

APPENDIX B

2001 BIOLOGICAL OPINION



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

IN REPLY REFER TO:
1-1-00-F-0205

August 14, 2001

Mr. Sandro Amaglio
Regional Environmental Officer
Federal Emergency Management Agency
Building 105
Presidio of San Francisco
San Francisco, California 94129

Subject: Formal Consultation on East Bay Regional Park District's Fire Mitigation Projects, FEMA-919-DR-CA, HMGP #919-515-24, Alameda County, California.

Dear Mr. Amaglio:

This is in response to your July 6, 2000, request for formal consultation with the U.S. Fish and Wildlife Service (Service) on East Bay Regional Park District's (EBRPD) Fire Mitigation Projects. Your request was received in our office on July 7, 2000. This document represents the Service's biological opinion on the effects of the action on the threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), pallid manzanita (*Arctostaphylos pallida*), Santa Cruz tarplant (*Holocarpha macradenia*); and the endangered Presidio clarkia (*Clarkia franciscana*) and callippe silverspot butterfly (*Speyeria callippe callippe*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act). Designated critical habitat for the Alameda whipsnake will not be affected by this project as the project constitutes routine clearing of fuel breaks around urban boundaries that were constructed before the listing of the whipsnake on December 5, 1997. This activity was specifically excluded from the list of activities that may result in the destruction or adverse modification of critical habitat within the final rule to designate critical habitat for the Alameda whipsnake (65 FR 58933).

The following sources of information were used to develop this biological opinion: (1) July 5, 2000, Biological Assessment, EBRPD's Fire Mitigation Projects; (2) January 27, 2000, and May 17, 2001, field visits to project sites; (3) January 12, 2000, Research Proposal - Effects of Prescribed Burns on the Alameda Whipsnake (*Masticophis lateralis euryxanthus*), (4) meetings between the Service, representatives of EBRPD and representative of the Federal Emergency Management Agency (FEMA); (5) June 1, 2001, letter from EBRPD; (6) references cited in this biological opinion; and (7) unpublished information contained in Service files. A complete administrative record of this consultation is on file at the Service's Sacramento Fish and Wildlife Office. Please refer to file number 1-1-00-F-0205, when requesting information concerning this consultation.

CONSULTATION HISTORY

December 2, 1999. The Service received a draft project description including a May 1995 Fire Hazard Program and Fuel Management Plan For the East Bay Hills and an August 27, 1998, Biological Assessment for the Panoramic Hill Fuel Reduction Project.

January 12, 2000. A representative of the Service conversed via a telephone conference call with representatives of EBRPD and FEMA. Details of the proposed project and measures for minimizing potential impacts to federally-listed threatened and endangered species were discussed.

January 27, 2000. Representatives from the Service met with representatives of EBRPD and toured project sites.

July 7, 2000. The Service received FEMA's request for initiation of formal consultation under section 7 of the Act, for the proposed project. A biological assessment dated July 5, 2000, was submitted with this request.

March 20, 2001. The Service received additional information from EBRPD regarding the distribution of plant species at the Redwood serpentine prairie of Redwood Regional Park.

April 30, 2001. Service staff discussed avoidance and minimization measures for plants with Joe DiDonato of EBRPD.

May 17, 2001. Service staff met with EBRPD staff, visited Huckleberry Botanic Reserve and discussed various topics related to fuel reduction, vegetation management, grazing practices, and minimization and avoidance measures for federally listed plants.

June 5, 2001. The Service received EBRPD's June 1, 2001, letter that listed additional minimization and avoidance measures for special status plants.

July 3, 2001. The Service provided the terms and conditions for callippe silverspot along with most of the biological opinion to Joe Didonato of EBRPD for review.

July 24, 2001. The Service received comments back from EBRPD on the draft biological opinion.

BIOLOGICAL OPINION

Description of Proposed Action

The EBRPD has proposed a vegetation management project to selectively remove highly flammable vegetation at 37 sites within its park boundaries. The 37 sites total approximately 567 hectares (1,400 acres) and are located within the following parks: Tilden Regional Park, Claremont Canyon Regional Preserve, Sibley Volcanic Preserve, Huckleberry Regional Preserve, Redwood Regional Park, Anthony Chabot Regional Park, and Leona Heights Regional Open Space. The primary target species of the proposed management activities include Tasmanian blue gum (*Eucalyptus globulus*), red gum (*Eucalyptus camaldulensis*), Monterey pine (*Pinus radiata*), acacia (*Acacia* sp.), French broom (*Genista monspessulana*), and nonnative annual grasses (e.g., *Avena* sp. and *Bromus* sp.). Management activities to be conducted include hand labor, tree removal, mechanical treatments (e.g., chipping and stump grinding), prescribed burning, grazing, and chemical treatments. A more detailed and thorough project description can be found in the July 5, 2000, Biological Assessment for the project.

The applicant proposes the following conservation measures to offset impacts to Alameda whipsnake:

- EBRPD will coordinate with the Service and the California Department of Fish and Game (CDFG) to develop and implement a research project focused on the effects of vegetation management, most notably prescribed fire, on the Alameda whipsnake (research project - see attached Appendix). A full research proposal will be developed and submitted for approval to the Service and CDFG prior to the onset of vegetation management activities. EBRPD biologists will manage the project jointly with these agencies and will develop annual reports detailing research results. The project will last for a minimum of five years. The project will be implemented at a location agreed to by the Service prior to and during implementation of the active vegetation management described in this document. Live trapping of Alameda whipsnakes will occur before, during and after implementation of vegetation management activities. Some Alameda whipsnakes may be outfitted with radio telemetry devices if funding and permits allow. Vegetation recovery and whipsnake occurrence will be documented on an annual basis for the life of the project;
- Snake-proof drift fencing would be installed around the perimeter of all slash piles unless these piles are to remain permanently. This would prevent the use of the piles by reptiles including the Alameda whipsnake and reduce the chance of incidental take of a snake during chipping or burning of piles;
- Vegetation management, including logging, brush removal/thinning, and prescribed burning, in areas potentially containing Alameda whipsnake will be limited to fall and winter months when snakes are expected to be underground and less susceptible to harm from these activities.

activities. Hand clearing of brush will not be limited to these seasons but will avoid avian nesting seasons;

- EBRPD will conduct a series of training sessions for staff and contractors and develop an informative brochure to train personnel on the identity of and methods to avoid disturbance of Alameda whipsnakes;
- EBRPD will supply a qualified biological monitor to review and inspect the vegetation removal operations. The biological monitor will be in charge of inspecting the erosion control methods, developing methodologies to reduce disturbance of Alameda whipsnake habitat and the occurrence of take of Alameda whipsnake, contacting the Service and CDFG with information regarding Alameda whipsnake, and coordinating the staff and contractor training on Alameda whipsnake; and
- Transition of habitats from dense stands of eucalyptus, Monterey pine, and French broom to woodlands, brushlands, and grasslands comprised mostly of native species would directly benefit Alameda whipsnake. Conversion from eucalyptus and pine forest to mixed brushland and grassland habitats would serve as on-site self-mitigating actions. These actions would both increase the acreage of available habitat for the whipsnake and develop additional corridors of travel between existing blocks of habitat. While Alameda whipsnakes have been found in a variety of brushland habitats ranging in age, density, and canopy closure, recent information has identified habitats of mixed brush and grasslands with canopy closure ranges of 25 to 75 percent are most likely to support healthy populations of snakes and western fence lizards, their primary prey.

