Draft Habitat Conservation Plan for the Point Arena Mountain Beaver and Behren's Silverspot Butterfly at the Fisher Property, 43400 Hathaway Crossing, Point Arena, Mendocino County, California

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1.0 Introduction and Regulatory Background

On December 12, 1991, the U.S. Fish and Wildlife Service (USFWS) formally listed the Point Arena mountain beaver (*Aplodontia rufa nigra*) (PAMB) as endangered under the Endangered Species Act (ESA) of 1973, as amended. On December 5, 1997, the USFWS formally listed the Behren's silverspot butterfly (*Speyeria zerene behrensii*) (BSSB) as endangered under ESA. The ESA prohibits the "take" of any fish or wildlife species that is listed under the ESA as threatened or endangered without the prior approval of the USFWS or the National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) under either Section 7 or Section 10(a)(l)(B) of the ESA. As defined under ESA, take means to "harass, harm, pursue, hunt, shoot, wound, kill trap, capture, or collect, or to attempt to engage in any such conduct." The implementing regulations further define "harassment" as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife 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 as "an act which actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills or injures the wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

Denise and Andy Fisher (the Applicant) are private landowners proposing to construct and permanently occupy a single family residence and associated improvements on 24.25 acres located approximately one mile northeast of the town of Point Arena, California, in coastal Mendocino County (see Project Location Map, Figure 1). Since this property is within the known range of the PAMB, in April 2003 the Applicant hired BioConsultant LLC to conduct a PAMB habitat assessment and survey. That survey documented five areas on the parcel with active PAMB sign (see Appendix A for the complete PAMB survey report). Following review of the survey report and a May 21, 2003 site visit, the USFWS determined that some of the planned activities would likely result in take of PAMB, although some specific actions, such as perk tests, could proceed immediately with low likelihood of incidental take (correspondence AFWO 1-14-2003-TA-1783).

Since this property is within the range of BSSB, in April 2004 the Applicant hired botanist Susan Holve to conduct a botanical survey for any threatened or endangered plants and for any western dog violet (*Viola adunca*). The western dog violet is the larval host plant for BSSB. The botanical survey located a single population of western dog violet that was comprised of approximately 20-30 plants (see Appendix B for complete botanical survey report). Since no ground or vegetation-disturbing activities are planned or anticipated for the area with the western dog violet, take of BSSB is not expected, but could not be conclusively ruled out over the next 80 years.

In order to proceed with the proposed single family dwelling and related improvements, the Applicant decided to pursue an Incidental Take Permit (ITP) under section 10(a)(1)(B) of ESA. Section 10(a) of the ESA establishes a process for non-federal entities such as private landowners, to obtain an ITP, which authorizes take of federally listed wildlife or fish species subject to certain conditions. Incidental take is defined by the ESA as take that is incidental to, and not the purpose of the carrying out of an otherwise lawful activity. Preparation of a Habitat Conservation Plan (HCP) for federally listed species proposed for coverage is required for all section 10(a)1(B) permit applications. An HCP specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. The Applicant proposes that the permit term for the ITP be 80 years.

Issuance of an ITP is a federal action subject to section 7(a)(2) of the ESA. Under section 7, federal agencies must consult with the USFWS and/or NOAA Fisheries as to whether the proposed action is likely to jeopardize the continued existence of a federally listed species. In this particular case, the USFWS will conduct an intra-Service consultation and produce a Biological Opinion which provides the USFWS determination regarding jeopardy of any federally listed species under their jurisdiction. The USFWS must also meet section 7 requirements with respect to any federally listed anadromous fish species, which are under the jurisdiction of NOAA Fisheries. On October 28, 2003 representative Eric Shott of NOAA Fisheries provided input during a site visit. During the proposed action there will be no direct disturbance of the creek bed or banks, no riparian vegetation will be removed, and sediment will be controlled (see Appendix D). Accordingly, the USFWS has determined that that the proposed action will have no effect on any federally listed fish under the jurisdiction of NOAA (John Hunter, USFWS Arcata, pers. comm.).

Issuance of an ITP is a federal action subject to National Environmental Policy Act (NEPA) compliance. Although section 10 and NEPA requirements overlap in many ways, the scope of NEPA is broader in its consideration of impacts to non-wildlife resources. NEPA requirements can be satisfied in one of three ways: 1) a categorical exclusion, 2) an Environmental Assessment (EA) or 3) an Environmental Impact Statement (EIS). Public scoping was conduced for this proposed project between December 1 and December 31, 2003 (correspondence AFWO 1-14-2004-TA-2036). No public input was received. The USFWS determined that for this project, an EA would satisfy NEPA requirements, and that a separate EA will be prepared.

The National Historic Preservation Act (NHPA) requires that federal action agencies (in this case the USFWS) identify and resolve impacts on historic properties. On July 13, 2005, the County of Mendocino Archaeological Commission determined that a full archaeological survey would be required for issuance of a Coastal Development Permit. The Applicant hired Heidi Koenig, who meets the Secretary of Interior's Professional Qualification Standards for archaeologist, to conduct a survey and evaluation of covered lands in accordance with Section 106 of NHPA. No historical resources were found that are eligible for the National Register of Historic Places. Accordingly, no further recommendations or actions were necessary with respect to historical resources. See Appendix C for the full archeological survey and evaluation report.

Under the California Coastal Act, this construction project requires a Coastal Development Permit from Mendocino County. After Mendocino County issues this permit they will notify the California Coastal Commission of the permit issuance. Since this project is located within 100 feet of a stream, the issuance of this permit can be appealed by the Coastal Commission.

2.0 Environmental Setting

2.1 Covered Lands

This HCP applies to the entire 24.25 acre parcel (AP# 27-211-02) located at 43400 Hathaway Crossing in the NW ¼ of section 7, T12N R16W, MDB&M Point Arena, Mendocino County, California. The parcel is roughly one mile northeast of the town of Point Arena, Mendocino County, California (Figure 1).

Land Use

The parcel is located within the Rollinghills subdivision. The 25 parcels in the subdivision are no smaller than 20 acres and are either undeveloped or used as single family residences. Prior to subdivision in the 1970's, the land was used for sheep and dairy ranching, and has remained largely undisturbed for over 25 years. Currently there is no livestock grazing on this parcel or on any of the lands adjacent to this parcel, and none is anticipated in the near future. There is an old wooden barn from the dairy farming era that is still standing on the property, as well as other wooden outbuildings that have collapsed and lay in piles of debris.

Physical Environment

The soils on the parcel are characteristic of "dystropepts, 30 to 75 percent slopes" – soils on side slopes of marine terraces (Rittiman and Thorson 1988). USDA Natural Resources Conservation Service describes this unit (#139) as soils formed in material derived from sandstone or shale. Dystropepts are shallow or moderately deep to bedrock and are well drained. A representative profile has a surface layer of dark grayish brown loam about 11 inches thick. The next layer is dark grayish brown very gravelly clay loam about 8 inches thick. Hard and soft, fractured shale is at a depth of about 19 inches.

Also included in mapping are small areas of Abalobadiah and Vizcaino soils, areas of rock outcrop, and areas of mass wasting along ocean bluffs. Also included are small areas that have slopes of less than 30 percent or greater than 75 percent. These areas make up about 25 percent of the total acreage of the unit. The percentage varies from one area to another. Permeability and available water capacity are extremely variable in these soils. The effective rooting depth is limited by bedrock at a depth of 10 to 40 inches. Surface runoff is rapid or very rapid, and the hazard of water erosion is severe or very severe.

Elevation ranges from 10 to 400 feet above sea level. The average annual precipitation is 35 to 45 inches, the average annual air temperature is about 53 degrees Fahrenheit, and the average frost-free period is 250 to 330 days.

Wetlands

Areas subject to jurisdiction under section 404 of the Clean Water Act include those areas that fall at or below the "plane of ordinary high water" of a waterway as defined by 33 CFR 323.2. Wetlands, as defined by the criteria established in the 1987 Corps of Engineers Wetland Delineation Manual, occur on the parcel (see botanical survey report, Appendix B for details).

