ben Lomond-Mount Hermon-Scotts Valley area. Although this range is indeed larger than previously described and extends beyond sand parkland, the Mount Hermon June beetle remains endangered throughout all or a significant portion of its range to the extent that listing is appropriate.

Issue 14: Several commenters concluded that the proposal to list the Mount Hermon June beetle and Zayante band-winged grasshopper as endangered species lacked scientific evidence and was not supported by entomological information.

Service Response: All available data and information concerning the biology and status of these species was reviewed and evaluated by a Service entomologist, as well as independent peer reviewers. This material was considered to be sufficient for making a final determination on the proposed rule. The assumptions, data, analyses, and evidence used are presented throughout this document.

Issue 15: Several commenters criticized the proposed rule's dismissal of outlying specimens as scientifically irresponsible. Particularly cited were two Zayante band-winged grasshopper specimens reported from Alma which, according to the commenters, demonstrated the Zayante band-winged grasshopper had a much larger range and occupied additional habitats not acknowledged in the proposed rule. One commenter further asserted the Alma grasshopper specimens were collected by a reputable collector such that the label should be considered accurate. The same commenter noted a 1968 Mount Hermon June beetle specimen from ''Santa Cruz'' was dismissed in the proposed rule, and cited the existence of appropriate habitat in a location considered to be Santa Cruz.

Service Response: The Alma grasshopper specimens were collected in 1928 from an unknown specific location or habitat. Although the collector was reputable, the reliability of this record is questioned for the following reasons—the location label is non-specific and unverifiable such that the specimens may have been collected anywhere within several miles of Alma including the Ben Lomond-Mount Hermon-Scotts Valley area; collection attempts have not verified the existence of Zayante band-winged grasshoppers in areas of this region other than the Ben Lomond-Mount Hermon-Scotts Valley area; the specimens cannot be located in the listed depository for verification. The town of Alma is presently inundated by a reservoir; and the species has been found exclusively in sand parkland habitat. These specimens were used in the Service's analysis of the species' current range and after surveying all remaining sites that may have been potential habitat for this specimen in the ''Alma area,'' the Service concludes that no evidence exists that confirms the species may occur in this region other than currently known location records.

The Mount Hermon June beetle specimen was not helpful in the range analysis because of a nonspecific location label. The Service agrees that suitable Zayante sand hills habitat occurs within areas considered to be ''Santa Cruz,'' as stated on the specimen's label rendering it of little use in determining other areas to be included in the extensive surveys.

Issue 16: Many commenters felt population sizes and trends were an important consideration in evaluating the status of a species, and the proposed rule failed to demonstrate any historic population decline or loss. One commenter claimed current abundances of Mount Hermon June beetle were comparable to those observed 45 years ago, thus, refuting the proposal to list the species as endangered. Another argued the Service was trying to list a habitat since an assessment of population trends did not exist.

Service Response: The only available information on historic population levels is the number of specimens preserved in collections and the reports of Dr. William Hazeltine. Dr. Hazeltine reported 20 to 30 males per night could be collected near his house in Mount Hermon in the years 1946 through 1952. At that same site in 1993, only eight males were captured at light traps. While this might suggest a decline in numbers, historic population trends are not one of the five factors to be considered in determining whether a species is endangered or threatened. Population trends of insect species are not useful for determining endangered status because their abundances can fluctuate substantially from year to year. Furthermore, some insect species, like the Mount Hermon June beetle and Zayante band-winged grasshopper, may be very abundant in localized populations, yet susceptible to extirpation by a single action or event. Therefore, threats must be evaluated irrespective of population estimates.

Issue 17: A number of commenters concluded that the proposed rule did not provide evidence that habitat loss threatened the Mount Hermon June beetle and Zayante band-winged grasshopper. Two commenters cited the collection of Mount Hermon June beetles near houses. Other commenters concluded that the effects of pesticides and vegetation changes were not sufficiently evidenced. One commenter suggested that vegetation changes would not affect the Mount Hermon June beetle because larvae have been observed to feed on a variety of roots.

Service Response: The effects of habitat loss and alteration are well documented and recognized as the principal factor in declines of insect species as well as most other taxa (See Pyle 1981 for relevant bibliographic references). Insects are particularly vulnerable because of their high degree of evolutionary specialization and subsequent dependence on specific edaphic conditions, microclimate,

vegetation, and cohabitants of particular habitats. Indirect evidence of the effects of habitat loss on the Mount Hermon June beetle and Zayante band-winged grasshopper is seen in the failure to collect specimens within mined areas, even when both species were observed on adjacent undisturbed habitat at the same time. Documented links between habitat loss and alteration, and the decline or extinction of other species provide additional evidence of the significance of this threat. The collection of Mount Hermon June beetles near houses does not refute the negative effects of habitat loss because the beetles may simply have been attracted to lights from nearby suitable habitat, or may occur in remnant patches of undisturbed soil and vegetation. Populations that do persist among developments remain at risk of naturally occurring extinction because of potentially low numbers and isolation from other populations.