East Bay Regional Parks District proposes the following conservation measures to minimize impacts to Presidio clarkia, pallid manzanita, and Santa Cruz tarplant:

- EBRPD will provide a 100-foot radius buffer around all threatened and endangered plants in the vicinity of proposed activities. This buffer will be marked using highly visible, temporary construction fencing or ribbon. Post-fire soil erosion would be minimized by implementing best management practices (BMPs), such as installing weed-free hay bales or silt fences, to prevent excessive erosion and siltation from entering riparian areas. Erosion control methods would be regularly inspected by a qualified EBRPD representative;
- No chipped or scattered materials or slash piles would be placed within a 20-foot fenced radius of special-status plant species; and
- A 15-foot radius buffer will be placed around all Presidio clarkia, pallid manzanita and Santa Cruz tarplant individuals in the vicinity of herbicide spraying activities. This buffer will be

marked using highly visible, temporary construction fencing or ribbon. No Garlon spraying would occur within the fenced areas.

- *Removal of trees in serpentine prairie.* Presidio clarkia is located approximately 24 to 30 meters (80 to 100 feet) from the pines that are proposed to be logged. To minimize effects to Presidio clarkia, the trees will be hand-logged, felled in the direction away from the Presidio clarkia, bucked into rounds small enough to be lifted by hand and removed from the site via loading onto an all-terrain vehicle or rolling off the serpentine soil area by hand. Erosion remediation measures (already described in the biological assessment) will be promptly implemented to avoid impacts due to accelerated erosion.
- *Use of prescribed fire or hand removal of brush and exotics in serpentine prairie.* If prescribed fire is used, a detailed site specific burn plan will be submitted for Service approval prior to the burn. The plan must have maps that show where the proposed fire breaks are in relation to populations of special status plants or to Johnny jump-up (*Viola pedunculata*). All firebreaks and staging areas will avoid any rare plant occupied habitat. Any firebreaks must be cleared by hand. All staging areas should be off of potential rare plant habitat. The prescribed burns within the serpentine prairie will be done in late summer, so the Presidio clarkia will not be adversely affected.
- *Prescribed burns.* For prescribed burns:
 1. Within the Service-approved burn plan, develop back-up fire control lines and equipment access routes to avoid the occurrences of the special status plants (this will prevent accidental bulldozing of Santa Cruz tarplant, Presidio clarkia, or pallid manzanita in the event of a fire getting out of control).
 2. A monitor will assist in the implementation of the back-up plan.
- *Maintenance followup.* Removal of the eucalyptus is going to open up the habitat potentially enabling weedy plants including acacia, French broom, and Scotch broom to expand. Management of these areas, especially those known to be occupied by special status plants, or with the potential to be occupied by special status plants, should include annual monitoring for five years to ensure that cover by noxious weeds is not adversely affecting the special status plants. Focused control efforts will be applied to maintain a percent cover of less than 20 percent for noxious weeds listed on CalEPPC list. Any revegetation should be with plants native to the habitat and the local area. A revegetation plan will be submitted to the Service for review and approval.
- *Biological monitor.* A biological monitor who is familiar with the native vegetation and rare plants in the area will be present for all activities within the following buffer zones of the species: 61 meters (200 feet) for Santa Cruz tarplant (except in cases where livestock grazing is the primary management tool) and pallid manzanita; and 152.4 meters (500 feet) for

Presidio clarkia [(except for hand treatments for which the buffer zone is 61 meters (200 feet)]. The biological monitor shall have the authority to halt all project activities at any time.

This condition is especially pertinent to the removal of Monterey Pines at Unit 502, where the work is in proximity to Presidio clarkia. A qualified biologist must survey the unit with staff before work starts. None of the eucalyptus removals are within 61 meters (200 feet) of pallid manzanita.

The hand treatments near pallid manzanita, Santa Cruz tarplant, and Presidio clarkia will need a monitor whenever the work is within 61 meters (200 feet) of the plants.

- *Worker awareness program and training.* The worker awareness program and training will include information on the special status plants. A Worker Environmental Awareness Training Program for onsite workers shall be conducted before and during project implementation. The program shall provide workers with information on their responsibilities with regard to listed species; and an overview of the life-history, identification, and habitat of the species.
- *Long-term fire and vegetation management plan.* A long-term fire and vegetation plan should be developed. This plan should include the frequency and timing of prescribed burns and other vegetation methods needed for the sensitive plant species, the vegetation communities, Alameda whipsnake, callippe silverspot butterfly, and fuel load.

STATUS OF SPECIES/ENVIRONMENTAL BASELINE

Species Account

Alameda Whipsnake

The Alameda whipsnake was federally listed as threatened on December 5, 1997 (62 FR 64306). Critical habitat for the Alameda whipsnake was designated on October 3, 2000 (65 FR 58933). A total of 164,150 hectares (406,598 acres) of land fall within the boundaries of designated critical habitat. Critical habitat for the Alameda whipsnake is located in Alameda, Contra Costa, San Joaquin, and Santa Clara Counties, California.

The Alameda whipsnake is a member of the family Colubridae (Stebbins 1985). The Alameda whipsnake is a slender, fast-moving, diurnal snake with a narrow neck and a relatively broad head with large eyes. The dorsal surface is colored sooty black with a distinct yellow-orange stripe down each side. The anterior portion of the ventral surface is orange-rufous colored, the midsection is cream colored, and the posterior and tail is pinkish. The adults reach a length of 91-122 centimeters (3-4 feet).

The Alameda whipsnake inhabits the inner coast range in western and central Contra Costa and Alameda counties (Jennings 1983, McGinnis 1992, Swaim 1994). There are five remaining populations with little or no genetic flow between them. The populations are centered in the Sobrante Ridge, Tilden/Wildcat Regional Parks area to the Briones Hills, in Contra Costa County (Tilden-Briones population); the Oakland Hills, Anthony Chabot area to Las Trampas Ridge, in Contra Costa County (Oakland-Las Trampas population); the Mount Diablo vicinity and the Black Hills, in Contra Costa County (Mount Diablo-Black Hills population); the Wauhab Ridge, Del Valle area to the Cedar Mountain Ridge, in Alameda County (Sunol-Cedar Mountain population); and the Hayward Hills, Palomares area to Pleasanton Ridge, in Alameda County (Hayward-Pleasanton Ridge population). The Blue Rock Country Club project occurs within the Hayward-Pleasanton Ridge population.