Water Resources and Water Quality

The parcel is bisected by an unnamed tributary to Hathaway Creek which is heavily vegetated with a willow riparian forest averaging approximately 200 feet in width. The dense tree canopy (55% cover) is dominated by willows (*Salix lasiolepis* and *S. scouleriana*) at an estimated height of 20 feet with an understory of stinging nettle (*Urtica diocia*), and salmon berry (*Rubus spectabilis*). This unnamed tributary runs year around and has a small channel (estimated average width four feet and average depth one foot) exhibiting a bed of fine sediment intermixed with small gravel. Few rocks or cobbles are evident in the channel. It is a low gradient stream with no large woody debris. Due to its small size and the absence of suitable spawning and rearing habitat, it does not support anadromous fish.

Water quality on the project site is good. There are no signs of accelerated erosion in the tributary to Hathaway Creek which exhibits a stable channel bottom, heavily vegetated banks and a healthy floodplain. The parcel has never been developed and its historic use as a sheep ranch would indicate that groundwater contamination would be unexpected.

None of the covered activities are proposed in or near the unnamed tributary to Hathaway Creek (i.e., there will be no direct disturbance to the creek bed or banks or riparian zone within 100 feet of the channel). Two of the covered activities will occur outside of but in close proximity to the 100 foot riparian buffer (See Figure 2):

1. The existing barn will remain insitu. An old dirt road off Creekside Spur was historically used to access the barn, but now is impassable due to encroachment by riparian vegetation. To minimize disturbance to the riparian vegetation, this road will be relocated to higher ground above the riparian area and will be

crushed gravel roadbase, 10 foot wide by approximately 300 feet long. (See Grading Plan, Appendix D.) Where the new road reconnects with the old one, grading will occur at the boundary of the 100 feet buffer zone. This distance to the creek channel is greater than 100 feet.

2. Several old outbuildings have fallen to the ground in the vicinity of the remaining barn. The debris will be cleared for a paddock, and for parking and movement around the barnyard. All of this debris will be removed and/or salvaged primarily by hand or using small equipment such as a skidsteer or backhoe. There will be minimal soil disturbance over approximately 0.5 acre. The distance to the creek channel is greater than 100 feet.

In order to control erosion, grading the driveway to the barn and clearing the collapsed building debris will be scheduled in the dry season. Native grass seed and mulch will be applied to slopes with exposed soil prior to the onset of winter following guidelines set forth in the Grading Plan (Appendix D).

Vegetation

The varied topography of the 24.25 acre parcel creates a rich mosaic of habitat types and plant associations which overlap and intergrade into one another. The land contains mixed habitat types and plant associations dominated by northern coastal scrub, willow riparian forest, closed-cone coniferous forest, and seasonal wetland. Areas of grassland are intermixed within the northern coastal scrub community.

Northern coastal scrub covers much of the moderate slopes. The open coastal scrub field on the south facing slope is dotted with seeps, while the east and lower west facing slopes have tall, mostly closed overstories. Conifer stands contain Monterey cypress, Bishop pine, Douglas fir, and coast redwood. The redwood is in areas protected from salt spray. A willow-dominated riparian corridor of a tributary to Hathaway Creek bisects the parcel.

A total of 116 plant species were identified during the botanical survey. These included 83 native plants (72%) and 33 non-natives (28%). More detail on the vegetation can be found in Appendix B.

Wildlife

Given the diverse range of habitat types in the area, a wide variety of wildlife species can be found in the project area. Amphibians likely present in the riparian strip include Pacific tree frog (*Pseudacris regilla*), and possibly northern red-legged frog (*Rana aurora aurora*). The project area is greater than 30 miles from the listed range of California red-legged frog (*Rana aurora draytonii*) (USFWS 1996). Reptiles such as western fence lizard (*Sceloporus occidentals*) and garter snakes (*Thamnophis* spp.) are likely present in upland areas. Mammals known to be present in this general area include black-tailed deer (*Odocoileus hemionus*), bobcat, (*Lynx rufus*), and brush rabbit (*Sylvilagus bachmani*). Numerous bird species can also be found in the area including residents such as California quail (*Callipepla californica*) and migratory species such as

Wilson's warbler (*Wilsonia pusilla*). There are no late seral forested habitats on the parcel, nor are there any species associated with older forests.

Threatened or Endangered Species

Other than PAMB and BSSB, no other federally listed species or species proposed to be listed are known to occur within or adjacent to the HCP area. According to the USFWS, the only other federally listed species under their jurisdiction that could occur in or adjacent to covered lands is the Contra Costa goldfield (*Lasthenia conjugens*). This species historically occurred about 2 miles northwest of the project area, but has not been reported there since 1937, and may be extirpated from Mendocino County. Contra Costa goldfield was looked for during the botanical survey but was not found (Appendix B). Due to their absence on this parcel, no Contra Costa goldfields will be taken as a result of this project. Critical habitat has been designated for Contra Costa goldfield, but the project area is well outside of that critical habitat unit. Critical Habitat for PAMB and BSSB have not been designated, thus none will be affected by this project.

During the October 2003 site visit by NOAA Fisheries, it was determined that the reach of creek bisecting the HCP area was not suitable salmonid habitat; however, any major soil disturbance in or near the creek and riparian corridor could have potential impacts to listed salmonids and their habitat downstream. For this reason, this HCP includes a detailed description of land use near the riparian corridor under "Water Resources and Water Quality" above. This creek feeds into Hathaway Creek, which then drains into the lower reach of the Garcia River. California coastal Chinook salmon (*Oncorhynchus tshawytscha*), central California coast coho salmon (*Oncorhynchus kisutch*), and Northern California steelhead (*Oncorhynchus mykiss*) are all known to occur in the lower reaches of the Garcia River, and are likely to occur in Hathaway Creek.

Cultural Resources

During records searches and contacts with knowledgeable parties, no archaeological sites were identified within a ½ mile radius of the parcel. No prehistoric archaeological materials were observed during the archaeological survey (Appendix C). A standing barn/equipment shed, a collapsed barn, a road segment, and five intermittent fencelines were recorded during the survey, but none were deemed a significant cultural resource.

2.2 Covered Species

Both the PAMB and the BSSB will be covered species under this HCP and the ITP.

2.2.1 Point Arena Mountain Beaver Natural History

This subspecies is known from only a 24-square-mile area of coastal Mendocino County located south of a point two miles north of Bridgeport Landing, north of a point five miles south of the town of Point Arena and to a distance of five miles inland from the Pacific Ocean (Camp 1918). The PAMB is isolated from the other three subspecies of *Aplodontia* found along the northern coast of California, as it is 80 miles south of the

Humboldt mountain beaver (*A. r. humboldtiana*), and 60 miles north of the Point Reyes subspecies (*A. r. phaea*). The Pacific mountain beaver (*A. r. pacifica*) is located further north in coastal California than *A. r. humboldtiana*.

Mountain beavers live in underground burrow systems with openings under moderately tall, lush, perennial vegetation. Probably due to a limited ability to thermoregulate, burrow systems are often found in areas that are cool and moist and on north-facing slopes or in gullies. Soils are typically friable and well-drained, although free water in burrows is not uncommon. Burrow openings are approximately six inches in diameter and occur every few feet with tunnels generally running within one foot of the surface (Racy 1922). Tunnels can occur, however, at any depth from just beneath to 6.6 feet below the surface (Feldmaner and Rochelle 1982). While burrows can extend for more than 330 feet on one direction, most probably do not exceed 80 feet (Camp 1918, Voth 1968). Voth (1968) considered that five types of underground chambers occur: nest, food, refuge, fecal pellet, and earth ball storage. Mountain beavers spend about 75 percent of their time in the nest chamber (Ingles 1959, Kinney 1971). While burrows of several animals are often connected, they are highly territorial, not colonial, and exhibit little social interaction outside of breeding (Camp 1918, Scheffer 1929).

As is true of many burrowing (i.e., fossorial) animals, mountain beavers have highly developed tactile senses and will respond quickly to the slightest disturbance of their guard hairs or whiskers (USFWS 1998a). While little is known about their hearing sensitivity, the fossorial nature of the species suggests sensitivity to ground vibration and noise.