The effects of pesticides on insects and other taxa are similarly recognized and documented. While most pesticide application may not penetrate the soil and affect fossorial Mount Hermon June beetle larvae and females, the Zayante band-winged grasshopper is susceptible to pesticide effects. The current significance of these effects is not known.

The impact of vegetation changes also is unknown at this time. Some related species are known to feed on the roots of exotic plant species and orchard trees. However, no evidence establishes whether Mount Hermon June beetle larvae will feed on plants not naturally found in Zayante sand hills ecosystem. Therefore, the Service recognizes vegetation change as a potential threat of unknown significance. Habitat loss remains the primary threat to the Mount Hermon June beetle and Zayante band-winged grasshopper.

Issue 18: One commenter stated that the limited distribution of a species was not sufficient evidence for making a determination to list a species.

Service Response: The determination to list a species as endangered is based upon the evaluation of the current and future threats to the species from the five factors listed in section 4(a) of the Act. The range of a species is only considered when determining whether the species is threatened throughout all or a significant portion of its range. Species with limited distributions are more susceptible to extirpation because a given threat would affect a greater proportion of the species' range.

Issue 19: Two commenters challenged estimates that sand parkland habitat is limited to about 40.5 ha (100 ac) and requested that the sand parkland habitat be mapped. Another requested that historic habitat loss be documented in maps.

Service Response: A description of sand parkland habitat is provided in the Background section of this rule. The 40 ha (100 ac) estimates of sand parkland were made during studies delineating the habitat in the mid-1980s. A more recent study completed in 1994 revised the estimate upward to 78 ha (193 ac) of sand parkland (Lee 1994). The Service used the more recent data in this final determination. Maps showing the distribution and extent of existing sand parkland habitat are included in a report entitled ''Preservation study: sand hills biotic communities of Santa Cruz County, California'' (Marangio 1985) and in a forthcoming report from the California Department of Fish and Game (Lee 1994). Production of maps documenting historic habitat loss would be speculative since no records were kept. Furthermore, such documentation is unnecessary for the listing determination since the listing factors address only current and projected status and threats. Discussions and estimates of historic habitat losses are intended only to provide a historical context to the Zayante sand hills ecosystem.

Issue 20: One commenter concluded that the generic name *Polyphylla* was invalid for the Mount Hermon June beetle because *Polyphylla* did not conform to the International Rules of Zoological Nomenclature.

Service Response: Based upon consistent use in historic and recent taxonomic literature (Cazier 1938, 1940; Young 1967, 1988), *Polyphylla* is considered a valid genus. In addition, throughout this literature, the rank of *Polyphylla barbata* as a species has been retained such that a change in the generic label would represent only a nomenclatural shift.

Issue 21: One commenter suggested that revegetation of sandy areas coupled with reintroduction of female Mount Hermon June beetles could remediate any population losses, thus eliminating the need to list the species. The commenter also concluded that listing of the Zayante band-winged grasshopper could be precluded by revegetation of areas which individuals could colonize. Contrary opinions noted that no restoration efforts of sand parkland have been successful and at least one large revegetation effort at a quarry has been abandoned.

Service Response: The Service supports the development and implementation of habitat restoration efforts. However, no successful demonstrations of restoration of Zayante sand hills habitat are known. The Service has received depositions from experts stating that the technical feasibility of such restoration is uncertain. Therefore, continued existence of the Mount Hermon June beetle and Zayante band-winged grasshopper cannot be assured through these attempts.

Issue 22: One commenter concluded that collectors did not threaten the species because there are few collectors and the species' activity periods would likely discourage all but the most dedicated. Furthermore, the loss of some male Mount Hermon June beetles was unlikely to affect the reproductive capacity of populations because males could mate with several females. Collection was also limited by permit requirements on public lands and restricted access to private property.

Service Response: The Service concurs that collection of the species currently poses little if any threat to the Mount Hermon June beetle and Zayante band-winged grasshopper.

Issue 23: One commenter concluded that the Mount Hermon June beetle could adapt to altered habitat. As evidence, the commenter cited the large number of insect species known, and the short life cycles and life history traits which would enable more rapid evolution and adaptation.

Service Response: The great diversity of insects is reflective of extraordinary adaptive speciations and specializations. However, such evolutionary changes rarely occur at a rate comparable to that of human environmental alteration. Consequently, neither the Mount Hermon June beetle nor the Zayante band-winged grasshopper would likely evolve adaptations with the rapid changes of habitat.

Issue 24: One commenter concluded that the reported 50 percent loss of sand parkland habitat would only fractionally reduce the population of the species, citing a ''rule of thumb'' that a 90 percent reduction in habitat would result in a 50 percent reduction in the number of species present.