The Alameda whipsnake is distinguished from the more common chaparral whipsnake (*M. l. lateralis*) by its sooty black dorsum, by wider yellow-orange stripes that run laterally down each side, the lack of a dark line across the rostral, an uninterrupted light stripe between the rostral and eye, and the virtual absence of spotting on the venter of the head and neck. The first four populations described above are genetically isolated, and considered to be the listed entity. Alameda whipsnakes found in the Sunol-Cedar Mountain population can hybridize freely with the chaparral whipsnake. Whipsnakes found within this population are the listed entity, if they show the diagnostic characteristics of the Alameda whipsnake and they more closely resemble the listed taxon than the entity intermediate between it and other non-listed conspecifics.

The Alameda whipsnake is typically found in northern coastal scrub or chaparral plant communities (Ornduff 1974), but may also occur in adjacent grasslands and woodlands. Alameda whipsnakes have been shown to migrate distances greater than 500 meters (1,500 feet) over grassland to exposed rock outcrops (Swaim pers. comm. 1998). They demonstrate a preference for open-canopy stands and habitats with woody debris and exposed rock outcrops, and they tend to be found on southeast, south, and southwest facing slopes (Swaim 1994). Alameda whipsnakes have been found inhabiting northern exposures in open stands of chaparral (Swaim pers. comm. 1998). This extremely fast-moving snake holds its head high off the ground in a cobra-like manner to peer over grass or rocks for potential prey. The species is a lizard-eating specialist, but its diet may include other prey, such as rattlesnakes and nesting birds, depending on its size, sex, age, and location.

The Alameda whipsnake has been shown to have home ranges varying in size from 1.9 to 8.7 hectares (5.0 to 21.5 acres), and there is considerable overlap of home ranges (Swaim 1994). Some animals have been recorded to have moved over 1.8 kilometers (1 mile) while crisscrossing their home range (McGinnis 1992).

Alameda whipsnakes breed from March through June, with mating appearing to occur near the hibernacula of the female (Swaim 1994). Whipsnakes lay clutches of six to eleven eggs, May through July (Stebbins 1985), and the young hatch and emerge in the late-summer to early-fall (Swaim 1994).

The current threats to the habitat of the Alameda whipsnake are urban development and associated impacts due to increased population densities, fire suppression and resulting likelihood of catastrophic wildfires, and incompatible grazing practices. The central and western portions of Alameda and Contra Costa Counties are highly urbanized and continue to be subjected to increased urbanization. Habitat fragmentation from urban development and associated highway and road construction has led to isolation of the five populations by wholly preventing or severely reducing movement of individuals between areas of suitable habitat. These activities have also reduced the total amount of suitable habitat available for the Alameda whipsnake (62 FR 64306).

The Alameda whipsnake is threatened directly and indirectly by the effects of fire suppression. Fire suppression exacerbates the effects of wildfires through the buildup of fuel (underbrush and woody debris), creating conditions for slow-moving, hot fires that completely burn all sources of cover for the Alameda whipsnake. Highest intensity fires occur in the summer and early fall, when accumulated fuel is abundant and dry. During this period, hatchling and adult Alameda whipsnakes are aboveground (Swaim 1994), and populations are likely to sustain the heaviest losses from fires. The development of a closed scrub canopy also results in a buildup of flammable fuels over time (Parker 1987, Rundel 1987). Fire suppression has led to the encroachment of nonindigenous and ornamental trees into grassland habitats, further increasing flammable fuel loads in and around Alameda whipsnake habitat.

Fire suppression can alter the scrub canopy structure of snake habitat by allowing plant overgrowth, creating a closed canopy (Parker 1987) that will tend to create relatively cool conditions. Alameda whipsnakes have a high mean active body temperature (33.4 degrees centigrade) and a higher degree of body temperature stability (stenothermy) than has been documented in any other species of snake under natural conditions (Swaim 1994). Optimal habitat for the species has an open canopy while a closed canopy decreases the suitability of the habitat for the snakes (Swaim 1994). Alameda whipsnakes apparently can maintain this high, stable body temperature by using open and partially open and/or low growing shrub communities that provide cover from predators while providing a mosaic of sunny and shady areas between which Alameda whipsnakes can move to regulate their body temperatures (Swaim 1994). Tall, shaded stands of vegetation, such as poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), and other vegetation may not provide the optimum temperature gradient for Alameda whipsnakes. Survey data show that Alameda whipsnakes are less likely to be found where these plant species create a closed canopy (Swaim 1994).

McGinnis (1992) has suggested that grazing has impacted the habitat of the Alameda whipsnake in many areas east of the Coast Range. Livestock grazing that significantly reduces or eliminates shrub and grass cover can be detrimental to this snake. Many snake species, including the Alameda whipsnake, avoid such open areas because of the increased danger from predators and the lack of prey (McGinnis 1992).

Nonnative plants may also replace native vegetation in habitat for the Alameda whipsnake, potentially degrading the habitat and reducing the prey base. Radiotelemetry data indicate that Alameda whipsnakes tend to avoid dense stands of eucalyptus (Swaim 1994).

The breeding of closely related individuals can cause genetic problems in small populations, particularly through the expression of deleterious genes (known as inbreeding depression). Alameda whipsnakes tend to be relatively rare even in suitable habitat as indicated by trapping studies that show low capture rates and relatively high recapture rates (about 3 captures, 1 recapture per 1,000 trap days) (Swaim 1994). Individuals and populations possessing deleterious genetic material are less able to adapt to changes in environmental conditions, even relatively minor changes. Further, small populations are vulnerable to the effects of genetic drift (the loss of genetic variability). This phenomenon also reduces the ability of individuals and populations to successfully respond to environmental stresses. Overall, these factors influence the survivability of smaller, genetically isolated populations of the Alameda whipsnake.

The final rule to list the Alameda whipsnake as a threatened species designated five populations where little to no interchange of individuals occurs. The preliminary draft recovery plan for the Alameda whipsnake has designated these populations as individual recovery units. The designation of recovery units will assist the Service and other agencies in the consultation and recovery planning processes. The conservation of all five populations is essential to the recovery and survival of the species.