The PAMB is found in a variety of habitat types, including coastal scrub, coastal strand, conifer forest, and riparian. Coastal scrub habitats contain coyote brush (*Baccharis pilularis*), wax myrtle (*Myrica californica*) and other brush species, as well as various *Rubus* spp. While one observation of burrow openings is known in a redwood (*Sequoia sempervirens*) stand (USFWS 1998a), large trees with extensive root systems apparently impede burrow excavation and also produce a mat of duff and exclude sunlight which preclude the growth of vegetation used for cover, forage, and nesting material. Mountain beavers favor openings in conifer stands, and readily colonize areas where conifers have been removed (Scheffer 1929, Hooven 1973, Neal and Borrecco 1981). Mountain beavers also select areas where coarse woody debris remain following logging (Hacker and Coblentz 1993). Riparian areas where PAMB are found are often dominated by red alder (*Alnus rubra*) and sword fern (*Polystichum munitum*), although they use willow (*Salix* spp.) riparian types. No available information exists on the amount, distribution, or relative quality of PAMB habitat throughout the range. Areas of seemingly suitable habitat near occupied sites are often unoccupied.

The PAMB is a strict vegetarian, eating a wide-range of plant species including bracken fern (*Pteridium aquilinum*), sword fern, stinging nettles (*Urtica* sp.), thistles (*Crisium* spp.), corn lily (*Veratum* sp.), salal (*Gaultheria shallon*), foxglove (*Digitalis purpurea*), larkspur (*Delphinium* sp.), and skunk cabbage (*Lysichitum americanum*) (USFWS 1998a).

No PAMB-specific data exist on population size or densities, or the relationship between the number of burrow openings and the number of animals. Some population estimates (including those made in this HCP) have been based on a ratio of one animal for every five to 10 burrow openings (USFWS 1998a), although little empirical justification exists for these estimates. One rough estimate puts the total PAMB population at 200 to 500 individuals (USFWS 1998a). For the other subspecies, population densities have ranged from 0.25 to 5.7 individuals per acre (USFWS 1998a). USFWS (1998) indicated that 26 "populations" exist. To date, a total of 240 sites have been mapped. However, it is unknown which of these sites should be combined or separated into distinct groupings or subpopulations.

The level of genetic mixing between any geographic groupings of sites is unknown. Hacker and Coblentz (1993) found mountain beaver will disperse up to, and possibly greater than, 1,474 feet; Martin (1971) recorded a subadult dispersing 1,850 feet. The dispersal season is considered to be April 15 through September 30 (Pfeiffer 1958, Martin 1971). Juveniles generally complete dispersal in early fall. Dispersal occurs primarily through excavation within the burrow system, although some overland movement has been noted (Martin 1971). Dispersing animals may make several attempts to establish a nest before finding a suitable site. Unoccupied nests may be quickly inhabited, and once established a burrow system is used over the long-term.

For a rodent, the reproductive potential for mountain beaver is relatively low. Females typically do not breed until their second year. The sex ratio (number of males to females) of juvenile mountain beaver is 1:1 (Lovejoy and Black 1979). Trapping data indicates a skewed sex ratio favoring males, but it is unknown if this is an artifact of trapping. All females ovulate at about the same time (Pfeiffer 1958). Litters consist of two or three offspring, rarely four or five (Herlocker 1950, Maser et al. 1981). The PAMB breeding season has been estimated to run from December 15 through June 30, based on the period when testes begin to increase in size and the end of lactation (Hubbard 1922, Scheffer 1929, Pfeiffer 1958, Lovejoy and Black 1974). Recently, the estimated breeding season was revised to begin December 1 based on the findings on Zielinski and Mazurek (2006).

Mountain beavers are mostly nocturnal, but they are seen in the daytime. Bright sunlight appears to make them drowsy (Godin 1964). Although activity decreases during the winter, they do not hibernate and are active all year (USFWS 1998a). Ninety percent of the recorded locations for 10 radio-tagged adults in western Washington were less than 80 feet from their nest chambers (Martin 1971).

2.2.2 Mountain Beaver Baseline on Covered Lands

On March 19 and 20, 2003, the entire parcel, except those areas deemed unsuitable, was surveyed for PAMB sign. The survey effort found five distinct burrow areas within the property boundaries. The complete report can be found in Appendix A. On January 9, 2007 John Hunter of the USFWS conducted additional PAMB surveys and noted that BA4 was larger than reported in the initial survey report (Appendix A), and was actually

0.15 acres in size and contained approximately 20 to 40 burrow openings. The following table summarizes the details of each burrow area (BA).

Table 1. Summary of PAMB Survey Burrow Areas (BA)

Burrow Area	BA 1	BA 2	BA 3	BA 4	BA 5
Size of burrow area (acres)	0.24	1.46	0.32	0.15	0.28
Approx. # burrow openings	100+	500 - 750	100 - 200	20 - 40	100 - 200
Estimated # of PAMB	10 - 20	50 - 150	10 - 40	2 - 8	10 - 40

The combined size of all BAs is 2.45 acres, which means the amount of occupied habitat on covered lands is 10.10% of the 24.25 acre parcel. There are 9.55 acres of unoccupied but suitable PAMB habitat on the parcel. Thus, the survey identified a total of 12 acres of suitable habitat on the parcel (i.e., northern coastal scrub, mesic northern coastal scrub and coniferous forest). The remaining 12.25 acres of unsuitable habitat is comprised primarily of xeric northern coastal scrub, grasslands and riparian willow forest.

A collapsed barn near the riparian corridor has created habitat for PAMB in BA 1. The wooden debris has created "artificial suitable habitat" by providing cover in an open field that would otherwise be too exposed. The burrow openings located along the edge of the debris pile appear to be less active than those in the coastal scrub, and may be used seasonally; however, burrows in the interior of the debris were not examined because of undo risk of impact.

2.2.3 Behren's Silverspot Butterfly Natural History

BSSB is a medium-sized butterfly with a wingspan of approximately 2.2 inches. The upper surfaces are golden brown with numerous black spots and lines. Wing undersides are brown, orange-brown, and tan with black lines and distinctive silver and black spots. Basal areas of the wings and body are densely pubescent.

Thirteen species of true fritillary, or silverspot butterflies, occur in North America. The genus *Speyeria* encompasses a complex group of ten fritillary species. Within *Speyeria zerene*, subspecies are clustered into five major groups that are genetically distinct but not genetically isolated, and some interbreeding likely occurs. The BSSB is one of eight subspecies in the *bremnerii* group, which occurs in the Pacific northwest west of the Cascade Range and on the California Coast (USFWS 2003).

The BSSB is similar in appearance to two other subspecies of *Speyeria zerene* (Howe 1975, Hammond 1980, McCorkle and Hammond 1988). The Oregon silverspot butterfly (*S. z. hippolyta*), federally listed as threatened, has a coastal distribution to the north of *S. z. behrensii*, from Lake Earl in California to Long Beach, Washington (USFWS 2001). The Myrtle's silverspot butterfly (*S. z. myrtleae*), federally listed as endangered, occupies the southernmost range of all the coastal Zerene silverspot butterflies, occurring historically from coastal San Mateo County north to coastal Sonoma County, near Jenner (USFWS 1992, USFWS 1998).

The historic range of BSSB is based on six known locations which extended from near the City of Mendocino, Mendocino County, south to the area of Salt Point State Park, Sonoma County. The six locations, from north to south are: 1) Mendocino headlands (the type location), 2) Point Arena, 3) south Anchor Bay headlands, 4) Sea Ranch, 5) Stewarts Point, and 6) north of Salt Point. All of these sites are immediately adjacent to marine waters.

