



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Newport Field Office  
2127 SE Marine Science Drive  
Newport, Oregon 97365  
Phone: (541) 867-4558 FAX: (541) 867-4551

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## Memorandum

To: State Supervisor/Deputy State Supervisor, Oregon Fish and Wildlife Office  
Portland, Oregon (Attn: K. McMaster)

From:   
Field Supervisor, Newport Field Office  
Newport, Oregon

Subject: Intra-Service Section 7 Formal Consultation for Issuance of an Endangered  
Species Act Section 10(a)(1)(A) Permit for the Proposed Safe Harbor Agreement  
for Oregon silverspot butterfly on the central coast, Lane County, Oregon

## INTRODUCTION

This document transmits the Fish and Wildlife Service's (Service) Biological Opinion (Opinion) based on our review of the enhancement of survival permit pursuant to section 10(a)(1)(A) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*) for the proposed Safe Harbor Agreement (SHA) with The Nature Conservancy (TNC) for the central coast of Lane County, Oregon, and its effects on the federally listed as threatened Oregon silverspot butterfly (*Speyeria zerene hippolyta*)(OSB).

## CONSULTATION HISTORY

The development of the SHA was a collaborative effort between TNC (Permittee), the Service and non-Federal landowners (Cooperators) negotiated from April 2001, to October 2006. The SHA draft was submitted with TNC's application for an enhancement of survival permit to implement the activities outlined in the SHA. The Notice of Availability and receipt of application was published in the Federal Register on November 9, 2006. The public comment period closed on December 11, 2006. No comments were received. This Opinion is based on information provided in the SHA, correspondence, notes, maps, and other information compiled on the subject project during discussions with TNC and Cooperators. A complete administrative record of this consultation is on file at this office.

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## BIOLOGICAL OPINION

### I. DESCRIPTION OF THE PROPOSED ACTION

The proposed action is the issuance of an enhancement of survival permit under section 10(a)(1)(A) of the Act, for the purpose of enhancing suitable habitat for the Oregon silverspot butterfly. The proposed term of the permit and programmatic SHA is 35 years. The permit, held by TNC, authorizes the implementation of the habitat restoration activities described in the SHA on enrolled properties along an approximate 10 mile (16 kilometer) long corridor between two OSB populations located on US Forest Service land. Under the SHA, private lands may be enrolled through individual Cooperative Agreements (CA) with the Service and TNC, and they would receive individual Certificates of Inclusion (CI). Individual properties may be enrolled in the program for a minimum of 10 years. Eligible properties are located within approximately 90 acres (36 hectares) of coastal meadow habitat within the ten mile corridor. These properties are located about 8 miles (13 kilometers) south of the city of Yachats, in Lane County, Oregon.

The covered area is a linear strip along the Oregon Central Coast which is bisected by Highway 101, lying roughly between Brays Point and Big Creek. The potential enrolled properties are typically one or more acre parcels with one single family dwelling. Environmental baseline conditions will be established for each enrolled property and will primarily be based on the presence or absence of OSB's larval host plant, early blue violet (*Viola adunca*), prior to restoration efforts. We anticipate that most baseline conditions will be determined to be at or near zero. TNC and/or the landowners will implement restoration and management actions to restore and enhance coastal meadow habitat for the OSB.

The subject enhancement of survival permit authorizes take of OSB that may result from implementation of restoration activities and allows the enrolled property's return to baseline conditions, as described within the SHA. The SHA provides non-Federal landowners assurances that future property-use restrictions will not be imposed if conservation efforts attract OSB (or increase the number of early blue violets) above their property's original baseline. Without this cooperative effort, these properties would not otherwise be utilized by these species in the foreseeable future.