The project site is located in the proposed recovery unit designated for the Tilden-Briones and Oakland-Las Trampas whipsnake populations. These two population have been effectively isolate from one another and the other three whipsnake populations due to past development and associated road and highway construction. Alameda whipsnakes have been documented in close proximity to several of the project's proposed treatment areas including Tilden Regional Park, Claremont Canyon, Huckleberry Regional Preserve, and Leona Heights Regional Open Space. Additionally, the project site is located within critical habitat for Alameda whipsnake. The types of actions in this proposed project were specifically excluded from the list of activities that may result in the destruction or adverse modification of critical habitat

Callippe silverspot butterfly

The callippe silverspot butterfly (*Speyeria callippe callippe*) was federally listed as endangered on December 5, 1997 (62 FR 64306). The animal is a medium-sized butterfly in the brush foot family (Nymphalidae). It has a wingspan of about 5.7 centimeters (2.25 inches). The upper wings are brown with extensive black spots and lines, and the basal areas are extremely dark. The undersides are brown, orange-brown, and tan with black lines and distinctive black and bright silver spots. The basal areas of the wings and body are densely hairy.

The callippe silverspot is found in native grassland and adjacent habitats. The females lay their eggs on the dry remains of the larval food plant, Johnny jump-up, or on the surrounding debris. About a week after hatching, the caterpillars (larvae) wander a short distance and spin a silk pad upon which they spend the summer and winter. In the spring they immediately seek out the food plant. The caterpillars are dark-colored with many branching sharp spines on their backs. In May, after having gone through five instars (i.e., skin sheddings), they form their pupa within a chamber of leaves that they have drawn together with silk. The adults emerge in about two weeks and live for about three weeks. Depending upon environmental conditions, the flight period ranges from mid-May to late July. The adults often seek the top of hills to locate mates.

The species is known from 14 historic populations in the San Francisco Bay region. The historic range included the inner coast range on the eastern shore of San Francisco Bay. The range of the callippe silverspot butterfly includes the eastern shore of San Francisco Bay from southwestern Solano County south to the Castro Valley area in Alameda County. On the west side of the Bay, the species ranged from San Francisco south to the vicinity of La Honda in San Mateo County. Five colonies, including the one located at Twin Peaks in San Francisco, were extirpated. Currently, extant colonies are known only at San Bruno Mountain in San Mateo County, Alameda County, and Solano County.

The primary cause of the decline of the callippe silverspot butterfly is the loss of habitat from human activities. The species is imperiled by the current and potential future destruction and alteration of its habitat due to off-road vehicle use, unsuitable levels of livestock grazing and invasive nonnative vegetation. Off-road vehicles and trampling by horses and hikers could also crush the food plants of the larvae or the adult nectar sources. Overcollection of specimens by lepidopterists also poses a threat. Inappropriate use of insecticides may be a problem.

At the time of the listing, the callippe silverspot butterfly was reported to exist within a city park in Alameda County. The California Natural Diversity Database (CNDDDB) reports this occurrence also as being on Redwood Regional Park (CNDDDB 2001). It is not known whether this population is still extant. The callippe silverspot could occur within the action area of the project in grasslands that have its host plant, johnny jump-up.

Pallid manzanita

Pallid manzanita was federally listed as threatened on April 22, 1998 (63 FR 19842). Pallid manzanita is an upright, non-burl-forming shrub in the heath family (Ericaceae). This species grows from 2 to 4 meters (6.5 to 13 feet) high or more with rough, gray or reddish bark. The twigs are bristly. The ovate to triangular leaves are bristly, strongly overlapping and clasping; they are 2.5 to 4.6 centimeters (1.0 to 1.8 inches) long and 2.0 to 3.0 centimeters (0.8 to 1.2 inches) wide. The dense urn-shaped white flowers are 0.5 to 0.75 centimeter (0.2 to 0.3 inch) long. The flowering period is from December to March. Pallid manzanita commonly co-occurs

with another manzanita species, *A. tomentosa* ssp. *crustacea* (brittleleaf manzanita), but the latter is a burl-forming species with spreading leaves.

Pallid manzanita has narrow environmental tolerances (Amme and Havlik 1987a, 1987b). Pallid manzanita is found from 200 to 445 meters (656 to 1,460 feet) and is limited to bare, sterile, siliceous mineral soil in areas of summer fog. The two main populations of pallid manzanita occur on Middle Miocene cherts and shales of the Monterey group (Amme and Havlik 1987a) within manzanita chaparral. Satellite populations, some of which have been planted, are on Pinehurst Shale and Joaquin Miller Formation (Amme and Havlik 1987b), with a small stand occurring on soft sandstone.

The overall current range of pallid manzanita is similar to that known at the time the species was described in 1933. The extent of the populations of the species are thought to be smaller, however, due to habitat destruction and fragmentation by urbanization (B. Olson, *in litt.* 1994). Pallid manzanita is known from approximately 13 populations within two areas in Alameda and Contra Costa Counties. The two largest populations, which occur on lands managed by the East Bay Regional Park District, are located at Huckleberry Ridge in Alameda and Contra Costa Counties, and at Sobrante Ridge in Contra Costa County. Several other small, natural and planted populations occur in Alameda and Contra Costa Counties. The two largest occurrences occupy an area of approximately 11.7 hectares (29 acres). These two populations are found in maritime chaparral, a habitat with mesic soil conditions and a maritime influence. Many of the smaller populations occur in coastal scrub.

The largest population of pallid manzanita occurs at Huckleberry Ridge, although an estimated 50 percent of the original habitat at this site has either been developed for housing or is private owned. Development eliminated a large number of pallid manzanita plants and fragmented the remaining habitat at this location (Amme and Havlik 1987a; B. Olson, *in litt.* 1994). An estimated 2,400 to 2,700 plants were present in this population during the mid 1980s (Amme *et al.* 1986). A fungal infection during the early 1980s resulted in branch and stem dieback in over 50 percent of the plants at Huckleberry Ridge, and the condition of the population was described as poor (Amme and Havlik 1987a).

Primary threats to pallid manzanita include the effects of fire suppression, shading, and competition from both native and nonnative plants. To a lesser extent, the species is threatened by disease, herbicide spraying, hybridization, and the ongoing effects of habitat loss and fragmentation (63 FR 19842).

Fragmentation of pallid manzanita habitat caused by residential development at Huckleberry Ridge has also resulted in the introduction of nonnative landscape and weedy plant species that compete with the remnant population (Amme and Havlik 1987b). In particular, these small populations are threatened by shading from planted eucalyptus, Monterey pines, and cypresses (*Cupressus* sp.), and by competition with aggressive nonnative plant species including French broom, periwinkle (*Vinca major*), and German ivy (*Senecio mikanioides*) (Amme *et al.* 1986). In

1985, several large bay trees were cut at the base to improve light conditions for some pallid manzanitas. As a result, many pallid manzanitas responded with new growth (N. Havlik pers. comm. 1997).