There is scant published information for the BSSB. Thus, the best available information on life history of the BSSB comes from studies of another taxonomically-close coastal subspecies, the Oregon silverspot butterfly. This information is summarized in the draft recovery plan for the BSSB (USFWS 2003), and in the recovery plans for the other two subspecies (USFWS 1998b, USFWS 2001). Studies of the Oregon silverspot found that females lay their eggs in the debris and dried stems of the larval food plant, the western dog violet (*Viola adunca*) (McCorkle 1980; McCorkle and Hammond 1988). However, other violets (*Viola* sp.) may be used as well. Upon hatching, the caterpillars (i.e. larvae) wander a short distance and spin a silk pad upon which they pass the fall and winter in diapause (i.e., physical dormancy). Prior to their pre-diapause movement, the newly hatched first-instar larvae eat the lining of the eggshell prior. The larvae are dark-colored with many branching, sharp spines on their backs. Upon termination of diapause in the spring, the larvae immediately seek out the violet food plant. During the spring and early summer, they pass through five instars (stages of development) before forming a pupa within a chamber of leaves that they draw together with silk. The adults emerge in about two weeks and live for approximately three weeks. Depending upon environmental conditions, the flight period of this single-brooded butterfly ranges from about July to August or early September. Adult males patrol open areas in search of newly emerged females. The flight period for the BSSB is generally earlier in the year (mid to late summer) than it is for the Oregon silverspot butterfly (late summer to early fall), and larval development appears to be faster in the Behren's subspecies. Both the earlier flight period and increased larval development rate in the BSSB may be a response to generally warmer temperatures at southerly latitudes.

BSSB flight behavior is moderately erratic and swift in windy places, 2 to 6 feet above ground surface. During calm periods, flight is sometimes gentle and relaxed, especially when fog is present. Males appear to stay within several hundred feet of places where females occur. Flights usually occur by late morning when temperatures are above 60 degrees Fahrenheit, with males becoming skittish at 70 or 80 degrees Fahrenheit. Newly emerged males pause much less frequently than older males and females, and seem to remain on wing for longer periods of time. Newly emerged males can be difficult to approach. Adults may feed on nectar as long as five minutes, returning to the same plant repeatedly. Butterflies may rest on bare ground, in grasses, or on ferns (e.g., bracken fern) (*Pteridium aquilinum*) and other foliage. They almost always extended their wings horizontally during periods of rest, but may close them tightly after feeding and when basking.

The BSSB inhabits coastal terrace prairie habitat west of the Coast Range in southern Mendocino and northern Sonoma Counties, California. This habitat is strongly

influenced by proximity to the ocean, with mild temperatures, moderate to high rainfall, and persistent fog. An occupied or potential site must have two key resources: 1) caterpillar host plants; and 2) adult nectar sources. Distribution of the BSSB is highly dependant on these resources. Depending on the patchiness and spatial distribution of suitable habitat, a location may have a single butterfly population or several subpopulations that function as a metapopulation. In this context, a metapopulation is a group of populations existing at a spatial scale where individuals can occasionally disperse among different populations or patches, but these movements are not frequent because habitat patches are separated by substantial expanses of unsuitable habitat; patches may go extinct and be recolonized by migrants from other populations within the metapopulation (e.g., Harrison et al. 1988).

Holland (1986) describes coastal terrace prairie as dense, tall grassland (to about 3 feet) dominated by both sod- and tussock-forming perennial grasses. Soils are sandy loams on marine terraces below 700 to 1000 feet and within the zone of coastal fog. Vegetation is typically quite patchy and variable in composition, reflecting local differences in available soil moisture capacity. Plant species associated with coastal terrace prairie include: alta fescue (*Festuca arundinacea*), black berry (*Rubus vitifolius*), bracken fern, coast mugwort (*Artemisia suksdorfii*), coyote brush (*Baccharis pilularis*), red alder (*Alnus rubra*), salal (*Gaultheria shallon*), tufted hairgrass (*Deschampsia cespitosa*), and yellow bush lupine (*Lupinus arboreus*) (Sawyer and Keeler-Wolf 1995). Within the coastal terrace prairie, western dog violets (*Viola adunca*.) need to be a component of the vegetative composition of the site, as they are the butterfly's larval host plant. Nectar sources need to be available to foraging adults during the summer flight period. BSSB were observed foraging on thistles (*Cirsium* sp.) at the extant Point Arena location. Violets occur in isolated patches at the Point Arena location, possibly a result of soil moisture and cattle grazing.

No quantitative data are available on the density, dispersal, or home range of BSSB. Adults are believed to move distances of up to hundreds of yards, perhaps in response to nectar availability, or to escape foggy or windy conditions (USFWS 2001).

No data are available on reproduction of the BSSB, and the following information is based primarily on observations of the Oregon silverspot butterfly. Males often emerge several weeks before females, and mating usually takes place in relatively sheltered areas (USFWS 2001). Female Oregon silverspot butterflies oviposit within or adjacent to areas with *Viola adunca*, and perhaps other violet species (USFWS 2003). Females appear to select areas with vegetation heights less than 10 inches; females did not search for oviposition sites in areas with taller vegetation (Singleton 1989 cited in USFWS 2001). Female Oregon silverspot butterflies captured in the wild and observed in the laboratory have laid up to 200 or more eggs (McCorkle 1980, and Arnold 1988, cited in USFWS 1998b). Under laboratory conditions, females of a related species, *Speyeria mormonia*, laid an average of 250 eggs during their lifetimes (Boggs and Ross 1993, cited in USFWS 1998b); numbers laid in the wild may be less.

The primary threats to the BSSB, are overcollecting, and habitat destruction, fragmentation and degradation due to urban development, alien plant invasion and competition (especially from conifers), and excessive livestock grazing (USFWS 1997). Development in the coastal plain prairies has accelerated since listing, and increasingly threatens habitat. Other factors include potential genetic problems associated with small populations, the lack of periodic fires which can maintain coastal prairie habitats, and the inadequacy of existing regulatory mechanisms (USFWS 1997).

Very little is known about the area and distribution of suitable habitat for the BSSB. A qualitative assessment of the known occupied sites and land-use patterns suggests that coastal prairie habitat is highly fragmented by agricultural and residential use, roads, and other human development. Within this fragmented landscape, suitable coastal prairie habitat with violets and nectar plants is patchy and further fragmented. The degree to which areas of suitable habitat are connected by suitable dispersal habitat is unknown.

In 2004, the BLM conducted a survey of *Viola adunca* on its Stornetta Ranch property on Point Arena (Sander 2004), an area which supports BSSB. The survey results indicated a patchy distribution with a few small areas with high violet density, a few small areas with low violet density, and extensive areas with very sparse or no violets. Within a survey area of roughly 700 acres, about 5 acres supported violets at a ground cover of 0.01% or greater, of which less than 1.5 acres supported a cover of 5% or more.

Reduced and altered disturbance patterns appear to have reduced the openness of coastal prairie habitats, which has likely impacted habitat quality. Researchers have found abundance of western dog violets and levels of Oregon silverspot oviposition activity to be inversely correlated with vegetation height and thatch depth (Singleton 1989, McIver et al. 1991, Pickering et al. 1992). Although unconfirmed, likely the relationship between butterfly oviposition and vegetation height and thatch depth is similar for the BSSB. Western dog violets can persist in a suppressed vegetative form or in the seed bank for many years. Removal of shrubs and trees has released dormant violets that subsequently have initiated vigorous growth (Hammond 1986), however subsequent to removal of woody over story, some Oregon silverspot sites were invaded by perennial, exotic grasses which have suppressed violets.

Remaining coastal prairie habitats on which the species depends have been affected by several forces. Three factors likely affect rates of succession of coastal terrace prairie habitat: soil conditions; salt spray and mist from breaking waves and onshore winds; and disturbance regimes. Without these factors, succession of coastal terrace prairies to non-prairie habitats is rapid under favorable growing conditions. Disturbance regimes have changed dramatically over the last century. Landslides, herbivory by invertebrates, small mammals, and large native ungulates, and burrowing by small mammals likely played a role in creating or maintaining open conditions. Fire, likely set by aboriginal peoples, was an important factor that maintained coastal terrace prairie habitat, although little is known about fire regimes in the species' range. The spread of invasive non-native plants, especially conifers, further exacerbates the habitat degradation resulting from altered disturbance regimes.