Currently two small OSB populations occur both north and south of the covered area. OSB flight was documented from Brays Point to Big Creek in the past when populations were larger than current levels (VanBuskirk and Pickering 1999). Restoration of the habitat within the covered area may reconnect these populations which once likely functioned as a single larger population. The following management actions under the SHA will increase coastal prairie habitat quality and likely OSB populations:

- *Modifying existing vegetation by reducing non-native plants, setting back succession of native shrubs and trees to restore coastal prairie/meadow species and grassland structure.*

Non-native grasses, forbs, and native and non-native shrubs and trees compete with and crowd native coastal prairie species prior to restoration. Combinations of mowing, brush cutting, burning, and smothering are proposed management techniques. Suppression of

invasive vegetation is intended to allow native nectar plants and early blue violet to be habitat components accessible to the OSB.

- *Plant native vegetation and restore native coastal meadow species utilized by the OSB.*

Reseeding and/or replanting with native coastal meadow vegetation, including nectar sources preferred by butterflies, including but not limited to Canada goldenrod (*Solidago canadensis*), dune goldenrod (*Solidago spathulata*) California aster (*Symphotrichum chilense*), pearly everlasting (*Anaphalis margaritacea*), dune thistle (*Cirsium edule*), and yarrow (*Achillea millefolium*).

- *Enhance Early Blue Violet Populations.*

Growing seeds of early blue violet and outplanting mature plants into habitat with a native grass and forb matrix will increase potential sources of larval food plant.

Specifically enhancing or establishing early blue violet populations will be a key factor to encourage butterfly ovipositing (egg laying) and breeding activity.

The voluntary restoration and management actions listed above are intended to increase early blue violet densities, increase the nectar source availability and ultimately increase the number of OSB by improving the quality of their habitat within an important dispersal corridor between two existing populations. Successful establishment of habitat will require multiple years of habitat manipulation, depending on the habitat condition and degree of exotic plant invasion on each property. This process is expected to take approximately two to three habitat management treatments and approximately two to three seasons.

The SHA is expected to result in a net conservation benefit to the OSB through: (1) increases in the available habitat using adaptive management treatments which will increase native plant species abundance and decrease the abundance of invasive or non-native plants; (2) reduce fragmentation, and increase connectivity of two populations; and (3) increase the likelihood that OSB populations will persist.

## II. STATUS OF THE SPECIES

Oregon silverspot butterfly (*Speyeria zerene hippolyta*)

### *Listing Status and Description*

The OSB was listed as threatened with critical habitat in 1980 (USFWS 1980; 45 FR 44935). A recovery plan was completed in 1982 and a revised recovery plan was completed in 2001 (USFWS 1982, USFWS 2001). The species recovery priority number is 3, indicating a high degree of threat and high recovery potential (USFWS 2001; 48 FR 43098).

The OSB, a true fritillary of the family Nymphalidae, is one of eight species and 36 subspecies of the genus *Speyeria* found in the Pacific Northwest (USFWS 2001). The OSB is one of five subspecies in the *bremnerii* group which differs from other subspecies in its coloration, dark

reddish brown disc color and clear yellow submarginal band, and small size, with a mean forewing length of 27 mm. Caterpillar development rate is very slow in comparison to the other subspecies. The species is named for the metallic silver spots located on the ventral hindwing.

#### *Habitat and Life History*

The OSB occupies four types of grassland habitats: marine terrace, coastal headland "salt spray" meadows, stabilized dunes, and montane grasslands. To support the OSB each habitat area must provide the caterpillar host plant, early blue violets (violet), and adult butterfly nectar sources. Violet density influences the number and location of OSB eggs laid, with areas of higher violet densities used most frequently for ovipositing. Native nectar plants most frequently used by the adult OSB are Canada goldenrod (*Solidago canadensis*), dune goldenrod (*Solidago spathulata*) California aster (*Symphotrichum chilensis*), pearly everlasting (*Anaphalis margaritacea*), dune thistle (*Cirsium edule*), and yarrow (*Achillea millefolium*).