The genetic integrity of pallid manzanita is threatened by hybridization resulting from the introduction of other species of manzanitas into the vicinity of pallid manzanita populations (D. Amme pers. comm. 1994). At least three other species of manzanita have been used for landscaping on Manzanita Way, a road that borders the Huckleberry Ridge Preserve. Hybridization of pallid manzanita with at least two other species is known to have occurred (Amme and Havlik 1987a). Hybridization could result in a hybrid manzanita swarm taking the place of pallid manzanita (Amme and Havlik 1987b, Amme *et al.* 1986).

The effects of fire are not evident at the Huckleberry ridge population and may have not occurred there for 70 years or longer and a smaller population a half mile away at the north end of Eastridge may not have burned in more than 100 years (R. Nuzum *in litt.* 1997). Both of these areas do not support healthy pallid manzanita populations mainly due to the negative effects of a successional bay-madrone canopy (N. Havlik pers. comm. 1997; S. Edwards pers. comm. 1997). At the healthier Sobrante Ridge population, the effects of fire were evident and fire may have occurred approximately 20 to 30 years ago (N. Havlik pers. comm. 1997).

Alteration of the natural fire regime threatens pallid manzanita by inhibiting seed germination and nutrient recycling that occurs naturally after fires. Fires are currently suppressed on Huckleberry Ridge and Sobrante Ridge to protect the surrounding residential areas (63 FR 19842). For non-burl-forming manzanitas such as pallid manzanita, fire is a necessary part of reproduction (Keeley 1992). Following fire or other disturbance, regeneration occurs from seed rather than from burls. At one small location along Manzanita Drive, in the EBRPD Huckleberry Preserve, a small patch of pallid manzanita was cleared, cut into six inch pieces, piled and burned. Within a year, 40-50 pallid manzanita seedlings were observed growing throughout the previously treated patch (E. Leong *in litt.* 1997).

Habitat disturbance such as fire may not be the only process that stimulates pallid manzanita seeds to germinate (N. Havlik pers. comm. 1997). There is evidence that mechanical scarification, such as crushing, stimulates germination in several manzanita species, including pallid manzanita (Keeley 1987, Keeley 1991, S. Edwards pers. comm. 1997). New seedlings have appeared along areas where mechanical scarification has recently taken place. Exposed gravel clearings and fire breaks at the Sobrante Ridge Preserve (S. Edwards pers. comm. 1997, N. Havlik pers. comm. 1997), at several road cuts along Skyline Boulevard (D. Amme pers. comm. 1997), and at the Huckleberry Preserve where grading and removal of plants has occurred for residential development (N. Havlik pers. comm. 1997) all show evidence that pallid manzanita seeds have sprouted.

The accumulated leaf and bark litter, fallen fruits, and roots of manzanita species have a self-inhibitory effect on seed germination (Amme and Havlik 1987b). Fire is believed to remove

these toxic materials and promote subsequent germination of manzanitas, herbs and other shrubs (Amme *et al.* 1986). Fire also is necessary to the species to recycle limited nutrients in the soil (Amme and Havlik 1987b).

Roadside spraying of herbicides has had negative effects on regeneration of pallid manzanita along Skyline Boulevard (Amme and Havlik 1987a). Unauthorized tree cutting also poses a threat to pallid manzanita. At least two mature pallid manzanita plants have been killed by unauthorized cutting of eucalyptus trees, for unknown purposes, that subsequently fell on the pallid manzanita plants (Amme and Havlik 1987b).

Presidio clarkia

Presidio clarkia was federally listed as endangered on February 3, 1995 (60 FR 6671). Presidio clarkia is a slender, erect, herbaceous annual of the evening-primrose family (Onagraceae). It grows to 40.6 centimeters (16 inches) tall with few, very small and narrow leaves. The lavender-pink petals have a lighter basal portion and a reddish-purple basal spot. The slender capsule is 2.5 to 5.1 centimeters (1-2 inches) long. Presidio clarkia can be distinguished from ruby chalice clarkia (*Clarkia rubicunda*), a related species that may occur in the same area, by the fact that its petals have irregular teeth on the apical margin. *Clarkia rubicunda* has petals rounded at the apex.

Presidio clarkia is restricted to grassland communities on serpentine soils in San Francisco and Alameda Counties. Two populations are known from the San Francisco Presidio. Three populations are known from the Oakland Hills in Alameda County, all from within 817 meters (0.5 mile) of each other. A fourth population in the Oakland Hills was reported in 1988 but could not be relocated during a search conducted in 1991. Population size fluctuates greatly; the upper limit reported in recent years is approximately 8,000 plants. Presidio clarkia is threatened by potential development, roadside maintenance, foot traffic, mowing, competition from nonnative plants, and shade from native and introduced shrubs and trees (60 FR 6671).

The largest population of Presidio clarkia occurs at Redwood Regional Park in Alameda County, consisting of 4,000 to 5,000 plants (Gottlieb and Edwards 1992, Olson 1991). The habitat is threatened by competition with annual grasses (Ray Budzinski, pers. comm. 1992) and other nonnative plants, including pampas grass (*Cortaderia selloana*) and French broom (Olson 1991). Presidio clarkia occurs within units 551 and 502. In unit 502, it occurs approximately within 30 meters (100 feet) from proposed removal of Monterey pines.

Santa Cruz tarplant

Santa Cruz tarplant was listed as threatened on March 20, 2000 (65 FR 14898). Santa Cruz tarplant is an aromatic annual herb in the aster family (Asteraceae). It is a rigid plant with lateral branches that arise to the height of the main stem, which is 1 to 5 decimeters (4 to 20 inches) tall. The lower leaves are broadly linear and up to 12 centimeters (5 inches) long. The upper leaves

are smaller, with rolled back margins, and are truncated by a distinctive craterform gland. The yellow flower head is surrounded from beneath by individual bracts that have about 25 stout gland-tipped projections (65 FR 14898).

Habitat for the Santa Cruz tarplant historically consisted of grassland and prairies found on coastal terraces below 100 meters (330 feet) in elevation, from Monterey County, north to Marin County. In the 1800s, coastal prairies covered an estimated 350,000 hectares (865,000 acres) (65 FR 14898). This coastal prairie habitat is becoming increasingly fragmented and restricted in distribution. Four major factors contributed to changes in distribution and composition of coastal prairie: grazing; introduction of highly competitive, nonnative species; elimination of periodic fire; and cultivation (65 FR 14898).

Santa Cruz tarplant populations occur on the alluvium resulting from the terrace deposits (65 FR 14898). Typically terrace soils are sandy clay soils; the clay component of these soils hold moisture longer into the growing season compared to the surrounding sandy soils. In the Santa Cruz area, Santa Cruz tarplant exists on the gently sloping terrace platforms that are separated by steep-sided "gulches," whereas in the Watsonville (Santa Cruz County) and Monterey areas, and on the east side of San Francisco Bay, the terraces are more extensively dissected.