Some level of grazing by domestic livestock may benefit the species by maintaining suitable prairie habitat, while overgrazing and trampling of butterfly eggs, larvae, or pupae are potential adverse effects on habitat quality. The largest known population/metapopulation includes occupied areas which have been grazed by cattle for many decades.

Little is known regarding the status (i.e., population size or trend) of the BSSB. Limited surveys have been conducted, primarily to determine the presence of the butterfly at previously known sites. Recent surveys have shown the species to persist at three of the six known historic locations (USFWS Arcata files). The area of potential habitat, and likely populations, appears to be small at two of these three locations. The third area, near Point Arena, appears to have more a widely-distributed population, at multiple locations within an area of several square miles. There is no documentation in the records that quantifies the number of individuals at a specific site, or on a range-wide basis. Repeated surveys would be needed to establish a baseline and population trend. Consequently, no data are available regarding the population trends for the butterfly. The USFWS believes it likely that the overall population numbers are declining based on increased development, an altered disturbance regime, and agricultural pressure occurring within the subspecies' range. A monitoring program to determine trends at site locations and throughout the butterfly's range is required before the population status can be adequately determined.

2.2.4 Behren's Silverspot Butterfly Baseline on Covered Lands

There are no historical records of BSSB on covered lands and the nearest known site for this species is about 2 miles to the west on Bureau of Land Management lands (Stornetta Ranch) along the road to the old Coast Guard Loran Station. Covered lands have not been surveyed for BSSB, but covered lands have been surveyed for the larval host plant, western dog violet. During that botanical survey (Appendix B), a site containing 20 to 30 western dog violet plants were found in an area greater than 300 feet from any currently proposed covered activity. This is the only area of suitable breeding habitat for this butterfly on the parcel, and is about 0.10 acres. This western dog violet population is located on a west-facing slope in a moist section of northern coastal scrub habitat (see Site Map; Figure 2).

In addition to the single occurrence of western dog violet, other portions of the north coastal scrub habitats, especially those intermixed with grassy habitats (including parts of both conservation areas) may support undetected western dog violet, or may support western dog violet in the future. However, given the low number of western dog violet found and the presence of brushy species over much of the parcel, the likelihood of BSSB breeding on covered lands is relatively low. The likelihood of BSSB breeding on the parcel is also low because covered lands are at least 1.5 miles from marine waters and not comprised of more typical coastal terrace habitats.

Nectar sources (i.e., food sources for adult BSSB) including but not limited to yarrow (*Achillea milleformis*), thistle (*Cirsium* spp.) and cat's ear (*Hypochaeris* spp.) are known

to occur on covered lands and within the two conservation areas. Given the diversity of plant species found in the more densely vegetated PAMB habitat, these areas (12 acres) are considered to be potential foraging habitat for adult BSSB. There are 7.9 acres of grassy and light shrub habitats on the parcel that are currently not BSSB breeding habitat, but could become breeding habitat in the future if western dog violet become established there. In addition, there are approximately 4.25 acres on the parcel, mostly comprised of coniferous forest or riparian willow forest, that are currently considered unsuitable BSSB habitat, and will likely remain that way throughout the permit term.

3.0 Covered Activities

It is intended that all activities associated with the construction and long-term occupation of the house, use of the existing barn, cleanup of collapsed building debris, non-commercial grazing of livestock, gardening and other associated activities as described below shall be covered activities under this HCP. Anticipated duration of primary (house) construction activities is expected to last five to six months, but may occur over an extended time period during the 80 year permit period. All features currently anticipated to be constructed or installed are shown on the Grading Plan (Appendix D) and the site plan (Figure 2).

House

The applicants propose to build a 1,493 square foot, two bedroom, one bath single family dwelling. A domestic well has been drilled on the knoll, and a septic system and leach field are planned for installation downslope from the house.

Driveway

The house will require the construction of a 12-foot wide, 175-foot long gravel driveway which will include the placement of a culvert and fill. The driveway will traverse the upper contours of a gully currently occupied by BA 4 (see the Grading Plan, Appendix D).

Barn and Access Road

The existing barn will remain insitu. An old dirt road off Creekside Spur was historically used to access the barn, but now is impassable due to encroachment by riparian (willow) vegetation. To minimize disturbance to the riparian canopy, this road will be relocated to higher ground above the riparian area and will be crushed gravel roadbase, 10 foot wide by approximately 300 feet long (see the Grading Plan, Appendix D).

Collapsed Buildings

Several old outbuildings have fallen to the ground in the vicinity of the remaining barn. The area will be cleared for a paddock, and for parking and movement around the barnyard. All of this debris will be removed and/or salvaged primarily by hand or using small equipment such as a skidsteer or backhoe.

Livestock Pasture
At the south end of the property is an open field of xeric northern coastal scrub which has potential for several future uses including but not limited to an organic garden and/or orchard, a pasture and even a second structure (i.e., a "granny" unit). The Applicants current plans are to build a fence to create a 3.5 acre pasture which will serve the dual purpose of containing livestock (e.g., horses) and restricting their movement into the mesic coastal scrub area of adjacent suitable PAMB habitat to the southeast.

Fencing
In addition to the livestock pasture, further fencing may be installed around the proposed conservation areas or the entire parcel at the Applicants discretion. It is not anticipated that perimeter fencing will be required since open range grazing in not permitted in the area.

Activities Adjacent to Riparian Corridor
No earthwork or tree removal is planned within 100 feet of the unnamed tributary to Hathaway Creek, nor shall there be any direct disturbance to the creek bed or banks. Relocation of the barn access road is intended to preserve the healthy growth of willows that have overgrown the old road. Some individual willow branches will be trimmed back where the new road re-joins the old road near the barn. Similar selective trimming of willow branches will occur around the barn and debris pile (barnyard). Whether the garden area is tilled, or raised beds installed, a grass buffer at least 25 feet wide will remain between the riparian vegetation and the garden area. Soil tilling is planned for the non-rainy season. See the Grading Plan for details on erosion control.

Other Associated Activities
Covered activities allowable under this HCP include all other activities associated with home site development and long-term occupancy that are conducted outside of the two conservation areas, greater than 100 feet from the tributary to Hathaway Creek, and do not impact any wetland habitats as defined by the criteria established in the 1987 Corps of Engineers Wetland Delineation Manual. These other covered activities include, but are not limited to, construction of additional structures or improvements, installation of utilities such as power and water lines, and the planting of ornamental or other vegetation.

4.0 Alternatives Analyzed

4.1 Alternative 1 – Proposed Project

Under this alternative the HCP as proposed by the Applicant would be approved, followed by issuance of a permit under section 10(a)(1)(B) of the ESA to authorize the incidental take of PAMB and/or BSSB in the course of constructing a single family residence and subsequent occupation of the project site. This alternative includes provisions for minimization and mitigation of incidental taking as described in section 6.3, which details critical timing of the project in relation to PAMB breeding season and the establishment and management of two permanent conservation areas.

4.2 Alternative 2 – Alternate Project Layout

Altering the proposed project layout to eliminate take of the PAMB and BSSB would result in a drastically limited area available for carrying out the proposed activities and would eliminate the use of the existing barn and associated barnyard. Under this alternative, no ITP would be required therefore eliminating long-term habitat protection afforded to the PAMB and BSSB under this HCP.

4.3 Alternative 3 – Alternate Project Location/No Action

This alternative assumes that the Applicant is able to divest themselves of the project property and the proposed project would not proceed. With available real estate becoming scarce and land values continuing to rise, the possibility of acquiring a comparable parcel has become unlikely and/or uneconomical.

5.0 Potential Impacts

5.1 Alternative 1 – Proposed Project

Land Use
The proposed project is consistent with current zoning and land use on other parcels in the vicinity. No significant impact to land use is anticipated.

Geology/Soils
While some surface soil alterations will result from the proposed project, no significant geologic impacts are anticipated.

Wetlands
No significant impacts are anticipated to wetland areas on the parcel. No draining or filling of wetlands are planned, and draining or filling wetlands are not covered activities.

Water Resources and Water Quality
None of the covered activities are proposed in or near the unnamed tributary to Hathaway Creek. By implementing a dry season grading schedule coupled with installation of appropriate erosion control measures, no significant sediment delivery to the creek is anticipated. While subsurface groundwater resources will be slightly altered by the development of a well, they are not expected to be significant due to the small size of the project.