Service Response: The ''rule of thumb,'' publicized by E.O. Wilson and Peter Raven, noted proponents of conservation of biological diversity, refers to species loss, not population loss. If the Zayante sand hills habitat were to be reduced to 10 percent of its original extent, one half of all the species found there would be expected to go extinct (Wilson 1992). Which species would be lost cannot be predicted. Because this logarithmic relationship predicts extinction of some

species following even partial habitat loss, it supports, rather than refutes, the Service's determination that the Mount Hermon June beetle and Zayante band-winged grasshopper are threatened with extinction.

Issue 25: Several respondents stated that the Service should designate critical habitat since the habitat of the species is known and because habitat loss is the primary threat. Others concluded that the Service did not designate critical habitat to avoid review of the proposed listing under NEPA.

Service Response: Although the habitats and ranges of the species are known and described in this rule, designation of critical habitat as defined in the Act was determined to be not prudent at this time because no benefit to the species would result. For reasons discussed in the NEPA section of this document, rules issued pursuant to section 4(a) of the Act do not require preparation of an Environmental Impact Statement (EIS). The courts held in Pacific Legal Foundation v. Andrus, 657 F2d. 829 (6th Circuit 1981) that an EIS is not required for listing under the Act. The decision noted that EISs on listing actions do not further the goals of NEPA or the Act. Thus, this listing action is exempted from NEPA review, regardless of critical habitat designation.

Issue 26: One commenter suggested that the species be listed as threatened to allow greater regulatory flexibility and the implementation of special rules under section 4(d) of the Act.

Service Response: Based upon evaluation of the status and threats to the species, the Service has determined that the Mount Hermon June beetle and Zayante band-winged grasshopper are in danger of extinction throughout all or a significant portion of their ranges and therefore qualify for endangered status. Listing the species as threatened to provide for regulatory flexibility would ignore requirements of the Act to base determinations solely on the best scientific and commercial data.

Issue 27: One commenter suggested that the species could be exempted from protection under the Endangered Species Act if they were shown to be pest species.

Service Response: While some related species are known to be agricultural pests, no evidence exists that indicates either the Mount Hermon June beetle or the Zayante band-winged grasshopper are pest species. The Zayante sand hills habitat does not support significant agricultural crops on which either species feed. In addition, the two species are not considered as pests in backyard gardens.

Issue 28: One commenter asserted that existing parks were sufficient to guarantee the continued existence of the insects. Two others cited a recent stipulation agreement between a private quarry, the County of Santa Cruz, and local conservation groups, which would provide for the preservation of Zayante sand hills habitat. One commenter noted, though, that the preservation of the habitat is contingent upon the $3.5 million acquisition of the South Ridge parcel, and that funds have not yet been committed.

Service Response: The Mount Hermon June beetle and Zayante band-winged grasshopper are known to occur in only one of the three publicly owned properties in the region. Although the Quail Hollow Ranch affords protection to Zayante sand hills habitat, the park does not have specific mandates to manage for these species, and protection from adverse impacts of habitat degradation from illegal activities is not assured. Both species also occur within the areas to be preserved under the cited stipulation. However, preservation of these populations is uncertain pending acquisition of the South Ridge property.

Issue 29: Several commenters concluded that State and local legislation and regulations, such as the mitigation requirements of the California Environmental Quality Act (CEQA), provide sufficient protection for the two insect species. Commenters cited revegetation efforts at local quarries, the above-mentioned stipulation agreement, and protection of sand parkland habitat in a development project by the City of Scotts Valley as examples of successful protection. Contrary views were expressed by commenters citing past failures of city governments to enforce protection of rare species, and the abandonment of revegetation plans at a sand quarry.

Service Response: While existing legislation and regulations may require mitigation or other compensation for impacts to sensitive or rare species, they do not ensure the continued existence of the Mount Hermon June beetle and Zayante band-winged grasshopper. For example, CEQA provides for ''Statements of Overriding Consideration'' which allow projects to proceed despite unmitigated adverse impacts.

Issue 30: Three commenters requested that all data, information, and results of investigations be available for review by interested parties.

Service Response: All documents, records, and correspondence relating to this listing, including data, survey results, analyses, supporting information, and public comments are included in the administrative record available for review by the public by appointment, during normal business hours, at the Ventura Field Office. Appointments can be made by contacting the Field Supervisor. See **ADDRESSES** section.

Issue 31: One commenter asked if this listing was in response to a lawsuit settlement with the Sierra Club.

Service Response: This listing is not in response to a lawsuit settlement with the Sierra Club. The listing of the Mount Hermon June beetle and Zayante band-winged grasshopper is in response to petitions submitted by private citizens.

Issue 32: One commenter suggested that the Service conduct field work to assess the status of the species.