Santa Cruz tarplant is currently known from a total of 20 populations; 12 of these are remaining native populations, and 8 are a result of experimental seedlings. All of the native San Francisco Bay area populations of Santa Cruz tarplant have been extirpated. Eight experimental populations of Santa Cruz tarplant have resulted from experimental planting of seeds in Wildcat Regional Park in the east San Francisco Bay area (65 FR 14898). The eight occurrences in Wildcat Regional Park are out of the natural range and distribution of the species (CNDDDB 2001).

Santa Cruz tarplant is threatened primarily by historic and recent habitat alteration and destruction caused by residential and commercial development (65 FR 14898). Future loss of habitat may also result from recreational development, airport expansion, and agriculture. Occupied habitat that has been set aside in preserves, conservation easements, and open spaces also suffers secondary effects from casual use by residents, introduction of nonnatives (e.g. French broom, eucalyptus, acacia, artichoke thistle, and grass species), and changes in hydrology, problems that are all exacerbated by the lack of management plans. In addition, smaller preserve areas with Santa Cruz tarplant suffer because they are cut off from the ecosystem functions that would be present in larger, more contiguous sites. More often, these smaller areas are left as open spaces, but without the benefit of the grassland management needed to sustain them. Finally, random disturbance, including unseasonable fires or a drought events, also threatens small populations of this species. Probability of population extirpation increases as the number of individuals and the area of habitat decreases (65 FR 14898). Santa Cruz tarplant occurs within Wildcat Regional Park in the vicinity of the project.

Effects of the Proposed Action*Alameda Whipsnake*

Adverse effects to the Alameda whipsnake from the proposed action may result from several sources. Individual whipsnakes may be harmed, harassed or killed during thinning, clearing, and the use of prescribed fire to reduce or eliminate scrub habitat associated with the project. In addition, the removal of nonscrub habitat within close proximity to scrub habitats may result in the incidental take of individual whipsnakes that venture away from their preferred habitat. The construction of temporary roads, landings and fire breaks to facilitate the reduction and removal of dense stands of native and nonnative shrub and forest habitats may injure or kill individual whipsnakes by directly running over or burying dormant whipsnakes or their eggs. The use of temporary roads or landings may lead to the mortality of individual whipsnakes attempting to traverse areas which were formally suitable habitat or move from one patch of suitable habitat to another. Some whipsnakes may escape direct injury during vegetation clearing activities, but will become displaced into adjacent areas. These animals may be vulnerable to increased predation, exposure, starvation, or stress through disorientation, loss of shelter, and intraspecific aggression. These adverse effects will result from the removal of 120 hectares (296.7 acres) of potential breeding, feeding, sheltering habitat within the 567 hectares (1,400 acres) proposed for treatment.

Additional impacts are expected during implementation of the Alameda whipsnake research project. A number of actions will take place as described within research project that may result in take of individual whipsnakes. Long-term monitoring of whipsnake populations in the burn area and at the control site will take place immediately after implementation of the prescribed burn and will continue for a five year period. Long-term monitoring will consist of the placement of 30-45, 15-meter (49.2-foot) drift fence traps for a 90-day spring survey and 45-day fall survey. Traps will be checked daily in hot weather and every other day in warm or cool weather during both the baseline trapping survey and the long-term monitoring survey. Captured Alameda whipsnakes will be measured, sexed and marked for further identification. Other data may be collected as appropriate. Also, some whipsnakes may have radio transmitters attached to determine the reaction of whipsnakes to burns.

Implementation of the prescribed burn may incidentally kill individual whipsnakes. To minimize death and injury to individual Alameda whipsnakes, EBRPD will conduct the prescribed burn in the early winter toward the end of their seasonal movement period.

Callippe silverspot butterfly

Potential adverse effects to the callippe silverspot butterfly could occur from the mechanical vegetation removal activities and from proposed burns. Individual butterflies may be harmed or killed during thinning and clearing activities. In addition, the construction of temporary roads, landings, and fire breaks to facilitate the reduction and removal of dense stands of native and

nonnative shrub and forest habitats could potentially injure or kill individual callippe silverspot butterflies at the interface of these habitats with grassland or savannah.

If they are present in the treatment areas, prescribed burning is likely to kill callippe silverspot eggs, larva, and pupae. The adult and early stages of the callippe silverspot butterfly, if present, could also be harmed or killed from the particulate matter of the fire clogging their spiracles (respiratory apparatus). Additionally, the callippe silverspot butterfly could be detrimentally affected by burning its host plant, johnny jump-ups. Burning only 1/5 of the grassland area per year would limit the effect of take on the species by maintaining areas from which the callippe silverspot butterflies can recolonize. The net effect of a prescribed burn, however, would be beneficial, because it could probably suppress nonnative weeds that inhibit growth of the host plant and nectar sources of the butterfly; and it would decrease the likelihood of a catastrophic firestorm that could eliminate the entire callippe silverspot population.

A moderate level of grazing is proposed to occur on a 24.3-hectare (60-acre) parcel within the action area. Potential impacts from the introduction of livestock grazing include changes in the vegetative makeup of the landscape leading to potential changes in the diversity of vertebrate and invertebrate species utilizing the area. Livestock are capable of maintaining open grasslands and minimizing brush and tree encroachment. If the host plant is present, this level of grazing could help to keep other plants from out competing the host plant, and it could help maintain grassland, which is the habitat in which callippe silverspot butterfly.

Pallid manzanita, Santa Cruz tarplant, and Presidio clarkia

Potential impacts to the federally listed plant species due to prescribed burns could include direct mortality of individual plants as well as impacts to regeneration. These species also could potentially suffer damage from heavy equipment when they are within the footprint of a control line of a prescribed burn. Additionally, if a prescribed burn got out of control, impacts to the federally listed plant species could occur from accidentally bulldozing plants or their habitat in creating new fire breaks, or from direct mortality.

Prescribed burning is not proposed within or near habitat for Santa Cruz tarplant or pallid manzanita. Prescribed burning is proposed to remove nonnative plants in serpentine prairie near Presidio clarkia. To minimize potential impacts, EBRPD will provide a 30.5-meter (100-foot) radius buffer around all threatened and endangered plants in the vicinity of proposed activities. This buffer will be marked using highly visible, temporary construction fencing or ribbon. To minimize post-fire soil erosion BMPs will be implemented. Additionally, EBRPD proposes to conduct the burn for the serpentine prairie during late summer, a time of year when fires naturally occurred in this habitat. Potential impacts from heavy equipment that would be used if the prescribed fire got out of control are going to be minimized by developing back up fire control lines and equipment access routes to avoid the occurrences of the federally listed plants as part of the burn plan. Positive impacts associated with prescribed burning would include the

temporary reduction of nonnative, competitive species such as annual grasses and/or mature stands of French broom (Nature Conservancy 2000).