Vegetation
Most of the vegetation resources associated with construction of a single family residence and associated driveways to the barn and residence will be altered. Total area of surface disturbance by construction activities will be approximately one acre. Vegetation within the two conservation areas (totaling 7.75 acres) will remain undisturbed. The remaining 15.5 acres on the parcel will be subject to minor alterations commensurate with implementation of the covered activities.

Wildlife

Wildlife within the areas planned for development will likely be displaced to nearby suitable habitat, which could result in increased competition for nesting, foraging, breeding and feeding areas. Much of the parcel will be left in its current natural state and will continue to provide habitat for a variety of wildlife species. Human activities may result in negative impacts to certain species, while others may be unaffected or positively affected.

Threatened or Endangered Species

While any major soil disturbance in or near the creek and riparian corridor could have potential impacts to listed salmonids and their habitat downstream, none are expected from the proposed project. California coastal Chinook salmon, central California coast coho salmon, and Northern California steelhead are all known to occur in the lower reaches of the Garcia River, and are likely to occur in Hathaway Creek. Construction timing and erosion control measures are addressed in this HCP specifically to minimize the possibility of impacts to these species. The USFWS has determined that this project will have no effect on any listed salmonid.

This project is outside the listed range of the California red-legged frog, and the botanical survey indicated absence of Contra Costa goldfields, therefore, neither of the federally listed species will be taken as a result of this project.

Other than PAMB and BSSB, no other federally listed species or species proposed to be listed are known to occur within or adjacent to the HCP area. Critical Habitat for PAMB and BSSB have not been designated, thus none will be affected by this project. Impacts to the resident PAMB population and BSSB are described below in an assessment of take.

Assessment of Take

Burrow Areas 2, 3, and 5, which are within conservation areas 1 and 2, will be fully protected in perpetuity and no PAMB from these areas will be taken during any aspect of implementation of this HCP. No vegetation or ground disturbing activities will occur in the conservation areas, thus there will be no direct take or habitat removal or degradation in the conservation areas. Conservation area 1 is located on the opposite side of the riparian strip from all covered activities and the riparian area serves as a buffer from all sound and vibration disturbance that may occur to PAMB as a result of those covered activities. The occupied areas within the conservation areas could potentially expand to include all 6.75 acres of suitable PAMB habitat within those set-aside areas. These two conservation areas also currently contain an estimated 70 to 230 PAMB, and a total of 2.06 acres of occupied habitat. The conservation areas contain approximately 86% of all individual PAMB on covered lands and 84% of all occupied habitat on covered lands.

BA 4 will likely be totally destroyed by the driveway construction. It is estimated that up to 8 PAMB will be directly taken (harmed) during this phase of project implementation. An estimated 0.15 acres of occupied suitable and approximately 0.10 acres of unoccupied suitable habitat will also be permanently lost by the driveway construction. This BA is

considered the least important BA on the parcel since it occurs in an isolated, upslope area, and does not contribute to the continuity of all the other BAs on the site which area all associated with riparian corridors.

It is anticipated that about one-half of BA 1 will be destroyed by the barn debris removal, and up to 10 PAMB may be directly taken during this aspect of project implementation. In addition, over time the remaining portions of BA 1 will be subject to consistent and continuous habitat degradation and noise/vibration disturbance associated with barn use, as well as other covered activities. This will possibly result in the additional take of the remaining 10 PAMB. Thus, due to harm and harassment, a total of up to 20 PAMB associated with BA 1 will be taken. Due to the implementation of covered activities, it is anticipated that the entire 0.24 acres of occupied suitable habitat and an estimated additional 0.25 acres of unoccupied suitable PAMB associated with BA 1 will be permanently lost.

In summary, it is expected that up to 8 PAMB associated with BA 4 and up to 20 PAMB associated with BA 1 will be taken, for a total maximum take of 28 PAMB. Of these 28 PAMB, 18 would be taken through harm, and 10 will be taken through harassment. A total of 0.39 acres of occupied PAMB habitat will be permanently lost, and another 0.45 acres of unoccupied suitable PAMB habitat will also be permanently lost. The amount of individual PAMB taken as a result of covered activities represents 14% of the total population on covered lands, and the amount of occupied habitat permanently lost represents 16% of the total occupied habitat on covered lands. Rangewide, the taking of these two Point Arena mountain beaver sites constitutes a taking of 0.83% of all known occupied sites.

With respect to the covered activities during the permit period, no additional protection or management will be required for any new PAMB burrow openings or systems that are discovered outside of the two conservation areas after ITP issuance.

Within the two conservation areas, 6.75 acres of potential BSSB foraging habitat will be permanently preserved; based on the relatively low degree of development to take place on covered lands outside of the conservation areas, other potentially suitable BSSB habitat will also likely persist through the permit period. Outside of the conservation areas, 5.25 acres of potential BSSB foraging habitat could be lost or degraded. The USFWS does not consider loss of potential foraging habitat as constituting take of BSSB.

It is possible that no BSSB will actually be taken as a result of this project, however, take of BSSB can not be entirely ruled out. Although the single known occurrence of western dog violet will probably not be disturbed, that site could be altered in the future (after transplantation of the violets). Accordingly, an undetermined number of Behren's silverspot butterfly eggs, larvae, and pupae could be taken (i.e., harmed) as a result of disruption of the 20 to 30 western dog violets at that site. The number of Behren's silverspot that may be taken as a result cannot be determined because eggs, larvae, and pupae are highly cryptic, difficult to locate, and their numbers vary from year to year.

In summary, it is estimated that all BSSB associated with 30 western dog violets may be taken during project implementation. This number represents an unknown proportion of all BSSB range wide.

With respect to the covered activities during the permit period, no additional protection or management will be required for any BSSB individuals, new larval host plants, or nectar plants that are discovered outside of the two conservation areas after ITP issuance.

Cultural Resources
No cultural or historical resources of significance will be affected by this project (Appendix C).

5.2 Alternative 2 – Alternate Project Layout

If the project were limited to an area of the parcel resulting in no take of PAMB or BSSB, then associated impacts to these species would be significantly diminished during the short-term construction window. However, without an HCP, no provisions will be made for the stewardship of these species on the project parcel, which could result in greater long-term impacts and no clear advancement toward recovery of the species. This alternative was rejected because it would result in significant reduction in the amount of land and management options available to the Applicant, which would result in a significant financial hardship for the Applicant.

5.3 Alternative 3 – Alternate Project Location/No Action

Under the No-Action alternative, the proposed project would not proceed and the USFWS would not issue an ITP. Under this alternative no take or other impact of PAMB or BSSB would occur in the short term, and the conservation areas would not be formally set-aside and protected. Under this alternative the Applicant could not develop the site as was intended when purchased. The sale of the property for purposes other than development is not economically feasible. This alternative was rejected because it would result in significant financial hardship for the Applicant.

6.0 Conservation Strategy

6.1 Biological Goals

Contribute to the recovery of PAMB by protecting existing populations in perpetuity, including those on privately-owned lands. According to the PAMB Recovery Plan (USFWS 1998b), this goal is consistent with one of the primary actions necessary for the recovery of this subspecies.

Contribute to the recovery of BSSB by protecting suitable habitat in perpetuity. This goal is consistent with actions necessary for the recovery of this subspecies (USFWS 2003).

6.2 Biological Objectives

Minimize the impacts of direct take, harm, and harassment of PAMB caused by construction and occupation of the home and surrounding land by the use of seasonal restrictions and buffers.

Designate and protect in perpetuity two conservation areas totaling 7.75 acres. Conservation area 1 is 5.65 acres and conservation area 2 is 2.10 acres. These two conservation areas contain 2.06 acres of habitat currently occupied by PAMB, another 4.69 acres potentially suitable for PAMB. The two conservation areas also contain 6.75 acres of potential BSSB foraging habitat.