Service Response: The Service's responsibility under the Act is to compile and review the ''best available information'' concerning the biology, status, and threats to species. During the listing process the Service makes efforts to verify information through field visits and surveys. Primary data collection, however, is generally conducted by individuals outside the Service.

Issue 33: One commenter asserted that proponents of the listing should be responsible for demonstrating that a species is endangered.

Service Response: Petitioners and listing proponents are expected to provide the Service with pertinent data concerning the biology and threats to a species to demonstrate that listing may be warranted. After that time, the Service solicits and reviews all available information to make decisions regarding proposed rules and final determinations.

Issue 34: One commenter concluded that a conflict of interest existed for commenters who were involved in a court settlement regarding preservation of sand parkland habitat.

Service Response: Any member of the public, regardless of affiliation or position, is invited to submit comments on a proposed rule during the open comment period.

Issue 35: Three commenters stated that the Service's notification of the public regarding the proposed rule was inadequate. One commenter requested that all landowners be directly notified, and that notices be published in newspapers.

Service Response: The Service provided notification of the proposed rule to the public through processes required in the Act, including publication of findings and rules in the **Federal Register**, publication of notices in local newspapers, and letters to government officials, planning offices, regulatory agencies, and other interested

parties as described at the beginning of this section. Direct notification of all landowners was attempted by the Service to the extent practical.

Issue 36: One commenter stated that the Service failed to publish a 90-day finding that the petition to list the Zayante band-winged grasshopper may be warranted, and failed to make a 12-month determination following the August 19, 1992, notice for the Mount Hermon June beetle. Disputing the Service's inclusion of such notices in the proposed rule, the commenter stated such failures prevented the submission of information and comment, and recommended the proposed listing be invalidated.

Service Response: The Service's 90-day finding regarding the Zayante band-winged grasshopper was made on September 25, 1992 but was not published in the **Federal Register** prior to publication of the proposed rule. The proposed rule constituted the required 12-month determinations regarding both the Zayante band-winged grasshopper and the Mount Hermon June beetle. At that time, extensive comment periods and a public hearing allowed all interested parties to provide comments and information concerning the proposed action. All input was considered in preparation of the final determination.

Peer Review

In accordance with policy promulgated July 1, 1994 (59 FR 34270), the Service solicited the expert opinions of independent specialists regarding pertinent scientific or commercial data and assumptions relating to the taxonomy, population models, and supportive biological and ecological information for species under consideration for listing. The purpose of such review is to ensure listing decisions are based on scientifically sound data, assumptions, and analyses, including input of appropriate experts and specialists.

The data and assumptions regarding the Mount Hermon June beetle and Zayante band-winged grasshopper were each reviewed by three specialists. Peer reviewers were identified through inquiries to research institutions, universities, and museums for individuals with recognized expertise with the subject taxa. The reviewers were asked to comment upon specific assumptions and conclusions regarding the species. Their comments have been incorporated into the final rule as appropriate and are summarized below.

Reviewers of the Mount Hermon June beetle information agreed that, although estimates were speculative, the flight range of male beetles may be limited. Male beetles were attracted to lights, but the maximum distance traveled was unknown, dependent upon the visibility and relative strength of the light compared to other attractive stimuli such as female pheromone or moonlight. All reviewers emphasized the dependence of fossorial larvae and females on the specific conditions of the soil. The reviewers also concurred with the Service's conclusion that the Mount Hermon June beetle was limited to the Zayante sand hills habitat. One reviewer commented that males may occasionally be trapped in adjacent habitats, but they probably represent artifacts of random dispersal and not colonization of different habitat communities. The same reviewer also suggested the beetle may occur in more densely vegetated areas of chaparral as well as open sandy areas.

Excavation, soil compaction, and vegetation removal within Mount Hermon June beetle habitat are recognized as activities expected to adversely affect the species. Landscaping may have some impact. The reviewers anticipate the application of some pesticides, such as soil permeants, could have a negative effect. Adjacent light sources should not be detrimental to the species, although male Mount Hermon June beetles may be attracted away from their habitat. Collection was not considered to significantly threaten the species. One reviewer suggested additional investigations to assess specific life history, distributional, and other ecological information before proceeding with the listing. Another reviewer commented that the survey reports and other information submitted to the Service concerning the biology of the beetle were based upon erroneous and unfounded assumptions, poor methodology, and hearsay. Nonetheless, the Service's comparison of collection records and independent soil and habitat data was considered a sufficiently rigorous analysis for concluding the species to be of limited range and associated with the Zayante sand hills ecosystem.