Removal of eucalyptus, pine, and acacia by logging contractors would require the use of heavy equipment to access, cut, and remove trees. Removal of eucalyptus also involves the hand application of Garlon herbicide, to the stumps to prevent resprouting. Removal of French broom and coyote brush by hand crews would require the use of chainsaws, hand saws, weed eaters, and/or manual labor. Potential impacts to the federally listed plants from these actions could include accidentally crushing, breaking, uprooting or otherwise damaging plants. Erosion or compaction of area soils from use of heavy equipment also could have the potential to impact regeneration of federally listed plant species. Additionally, removal of eucalyptus would open up the habitat potentially enabling weedy plants including acacia, French broom, and Scotch broom to expand.

None of the vegetation removal activities are proposed to occur within Wildcat Canyon, which is where Santa Cruz tarplant occurs. Therefore, Santa Cruz tarplant will not be impacted by the vegetation removal actions. Although potential impacts from a prescribed fire that gets out of control are going to be minimized, they cannot be entirely eliminated. Santa Cruz tarplant still could be adversely affected if a prescribed burn gets out of control.

No removal of eucalyptus and application of Garlon is proposed to occur within 152 meters (500 feet) of Presidio clarkia. Therefore, Presidio clarkia will not be impacted by eucalyptus removal. Removal of Monterey Pines is proposed to occur within 30.5 meters (100 feet) of Presidio clarkia. However, several measures are planned to minimize or avoid adverse effects. In order to avoid incidental disturbance of federally protected plant species, all individuals in the vicinity of the proposed activities would be fenced off using highly visible, temporary construction fencing prior to the onset of tree removal. Fenced areas would be avoided in all stages of vegetation removal activities. In addition, BMPs (as previously discussed) would be implemented to minimize soil erosion. All access and staging of construction equipment would occur along existing roads or within the footprint of the proposed disturbance area. Additionally, to minimize effects to the Presidio clarkia from felling the Monterey Pines, the trees will be hand-logged, felled in the direction away from the Presidio clarkia, bucked into rounds small enough to be lifted by hand, loaded on an all-terrain vehicle for transport and moved off the habitat. Erosion remediation measures will be promptly implemented to avoid impacts due to accelerated erosion.

To minimize potential impacts from opening up the habitat and potentially enabling weedy plants to expand, EBRPD will perform maintenance follow-ups to ensure that cover by noxious weeds is not adversely affecting the special status plants.

Potential impacts resulting from Garlon application associated with eucalyptus removal include overspray of the herbicide onto nontarget plant species. Beneficial impacts of herbicide application to eucalyptus stumps and resprouts include the prevention of reestablishment of

nonnative eucalyptus which often shades out native understory vegetation. Garlon application to eucalyptus stumps is not proposed to occur near Santa Cruz tarplant or Presidio clarkia. Garlon will be hand sprayed on the stumps of approximately six eucalyptus trees adjacent to the parking lot of the Huckleberry Botanic Regional Reserve. This proposed eucalyptus removal and subsequent stump spraying at Huckleberry Botanic Regional Reserve is well over 61 meters (200 feet) from the siliceous barrens where the pallid manzanita occurs and is not expected to adversely affect the species.

Pallid manzanita, Presidio clarkia, and Santa Cruz tarplant do not occur in areas where grazing is to be introduced. Therefore, they would not be directly impacted by grazing activities. In addition, livestock fencing (5-strand barbed wire) would be installed to prevent livestock from straying to areas outside of designated areas.

Beneficial Effects - All Species

Beneficial effects of the fuel reduction activities include the reduction of the possibility of a catastrophic firestorm occurring within the action area, and the promotion and restoration of native habitat. The conversion of habitat from eucalyptus and pine forest to mixed brushland and grassland habitats would increase the acreage of available habitat for Alameda whipsnake, Callippe silverspot, Presidio clarkia, and pallid manzanita. Beneficial impacts associated with the removal of nonnative species include elimination of competition, elimination of dense canopy cover, and promotion of the expansion and/or restoration of native plant composition.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Several of the impacts described in the environmental baseline section have adverse cumulative effects on the Alameda whipsnake, callippe silverspot butterfly, pallid manzanita, Santa Cruz tarplant, and Presidio clarkia in the project vicinity, such as loss of habitat to development, impacts associated with recreational trail development and use, invasion of nonnative species, increase in urban predators, fire suppression, and incompatible grazing activities.

The majority of the open space remaining within the Tilden-Briones and Oakland-Las Trampas areas are characterized by steep slopes and undulating ridge tops. The continued development of ridge tops will continue to result in the loss of not only breeding and foraging habitat, but the loss of dispersal corridors across ridges, thus further isolating the remaining Alameda whipsnakes in these areas. The invasion of nonnative species and predators will also increase with the encroaching urbanization, as well as the feeding of feral animals which could result in

an increase in predation or result in significantly altering Alameda whipsnake behavior by continually harassing whipsnakes within these populations.

Furthermore, the recreational use of existing EBRPD open space will likely increase with the associated increase in subdivisions and could potentially result in an increase of Alameda whipsnake harassment, injury and mortality associated with recreational use of the existing trail system. Because of the potential impacts of fire to ridge top developments, fires will be immediately suppressed to the maximum extent possible, which will further decrease the suitability of scrub habitat for Alameda whipsnakes. Finally, grazing activities that are incompatible with Alameda whipsnake use of grassland will likely continue to impact the species and these impacts will likely be magnified with future ridge top development.

CONCLUSION

After reviewing the current status of the Alameda whipsnake, callippe silverspot butterfly, pallid manzanita, Santa Cruz tarplant and Presidio clarkia, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of these species. No critical habitat has been designated for the callippe silverspot, pallid manzanita, Santa Cruz tarplant or the Presidio clarkia, therefore none will be adversely modified or destroyed.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by the FEMA so they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption under 7(o)(2) to apply. The FEMA has a continuing duty to regulate the activity covered by this incidental take statement. If the FEMA (1) fails to adhere to the terms

and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of 7(o)(2) may lapse.

Sections 7(b)(4) and 7(o)(2) of the Act, which refer to terms and conditions and exemptions on taking listed fish and wildlife species, do not apply to listed plant species. However, section 9(a)(2) of the Act prohibits removal, reduction to possession, and malicious damage or destruction of listed plant species on lands under Federal jurisdiction and the removal, cutting, digging up, or damaging or destroying such species in knowing violation of any State law or regulation, including State criminal trespass law. Actions funded, authorized or implemented by a Federal agency that could incidentally result in the damage or destruction of such species on Federal lands are not a violation of the Act, provided the Service determines in a biological opinion that the actions are not likely to jeopardize the continued existence of the species.