6.3 Minimization and Mitigation of Incidental Taking

Any ground breaking or vegetation disturbing activity associated with the driveway to the house shall be conducted outside of the PAMB breeding season (December 1 through June 30), and the USFWS shall be afforded an opportunity to be present during the initial grading for this driveway. Because PAMB are thought to be highly sensitive to noise and vibration, conducting potentially disturbing activities outside of the breeding season minimizes any take associated with harassment.

All removal of the debris associated with the old barn shall only be conducted outside of the PAMB breeding season (December 1 through June 30). When the collapsed building debris is removed, debris will be removed slowly and deliberately so that the risk of crushing PAMB will be minimized. To the extent possible, debris will be lifted off layer by layer in an effort to allow any PAMB to escape. The material will not be moved or removed by pushing the material with a bulldozer or similar piece of equipment. The USFWS will be afforded the opportunity to be present during this operation so that the burrow system revealed below the debris can be examined, and so that any injured or killed PAMB may be captured or collected.

Any fence construction associated with either conservation area will be conducted outside of the PAMB breeding season (December 1 through June 30) if it is within 50 feet of any occupied area within a conservation area, and no fence will be constructed within occupied PAMB habitat.

At no time will any rodenticide be used within any conservation area. For all other covered lands, the Applicant will comply with all aspects of “Protecting Endangered Species: Interim Measures for Use of Rodenticides in Mendocino County” (Appendix E).

Two conservation areas totaling 7.75 acres shall be established; these conservation areas will be maintained as such in perpetuity deed restriction, which is filed with the County of Mendocino within 30 days after issuance of the ITP (Appendix F). The ITP shall only be considered valid after the deed restriction is filed with the County and a copy is provided to the USFWS. Figure 2 shows the locations of both conservation areas.

Within both conservation areas, no ground-disturbing or vegetation-altering activities (except conifer removal and/or enhancement of BSSB nectar or larval host plants as described below) will occur. No vehicles of any kind will be allowed in the conservation areas. No domestic or feral animals of any kind will be allowed in the conservation areas including domestic cats, dogs, horses, cattle, or other livestock. The Applicant will take whatever legal measures, including legal actions against trespassers, posting of signs, and if necessary, the construction of barriers or fences as necessary to prevent unauthorized persons or domestic animals from entering and damaging the conservation areas. Occasional trespass of persons or domestic animals does not necessitate fence construction. Maintenance of unfenced open range is preferred from a general wildlife perspective.

To benefit both PAMB and BSSB, both conservation areas will be managed on an ongoing basis to prevent the spread of coniferous trees. Conifers shade out and preclude the growth of herbaceous and shrubby plants that are essential for PAMB and BSSB feeding and sheltering. Conifer encroachment is a significant problem for both species in coastal Mendocino County (John Hunter, USFWS Arcata, pers. comm.). Conifer management as described below will be implemented within one year of permit issuance. Any conifer management during the PAMB breeding season (December 1 to June 30) shall only be conducted using non-motorized hand tools. Any conifers cut may be left in place or disposed of outside of the conservation areas. Within conservation area 1, all conifers outside of the mapped extent of Coniferous Forest (see Appendix A) shall be cut. Any and all conifers within conservation area 2 shall also be cut. On an ongoing basis, all conifers within either conservation area will be removed, except that conifers in the mapped Coniferous Forest area in conservation area 1 need not be removed.

Unless the following measures regarding transplantation of the existing western dog violets are implemented, no construction or other ground breaking activities will take place within 100 feet of the single known western dog violet population on the property. This does not include non-commercial grazing by domestic livestock which would likely benefit western dog violet. In the event that the Applicant decides to use any portion of the area within the 100 foot buffer for additional construction or other covered activities that would alter the vegetation or hydrology, the Applicant must give the USFWS at least one year advance notice so that transplantation of the existing western dog violets to one of the conservation areas can be attempted by the USFWS. The USFWS may waive the option of attempting such transplantation based on current knowledge on the probability of success, in which case the Applicant could proceed at any time with covered activities within the 100 foot buffer area.

The Applicant agrees to allow reasonable access to all covered lands (not including inside structures) to the USFWS and their cooperators for the purposes of surveys, scientific research, or monitoring for PAMB or BSSB, as well as for compliance monitoring for the HCP. At their own expense and discretion, the USFWS may also conduct efforts to plant or enhance western dog violet or BSSB nectar plants within conservation areas, and will coordinate any such work with the Applicant. This includes potential transplantation of the single group of existing western dog violet on the property, and other forms of PAMB

or BSSB habitat enhancement within the conservation areas. This measure provides the USFWS with a rare opportunity to conduct monitoring or research on private lands in this region and thus provides conservation benefits to both covered species.

If, at any time, any dead, injured, or sick PAMB or BSSB are observed or located, the Arcata Fish and Wildlife Office shall be notified at (707) 822-7201 as soon as possible, but no later than 24 hours after such observation.

7.0 Monitoring, Reporting, and Adaptive Management

To monitor implementation of this HCP and compliance with the terms of the ITP, the USFWS shall be granted access to all covered lands, not including the interior of any buildings, upon request and in coordination with the Applicant. In addition, the USFWS shall be notified at least two weeks prior to the initiation of any covered activity. With prior notification, the USFWS shall also be granted access to the two conservation areas in order to assess their status and condition.

Effectiveness monitoring of the HCP will be the primary responsibility of the Applicant and will consist of monitoring the integrity of the two conservation areas on an ongoing basis. On at least a weekly basis, the Applicant will visually inspect both conservation areas for any evidence of unauthorized encroachment, conifer growth, or any other factors that could reduce the functionality of either conservation area.

In the event of encroachment into conservation areas by any unauthorized persons, vehicles, domestic animals, fire, or other perturbation, the Applicant shall notify the USFWS within 48 hours, followed by a written notification within seven days. Such notification shall include any actions the Applicant may have taken with respect to these encroachments. Some specific types of encroachment that should prompt USFWS notification include fire of any size, livestock, vehicles, or entry of any other elements into the conservation areas that could alter or disturb vegetation.

Adaptive management shall consist of the Applicant halting, and if possible, reversing the negative effects of any encroachment or other habitat degradation in conservation areas to the maximum extent possible. If trespassing persons, vehicles, or livestock are causing damage to any conservation area, the Applicant shall take whatever legal remedy necessary to halt the trespassing. Although not anticipated, construction of fencing or other barriers may be necessary to prevent further occurrences. If young conifers are found in either of the conservation areas, they shall be removed as soon as practicable.

Some encroachments, such as fire, may require additional monitoring to ascertain if PAMB and BSSB habitat have been improved or degraded by the fire. Habitat restoration (such as plantings), may be necessary, and will be conducted by the Applicant (See Changed Circumstances below). However, it is unlikely there will be a clear need for, or benefits to, active post-fire habitat restoration efforts. BSSB habitat is likely to be enhanced by fire. PAMB habitat will eventually grow back after a fire, and there are currently no known techniques to actively restore PAMB habitat after fire. Any measures

to be taken in the event of fire or other perturbations shall be devised in consultation with the USFWS.

8.0 Funding

The USFWS shall be responsible for providing any funding necessary to cover all costs associated with any USFWS staff time for any aspect of this HCP. In addition, any optional USFWS activities allowed on covered lands, such as western dog violet transplantation, any surveys or research, or any other BSSB or PAMB habitat enhancement, shall be funded by USFWS.

The Applicant is responsible for funding all other aspects of the covered activities, the conservation strategy, as well as any commitments under monitoring, adaptive management, changed circumstances, and reporting. Considering the reserve-based conservation strategy of this HCP, it is expected that ongoing monitoring and conifer removal in the conservation areas will not require any additional funding and will be conducted by the Applicant directly using out-of-pocket funds as necessary. Failure to fully implement in full any terms of this HCP due to inadequate funding could result in temporary permit suspension or permit revocation. All aspects of implementation of this HCP that are required of the Applicant will be paid for by the Applicant as they are implemented and using out-of-pocket funds. Thus, with the exception of the deed restriction in perpetuity for the conservation areas, there would be no other post termination mitigation debt.