The reviewers of the Zayante band-winged grasshopper information agreed that substrate was an important, but not a sole, determining factor for grasshopper distributions. An assumption that exchange of individuals between isolated populations would be infrequent because of short observed flight distances was questioned by one reviewer but supported by another's experience with other *Trimerotropis* species. Two reviewers agreed with the dismissal of non-specifically labeled historic specimens, but cautioned that additional investigation of the outlying areas may be warranted if suitable habitat exists. The third reviewer felt that information should be considered reliable unless shown otherwise. In the absence of sand parkland habitat elsewhere, all reviewers concurred with the Service's conclusion that the Zayante band-winged grasshopper was restricted to sand parkland habitat. The grasshopper would unlikely occur in adjacent habitats such as redwood forest, chaparral, grasslands, or coastal habitats. Excavation, soil compaction, vegetation removal, landscaping, and pesticides were all recognized as adverse activities affecting the grasshopper. One reviewer noted that collection of specimens from areas adjacent to mining operations suggests the species is not particularly impacted by nearby activities. One reviewer also questioned the distinctiveness of the grasshopper as a separate species, but deferred final judgment to others more familiar with the specimens. A reviewer familiar with the specimens and the genus *Trimerotropis* confidently defended the Zayante band-winged grasshopper as a full species.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the Mount Hermon June beetle (*Polyphylla barbata*) and the Zayante band-winged grasshopper (*Trimerotropis infantilis*) should be classified as endangered species. Procedures found at section 4 of the Act and regulations implementing the listing provisions of the Act (50 CFR part 424) were followed. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to the Mount Hermon June beetle and the Zayante band-winged grasshopper are as follows:

A. The present or threatened destruction, modification, or curtailment of their habitat or range. Habitat destruction and modification are recognized as the primary threats to insect species (Pyle 1981) because of their narrow distributions and dependence on specific food plants or edaphic conditions. Both the Mount Hermon June beetle and Zayante band-winged grasshopper are restricted to portions of the Zayante sand hills ecosystem in the Ben Lomond-Mount Hermon-Scotts Valley area of Santa Cruz County, California. The Mount Hermon June beetle occurs in sand parkland and other sparsely vegetated sandy areas

within the Zayante sand hills ecosystem. The Zayante band-winged grasshopper is narrowly restricted to sand parkland on ridgetops and saddles. Both species are imminently endangered by ongoing and threatened destruction and adverse modification of their habitats by one or more of the following activities—sand mining, urban development, recreational use of habitat, and agriculture.

The ranges of both species are limited by the substrate found in the Zayante soils, and the availability of suitable food plants within the Zayante sand hills and sand parkland habitats. The Mount Hermon June beetle is threatened by excavation and construction activities that crush or expose fossorial larvae and females, resulting in mortalities and elimination of reproductive populations (W. Hazeltine, *in litt.* 1994). Clearance of native Zayante sand hills vegetation and cultivation of non-native plant species in landscaping also may adversely affect the Mount Hermon June beetle by eliminating food plants and disrupting the soil. The Zayante band-winged grasshopper is similarly threatened by removal and alteration of the sand parkland habitat.

Historically, approximately 2533 ha (6265 ac) of Zayante sand hills habitat occurred in Santa Cruz County. Over 40 percent of this habitat has disappeared, primarily due to urban development and mining; 1459 ha (3608 ac) currently remain in a natural state (Lee 1994). Sand parkland habitat has been more dramatically reduced; over 60 percent of this habitat has been lost, mostly to sand mining. An estimated 200 to 240 ha (500 to 600 ac) existed historically (Marangio and Morgan 1987; Lee 1994). By 1986, only 100 ha (250 ac) remained intact (Marangio and Morgan 1987). Currently, sand parkland is limited to approximately 78 ha (193 ac) (Lee 1994).

Sand mining and urban development are the most significant causes of habitat loss in the Ben Lomond-Mount Hermon-Scotts Valley region. Sand deposits within the Zayante sand hills habitat have been actively mined for construction purposes for at least five decades (Storie *et al.* 1944 in Griffin 1964). Three sand mines in the area are in operation and have permits to mine areas of sand parkland and Zayante sand hills habitat that are currently undisturbed (S. Smith, County of Santa Cruz Planning Department, pers. comm. 1994). Two of the three mines support little undisturbed habitat (S. Smith, pers. comm. 1996). The Service has been participating in the development of a multi-species habitat conservation plan (HCP) for the third mine, Quail Hollow Quarry, within the San Lorenzo Valley in Santa Cruz County, California. The County of Santa Cruz, the owner and operator of the Quarry (respectively Granite Rock Company and Santa Cruz Aggregates), and intervenors (South Ridge Watershed Association, Sierra Club, and California Native Plant Society) entered into a Settlement Agreement in June of 1994 that resolved longstanding litigation regarding Granite Rock's right to continue mining at the site. As part of that Agreement, Granite Rock is permitted to continue mining in designated areas of the quarry site, subject to obtaining the necessary mining approvals, and portions of the site containing extremely significant biological resources, including the two insects, will be preserved in perpetuity through purchase of the South Ridge and through dedication of a conservation easement for the areas on the North and West Ridges containing sand parkland habitat. A fourth mine is closed at this time, but may reopen if funds become available (S. Smith, pers. comm. 1994). Seventeen of the 28 Mount Hermon June beetle collection locations, and 9 of the 10 Zayante band-winged grasshopper collection sites are adjacent to areas used for sand mining.