Amount or Extent of Take

The Service anticipates that incidental take of the Alameda whipsnake will be difficult to detect or quantify during vegetation removal activities (mechanical treatments, prescribed burning, grazing, and chemical treatments) for the following reasons: the secretive nature of Alameda whipsnakes make the finding of a dead specimen unlikely, losses may be masked by seasonal fluctuations in numbers, and the species occurs in habitat that makes them difficult to detect. The Service also anticipates that callippe silverspot butterflies may be taken as a result of the vegetation removal activities, and that this take will be difficult to quantify due to the difficulty of finding dead or impaired specimens, whether as eggs, larvae, pupae, or adults. However, take of these butterflies can be defined by the loss of potential larval and nectar plant habitat, disturbance, and delay in the recovery of burned habitat. Due to the difficulty in quantifying the number of Alameda whipsnakes and callippe silverspot butterflies that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of habitat that will become temporarily unsuitable for the species as a result of the action. Therefore, the Service estimates that all Alameda whipsnakes inhabiting 120.1 hectares (296.7 acres) of habitat and all callippe silverspot butterflies inhabiting 112.16 hectares (277.15 acres) of habitat will be subject to take resulting from the implementation of the proposed action. For the callippe silverspot butterfly no more than individuals inhabiting 20.82 hectares (51.44 acres) in any one year due to mortality, harm, or harassment due to prescribed burns, will be incidentally taken. This take is expected to be in the form of harm, harassment, or mortality to Alameda whipsnakes and callippe silverspot from habitat loss during thinning, clearing, and the use of prescribed fire.

The Service anticipates that incidental take of Alameda whipsnakes will be difficult to detect during long-term monitoring and implementation of the research project which includes potential attachment of radio transmitters. The incidental take is expected to be in the form of mortality, harm or harassment. The number of individuals allowed to be killed or injured incidentally during trapping activities is two (2) Alameda whipsnakes in any calendar year. The number of

individuals allowed to be fitted with radio transmitters is four (4) Alameda whipsnakes per calendar year. An unlimited number of Alameda whipsnakes individuals will be allowed to be captured and manipulated within the 45- and 90-day long-term monitoring periods. Incidental death or injury of individual Alameda whipsnakes during prescribed burn (research project) activities that are not caused by burning, such as crushing by motorized vehicles or fire crews before, during and after the burn period is limited to one (1) Alameda whipsnake.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to either the Alameda whipsnake or callippe silverspot butterfly. Critical habitat has been designated for Alameda whipsnake, however, the Service determined the project would not adversely modify or destroy its critical habitat.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impact of take on the Alameda whipsnake and callippe silverspot butterfly:

1. Minimize the potential for harm, harassment, or mortality to Alameda whipsnakes.
2. Minimize the potential for harm, harassment, or mortality to callippe silverspot butterflies.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the FEMA must comply with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are non-discretionary.

1. To minimize the potential for harm, harassment, or mortality to Alameda whipsnakes FEMA shall ensure EBRPD complies with the following:
 - a. The Alameda whipsnake research project shall be reviewed and approved by the Service and CDFG before it is implemented. Only Service-approved biologists shall be permitted to handle Alameda whipsnakes during project implementation. All trapping protocol utilized shall be approved by the Service and CDFG.
 - b. All scrub habitat to be cleared from the project area will first be inspected for Alameda whipsnakes by a Service-approved biologist.

- c. All scrub habitat will be cleared with either hand crews or prescribed fire techniques. When prescribed fire is used to reduce vegetative buildup, hand crews shall clear all scrub vegetation along proposed fire lines.
 - d. FEMA shall ensure compliance with the reporting requirements below.
2. To minimize the potential for harm, harassment, or mortality to callippe silverspot butterflies FEMA shall ensure EBRPD complies with the following:
- a. EBRPD shall burn only 1/5 of any grassland area for a given colony in any 1 year. To determine colonies, EBRPD shall delineate potential habitat for callippe silverspot butterflies. Patches of potential habitat that are within 250 meters (820 feet) of each other shall be considered to be the same colony. In the absence of any field-based habitat assessment for the host plant for the larvae and nectar plants for the adults, all grasslands shall be considered potential habitat for the callippe butterfly; or
 - b. EBRPD shall conduct adequate surveys for callippe silverspot butterflies that are approved by the Service prior to implementation of the vegetation removal; or
 - c. EBRPD shall receive written Service concurrence that habitat for callippe silverspot butterfly is not present prior to vegetation removal. To receive written concurrence, a field-based habitat assessment by a Service-approved biologist shall need to be performed at a time of year when the host plant for the larvae and nectar plants for the adult are apparent; or
 - d. A combination of a, b and c.
 - e. FEMA shall ensure compliance with the reporting requirements below.

Reporting Requirements

FEMA must provide the Service with annual reports to describe the progress of implementation of all the commitments in the Conservation Measures and Terms and Conditions sections of this biological opinion. The first report is due by July 15, 2002. Subsequent annual reports are due on July 15th.

The Sacramento Fish and Wildlife Office is to be notified within three working days of the finding of any dead listed wildlife species or any unanticipated harm to the species addressed in this biological opinion. The Service contact person for this is the Chief, Endangered Species Division at (916) 414-6620.

The U.S. Fish and Wildlife Service Regional Office in Portland, Oregon, must be notified immediately if any dead or sick listed wildlife species is found in or adjacent to pesticide-treated areas. Cause of death or illness, if known, also should be conveyed to this office. The appropriate contact is Richard Hill at (503) 231-6241.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to implement recovery actions, to help implement recovery plans, to develop information, or otherwise further the purposes of the Act.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations. We propose the following conservation recommendations:

1. The EBRPD should study the fire response of *Presidio clarkia*, pallid manzanita and Santa Cruz tarplant in the proposed project and use results from those studies to practice adaptive management for the protection of the species.
2. The EBRPD should survey each burn area in the first spring after burning for *Presidio clarkia*, pallid manzanita and Santa Cruz tarplant.
3. The EBRPD should report study and survey results for *Presidio clarkia*, pallid manzanita and Santa Cruz tarplant to the Service.
4. The EBRPD should conduct surveys for *Presidio clarkia*, pallid manzanita and Santa Cruz tarplant on other EBRPD lands within the range of the species and determine whether management actions such as prescribed burning should be implemented to enhance any newly discovered populations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action(s) outlined in your request. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances


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where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding this opinion, please contact Maria Boroja or Jan Knight of the Sacramento Fish and Wildlife Office at (916) 414-6600.

Sincerely,


for Cay C. Goude
Acting Field Supervisor

cc: ARD (ES), Portland, OR
CDFG, Region 3, Yountville, CA
EBRPD, Oakland, CA

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