9.0 No Surprises, Changed Circumstances, and Unforeseen Circumstances

The "No Surprises" assurances rule generally provides that, as long as the HCP is being properly implemented, the federal government will not require additional land or money from the Applicant in the event of unforeseen circumstances, and that any additional measures to mitigate reasonably foreseeable changed circumstances will be limited to those changed circumstances identified in the HCP (and only to the extent of the mitigation specified in the HCP).

The No Surprises Rule has two major components:

<u>Unforeseen Circumstances</u>
The USFWS will not require the commitment of additional land, water, or financial compensation, or additional restriction on the use of land, water, or other natural resources, even upon a finding of unforeseen circumstances, unless the Applicant consents. Upon a finding of unforeseen circumstances, the Applicant is limited to modification within designated conservation areas and the HCP's conservation strategy. Additional conservation and mitigation measures will not involve the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources. Unforeseen circumstances are those changes in

circumstances which are not "changed circumstances," i.e., those changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by the landowner and the Service at the time of the HCP development and that result in substantial and adverse change in the status of a species covered by the HCP. The USFWS bears the burden of demonstrating that unforeseen circumstances exist, using the best available scientific and commercial data available, and considering certain specific factors.

Changed Circumstances

If additional conservation and mitigation measures are deemed necessary to respond to changes in circumstances that were provided for in the HCP, the Applicant will be expected to implement the measures specified in the HCP, but only those measures and no others. Changed circumstances are those changes in circumstances affecting a species or geographic area covered by an HCP, that can reasonably be anticipated by the landowner and the wildlife agencies at the time of preparation of the HCP, and that can be planned for.

Any vegetation fire that burns more than one acre within the conservation areas will be considered a changed circumstance. In the event of any fire, annual joint monitoring will be conducted by the USFWS and the Applicant for a period of three years. Monitoring will consist of annual measurements or estimates of the percent vegetative cover by plant species or type in the burned areas. If PAMB habitat is not recovering, then habitat rehabilitation as necessary and appropriate as determined jointly between the USFWS and the Applicant will be implemented by the Applicant. Any improvement to BSSB habitat from the fire will also be taken into account when determining the need and benefit from any PAMB habitat restoration effort.

While unlikely, it is not entirely unforeseen and it can be reasonably anticipated that during the 80 year permit term that a wildfire could burn all or a large portion of the two conservation areas. Accordingly, there is no upper size threshold over which a fire is deemed to be an unforeseen circumstance.

The listing of a species as federally threatened or endangered under the ESA may constitute a changed circumstance. The USFWS shall immediately notify the Applicant upon becoming aware that a species that is associated with habitat found on the covered lands and which is not a covered species (an uncovered species) may be or has been proposed for listing. Upon receipt of notice of the potential listing of a new species, the Applicant may, but is not required to, enter into negotiation with the USFWS, regarding necessary modifications, if any, to the HCP required to amend the ITP to cover the uncovered species. In determining whether any further conservation or mitigation measures are required in order to amend the ITP, the USFWS shall consider the conservation and mitigation measures already provided in the HCP and cooperate with the Applicant to minimize the adverse effects of the listing of such uncovered species on covered activities consistent with section 10 of the ESA. Once a "may be warranted" for listing finding is made by the USFWS, the USFWS shall use it best efforts to identify any necessary measures to avoid the likelihood of jeopardy or take of (the "no take/no

jeopardy" measures) the uncovered species. If the ITP has not been amended to include the uncovered species at the time the species is listed, then the Applicant shall implement the "no take/no jeopardy" measures identified by the USFWS until the ITP is amended to include the uncovered species or until the USFWS notifies the Applicant that such measures are no longer needed to avoid the likelihood of jeopardy to, take of, or adverse modification of the designated critical habitat, if any, of the uncovered species.

10.0 Permit Amendments, Renewal, and Transfer

USFWS guidelines include circumstances that may result in the need to amend and/or renew the ITP and its associated HCP. Amendments to the ITP shall be required for any change in the extent of covered lands, modification or addition of any covered activity, modification of any conservation strategy that may result in increased impact or take on any covered species, and any change in the land use or other activities on the covered lands not addressed in the HCP that are likely to result in significant adverse effects to PAMB or BSSB, and addition of any new covered species. An amendment of the ITP must be treated in the same manner as an original ITP application. At a minimum, ITP amendment would require a revised HCP, a new permit application form and applicable fee, a new NEPA analysis, all applicable public comment periods, and compliance with all other laws and regulations in effect at that time. However, the specific documentation needed in support of an ITP amendment may vary depending on the nature of the amendment.

The HCP may, under certain circumstances, be modified without amending its associated ITP, provided that such modifications are of a minor or technical nature and that do not adversely affect covered species and do not change the level of take authorized. Examples of minor modification of the HCP that will not require ITP amendment include, but are not limited to, USFWS-approved changes to monitoring or reporting protocols. To modify the HCP without amending the ITP, the Applicant must submit to the USFWS, in writing, a description of the proposed modification, an explanation why the modification is necessary or desirable, and an explanation of why the Applicant believes the effects of the proposal are not significantly different than those described in the original HCP. Any HCP modification must also comply with all other laws and regulations in effect at that time. If the USFWS concurs with the proposed modification to the HCP, it shall authorize the HCP modification in writing, and the modification shall be considered effective on the date of the USFWS's written authorization.

The Applicant may wish to renew the ITP upon expiration. Upon expiration, the ITP may be renewed without the issuance of a new permit, provided that the permit is renewable, and that the biological circumstances and other pertinent factors affecting PAMB at the project site are not significantly different than those described in the original HCP. To renew the permit, the Applicant should submit to the USFWS, in writing: a request to renew the ITP; reference to the original ITP number; certification that all statements and information provided in the original HCP and original ITP application, together with any approved ITP amendments or HCP modifications, are still true and correct, or include a list of changes; a description of what take has occurred

under the existing permit; and, a description of what portions of the project are still to be completed, if applicable, or what covered activities under the original ITP the renewal is intended to deal with. If the USFWS concurs with the information provided in the request, it shall renew the ITP, consistent with permit renewal procedures required by federal regulation (50 CFR 13.22). If the Applicant files a renewal request and the request is on file with the issuing USFWS office at least 30 days prior to the ITPs expiration, the ITP shall remain valid while the renewal is being processed, provided the existing ITP is renewable. However, the Applicant may not take listed species beyond the quantity authorized by the original permit. If the Applicant fails to file a renewal request within 30 days prior to ITP expiration, the ITP shall become invalid upon expiration. In addition, the Applicant must have complied with all monitoring and reporting requirements to qualify for an ITP renewal.

The intent of the deed restriction is to insure that the two designated conservation areas are maintained in perpetuity, regardless of land ownership (Appendix F). The deed restriction shall be filed with the County of Mendocino by the Applicant no later than 30 days following the issuance of the ITP. The ITP shall only be considered valid after the deed restriction is filed with the County of Mendocino and a copy is provided to the USFWS. If the current landowners (i.e., the Applicant) sell all or part of the covered lands, the ITP may also be transferred to the new landowner(s), in which case the ITP runs with the land and binds the successive owner(s) to the terms, as well as extending the assurances, of the HCP. However, any new landowner(s) must be willing to assume the responsibilities associated with the ITP (including, but not limited to, any minimization, mitigation, monitoring, and reporting requirements of the HCP). To ensure that the ITP holder informs any new landowners of their rights and responsibilities, an ITP must commit the holder to notify the USFWS of any transfer of ownership of any lands subject to the ITP before the transfer is finalized. The USFWS would then attempt to contact the new landowner and work with all parties so that all obligations and assurances are clearly understood. If a new landowner does not agree to all terms and conditions of the ITP, the ITP can be terminated. If covered activities were only partially implemented at permit termination, the Service will determine the extent to which the conservation areas must be continue to be protected in perpetuity. The location and amount of the conservation areas to be maintained upon termination will be commensurate with the amount of incidental take that has occurred under the ITP to that point. If the designated conservation areas are fully maintained in perpetuity as described in the HCP, no post-termination mitigation debt would be incurred by the current or any new landowner(s).

11.0 Literature Cited

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