Mining of sand from undisturbed areas would result in the destruction of habitat for the Mount Hermon June beetle and Zayante band-winged grasshopper. Permits held by the mining companies require revegetation efforts in mined areas as part of reclamation plans. However, such revegetation plans are considered inadequate to successfully restore the biological integrity of sand parkland and Zayante sand hills habitats; the technical feasibility of such restoration is questioned because of the diversity of the ecosystem's flora and fauna and the complexity of the soil facies and edaphic conditions (Davilla 1990; Gilchrist 1990; Murphy 1990).

Urban development also has resulted in significant alteration and loss of habitat. Construction of private homes, roads, and businesses has removed vegetation and modified soils through excavation, compaction, and disruption of soil horizons. More than 480 ha (1200 ac) of Zayante sand hills habitat have been developed for these purposes. Recent expansion of juvenile hall facilities near Mount Hermon eliminated portions of an area known to support Mount Hermon June beetles (W. Hazeltine, pers. comm. 1994). One site where Zayante band-winged grasshoppers were previously collected is now a parking lot (D. Weissman, pers. comm. 1993). Fourteen collection sites for Mount Hermon June beetles and two known locations of Zayante band-winged grasshoppers are adjacent to residential, commercial and public developments. The County of Santa Cruz and the City of Scotts Valley have existing plans, zoning designations, and approved permits for continued development in these areas (Marangio 1985; Lee 1994), thereby further reducing and fragmenting Zayante sand hills habitat.

Recreational uses of Zayante sand hills habitats may adversely affect the Mount Hermon June beetle and Zayante band-winged grasshopper through habitat disturbance and degradation. Recreational uses include off-road vehicles (ORVs), equestrian activities, hiking, bicycling, and camping. These activities crush and remove vegetation, cause compaction of soils, promote soil erosion, and occasionally result in oil and gasoline spills. Off-road motorcycle events (200+ people) occur on sand parkland (A. Haynes, San Lorenzo Water District, pers. comm. 1993). Off-road vehicle damage also is noted at the Geyer Quarry and on the South Ridge of the Quail Hollow Quarry, a site considered to be the highest quality patch of intact sand parkland habitat (Lee 1994). Disturbance from equestrian use is reported from five sand parkland areas (Lee 1994). A campground encompasses approximately half of the sand parkland habitat within Henry Cowell Redwoods State Park (D. Hillyard, pers. comm. 1993; S. Steinmetz, pers. comm. 1993), and foot and ORV traffic are recognized as causes of erosion damage at the Quail Hollow Ranch County Park (County of Santa Cruz 1990).

Limited agricultural activities have also contributed to habitat fragmentation and degradation in the Zayante sand hills ecosystem. While the Zayante soils are generally of little agricultural value, Zayante sand hills habitat has been, and may continue to be, used for agricultural purposes. Currently, portions of two sand parkland areas are zoned for timber harvest (Lee 1994). Other areas of Zayante sand hills habitat have been proposed for conversion to vineyards (Davilla 1980).

The Service has reviewed a notice of preparation for the development of an educational park within the City of Scotts Valley on a site where Mount Hermon June beetles and Zayante band-winged grasshoppers have been sighted. The Scotts Valley Unified School District evaluated numerous alternative sites before choosing the current location for the proposed facility. Recently, the Service was informed that

an alternative site for the proposed park may be selected.

B. Overutilization for commercial, recreational, scientific, or educational purposes. Amateur collecting for the Mount Hermon June beetle occurs on a limited basis during the narrow flight periods of the species. As this species becomes more difficult to find, the interest of collectors may increase; however, overutilization by collection is not known to occur at this time.

Collection of the Zayante band-winged grasshopper has occurred during surveys for this and other invertebrate species; however, overutilization of this species by collection is not known to occur at this time.

C. Disease or predation. Mount Hermon June beetles may be preyed upon by some bird species. However, the early evening flight time of the Mount Hermon June beetle is thought to reflect an evolutionary adaptation for predator avoidance, coinciding with the cessation of bird activity (W. Hazeltine, *in litt.* 1994). Based upon laboratory observations, larvae may be susceptible to fungal infestations if soil conditions are too moist (W. Hazeltine, *in litt.* 1993). However, the significance of such mortality sources is unknown.

One Zayante band-winged grasshopper specimen was observed to be parasitized by a tachinid fly (White 1993). However, the significance of parasitization on populations of this species is unknown.

D. The inadequacy of existing regulatory mechanisms. Regulatory mechanisms currently in effect do not provide adequate protection for the Mount Hermon June beetle and Zayante band-winged grasshopper and their habitats. Federal agencies are not legally required to consider and manage for these species during project design and implementation, although some Federal agencies have policies that encourage consideration of candidate species in the design and implementation of Federal projects.

At the State and local levels, regulatory mechanisms also are limited. The Mount Hermon June beetle and Zayante band-winged grasshopper are not listed by the State of California under the California Endangered Species Act. State and local agencies may consider these taxa when evaluating certain activities for compliance with the CEQA and local zoning regulations. If an activity is identified as having a potential impact on these species, mitigation measures may be required by State and local regulating agencies to offset these impacts. However, these regulations do not provide specific protection measures to ensure the continued existence of these species. In addition, CEQA provisions for ''Statements of Overriding Considerations'' can allow projects to proceed despite unmitigated adverse impacts. The County of Santa Cruz requires that proposed projects comply with both general zoning requirements and environmental designations. However, properties within Zayante sand hills habitats are zoned for special use, timber production, mining, and residential development. Special use zoning allows for residential-agricultural, residential, commercial, and industrial development (Lee 1994).

Public ownership of lands with Zayante sand hills and sand parkland habitats suitable for the Mount Hermon June beetle and Zayante band-winged grasshopper is limited to the Quail Hollow Ranch, Bonny Doon Ecological Preserve, and Henry Cowell Redwoods State Park. The Mount Hermon June beetle and Zayante band-winged grasshopper are only known to occur in Quail Hollow Ranch. None of these properties currently has a management plan that specifically provides protection for the two species or their habitats. In addition, Zayante sand hills habitat on Quail Hollow Ranch is reported to be degraded by off-trail equestrian activities and other illegal access (Lee 1994; S. McCabe, pers. comm. 1994).

A settlement agreement between local conservation groups and one of the sand mining companies resulted in action to preserve three parcels of sand parkland and Zayante sand hills habitat. All three of these parcels support the Mount Hermon June beetle and Zayante band-winged grasshopper. However, preservation of the parcels is contingent upon acquisition of the ''South Ridge,'' a parcel recognized as the highest quality sand parkland habitat. Funds necessary for the $3.5 million settlement purchase have not yet been committed (C. Scott, pers. comm. 1994; Ken Hart, pers. comm. 1996).

E. Other natural or manmade factors affecting its continued existence. Pesticides could pose a threat to the Zayante band-winged grasshopper. Pesticide application is expected at existing and planned golf courses and may occur on a limited basis at vineyards in the area. Local landowners may use pesticides to control targeted invertebrate species around homes and businesses. These pesticides may drift and kill non-targeted species such as the Zayante band-winged grasshopper.

Because the Mount Hermon June beetle is fossorial, air-borne pesticides would not likely reach and affect the species. However, application of soil permeant pesticides could pose a threat (W. Hazeltine, *in litt.*, 1994). During the flight season males of this species also may be subject to mortality from attraction to electric ''bug zappers'' (W. Hazeltine, *in litt.* 1994). The significance of such mortality is unknown, however.

The quality of remaining habitat for the Mount Hermon June beetle and Zayante band-winged grasshopper may decline because of fire suppression in the Zayante sand hills habitat. Periodic wildfire is thought to be critical to maintenance of the Zayante sand hills habitat mosaic. The presence of fire-dependent species such as knobcone pine and Santa Cruz cypress suggests that fire is important for resetting vegetational succession within the chaparral communities, and for maintaining the open characteristics of ponderosa pine stands and sand parkland. Fire also may prevent the invasion of species from the surrounding mixed evergreen forest; encroachments by madrone (*Arbutus menziesii*) and other species from surrounding mixed evergreen forest into Zayante sand hills habitat have been attributed to reduced fire frequency (Marangio 1985).

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the Mount Hermon June beetle and Zayante band-winged grasshopper in determining to make this rule final. Based on this evaluation, the preferred action is to list the Mount Hermon June beetle (*Polyphylla barbata*) and Zayante band-winged grasshopper (*Trimerotropis infantilis*) as endangered. This status was determined because these species are ''in danger of extinction throughout all or a significant portion of [their] range'' (section 3(6) of the Act) because of threats from one or more of the following factors—sand mining, urban development, recreational use of habitat, increased vulnerability to naturally occurring extirpation, and habitat restriction and decline. Critical habitat is not being designated for these species for the reasons discussed below.

Critical Habitat

Critical habitat is defined in section 3 of the Act as—(i) the specific areas within the geographical 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 geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. ''Conservation'' means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

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, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for the Mount Hermon June beetle and Zayante band-winged grasshopper at this time. Service regulations (50 CFR 424.12(a)(1)) state that 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.

Designation of critical habitat would not benefit the Mount Hermon June beetle and Zayante band-winged grasshopper because all populations of the two species occur on non-Federal lands where Federal involvement in land-use activities does not generally occur. Prohibitions of adverse modification to critical habitat apply only to Federal actions. Therefore, additional protection afforded to designated critical habitat would only be realized if a Federal nexus existed. Possible nexuses on non-Federal lands include 404 permits from the U.S. Army Corps of Engineers and funds from Federal housing or highway programs. However, no such nexuses are known or anticipated within the habitat and range of these species.

Furthermore, in the case of the Mount Hermon June beetle, the determination of critical habitat would be detrimental to the conservation of the species. Determination of the location and extent of reproductive populations and evaluation of edaphic requirements would require excavation and consequent destruction of habitat occupied by larvae and females.

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 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 recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Under section 4 of the Act, listing the Mount Hermon June beetle and Zayante band-winged grasshopper provides for the development of a recovery plan, which will bring together Federal, State, local government, and private agencies and individuals to develop conservation strategies for these species. The recovery plan would develop a framework of recovery activities, priorities, and funding requirements to accomplish conservation objectives and ensure the survival and recovery of the Mount Hermon June beetle and Zayante band-winged grasshopper.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. Because no Federal lands exist within the range of these two species, consultations would only occur if a Federal agency had discretion over permit issuance or funding of projects. Such Federal involvement is neither known, nor anticipated, within the habitat and range of the Mount Hermon June beetle and Zayante band-winged grasshopper.

Section 9 of the Act and implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. The prohibitions, codified at 50 CFR 17.21, in part, make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. The definition of ''take'' includes to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

It is the policy of the Service (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 the listing on proposed and ongoing activities within a species' range. During the public comment period the Service received inquiries about the effect listing would have on the sand mining industry, commercial and residential development and maintenance activities, and recreational activities. Based on the best available information, the following actions would not result in a violation of section 9, provided these activities are carried out in accordance with existing regulations and permit requirements—removal of the two insect species from swimming pools, birdbaths, window screens, and the like with immediate and safe replacement in more suitable habitat; normal lighting around residences and commercial buildings; normal maintenance of backyard gardens; reasonable recreational use of existing maintained trails within Zayante sand hills habitat; use of existing roadways and railroads; and continued sand mining within existing excavated areas.

Activities that could result in the take of the Mount Hermon June beetle or Zayante band-winged grasshopper include, but are not limited to, unauthorized collection or capture of the species, except as noted above to relocate individuals out of danger; destruction or alteration of the species' habitat (e.g. excavating, compacting, grading, or discing of soil, vegetation removal); violations of grading, mining, or construction permits that affect occupied habitat; off-road vehicle use on occupied habitat; and application of pesticides beyond the boundaries of maintained lawns and gardens or in violation of label restrictions.

Other unauthorized activities not identified above will be reviewed on a case-by-case basis to determine if a violation of section 9 of the Act may have occurred. The Service does not consider these lists to be exhaustive and provides them for the information of the public. Questions regarding whether specific activities will constitute a

violation of section 9 should be directed to the Field Supervisor of the Service's Ventura Field Office (see **ADDRESSES** section).

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, or for incidental take in the course of otherwise lawful activities. Requests for copies of the regulations regarding listed wildlife and inquiries about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, 911 N.E. 11th Avenue, Portland, Oregon 97232–4181 (telephone 503/231–6241, facsimile 503/231–6243).

National Environmental Policy Act

The Fish and Wildlife Service has determined that Environmental Assessments and Environmental Impact Statements, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (49 FR 49244).

Required Determinations

The Service has examined this regulation under the Paperwork Reduction Act of 1995 and found it to contain no information collection requirements. This rulemaking was not subject to review by the Office of Management and Budget under Executive Order 12866.

References Cited

A complete list of all references cited herein, as well as others, is available upon request from the Field Supervisor, Ventura Field Office (see **ADDRESSES** section).

Author

The primary authors of this document are Carl Benz and Jonathan Hoekstra, Ventura Field Office (see **ADDRESSES** section, telephone 805/644–1766).

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended 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. Section 17.11(h) is amended by adding the following, in alphabetical order under Insects, to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
INSECTS (Class Insecta)							
*	*	*	*	*	*	*	
GRASSHOPPERS AND ALLIES (Insects, Order Orthoptera)							
*	*	*	*	*	*	*	
Grasshopper, Zayante band-winged.	*Trimerotropis infantilis.*	U.S.A. (CA)	NA	E	605	NA	NA
*	*	*	*	*	*	*	
BEETLES (Insects, Order Coleoptera)							
*	*	*	*	*	*	*	
Beetle, Mount Hermon June.	*Polyphylla barbata*	U.S.A. (CA)	NA	E	605	NA	NA
*	*	*	*	*	*	*	

Dated: January 6, 1997.

John G. Rogers,

Director, Fish and Wildlife Service.

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