Both violet abundance and butterfly native nectar sources have declined at all OSB habitat areas due primarily to competition from non-native vegetation. Habitat disturbance regimes, which maintain an early seral habitat stage, have been altered dramatically over the past 150 years, increasing the rate of grassland succession to shrub or forest. Non-native plants have played a role in stabilizing the previously dynamic coastal ecosystem.

The life cycle of this butterfly begins when the adult female deposits eggs during late August and September. Eggs are laid within or adjacent to areas which contain early blue violets. The larvae hatch in approximately 16 days, and the newly hatched larvae wander a short distance to find a suitable place for diapause (suspension of growth for overwintering). In late spring and early summer, the larvae emerge to feed on the violet leaves. The larvae feed and grow for two months (six instar or development stages) then seek shelter to pupate. At least two weeks later (July to September) the butterfly emerges from its chrysalis as an adult (eclosion), with males emerging a few weeks prior to females. The adult silverspot butterflies leave the windy meadows for shelter in an adjacent forest. There, the butterfly will feed on nectar-producing flowers (composites) and find a mate. Mating usually takes place in relatively sheltered areas. The gravid (mated, egg-bearing) female returns to the meadow to lay eggs in August and September. A female may lay 200-300 eggs.

Detailed accounts of the taxonomy, ecology, reproductive characteristics, range, distribution, habitat requirements, and habitat management of the OSB are found in Hammond (1986; 1987; 1988a,b,c; 1989; 1990a,b 1991a,b; 1992; 1993), Hammond and McCorkle (1982; 1984; 1985a,b; 1991), McCorkle and Hammond (1988), McCorkle et al. (1980), Arnold (1988), Bergen (1985), McIver et al. (1991), Morlan (1987), Pickering and Macdonald (1994), Pickering et al. (1992; 1993), Singleton (1989), Vander Schaaf (1983a,b; 1984), Washington Department of Wildlife (1993), and USFWS (2001).

#### *Population Status and Distribution*

Historically, the OSB was distributed along the Washington and Oregon coasts from Westport in Grays Harbor County, Washington, south to Heceta Head in Lane County, Oregon and was closely associated with the distribution of early blue violet. In addition, there is a population north of Crescent City in Del Norte County, California.

At least 20 separate locations were known to support OSB in the past. OSB populations are currently thought to occur at six or fewer sites. OSBs are likely now extirpated from the Long Beach Peninsula in Washington. Two populations are in Lane County, Oregon (Rock Creek and Brays Point); two are in Tillamook County, Oregon (Cascade Head and Mount Hebo); and one is in Del Norte County, California (Lake Earl). The population status at a sixth site in Clatsop County, Oregon (Clatsop Plains) has declined in recent surveys with only one OSB documented in 1998 (VanBuskirk 1998).

For 17 years, 1990-2006, The Nature Conservancy has used standardized butterfly survey methods (Pollard 1977) at four of the Central Oregon Coast OSB sites, to monitor the populations (Table 1). The survey results produce an "Index of Abundance" value which provides a relative population measure year by year. In 1993, all four central Oregon Coast populations declined dramatically, likely due to unfavorable weather conditions that year. In 2004, another detrimental weather year, all Central Oregon Coast sites had index values significantly below their 15 year mean. Despite five small scale augmentation efforts at Cascade Head, one at Bray Point and two at Rock Creek, the population levels remain very low and have not rebounded following the 1993 decline (Pickering 2005). Sites where extirpation may be eminent will likely be targeted for augmentation.

**Table 1.** Seven year Index of Abundance Values for known Oregon silverspot butterfly populations in Oregon compared to the 17 year average. Numbers in parenthesis are OSB augmented into the population which may be included in the values (D.L. Pickering 2007).

	2000	2001	2002	2003	2004	2005	2006	17 Year Average
<b>Mt Hebo</b>	2111	1402	2272	2625	588	657	2624	2262
<b>Cascade Head</b>	160 (107)	118	34 (4)	206 (161)	36	147 (132)	130 (26)	322
<b>Brays Point</b>	9	0	2	3	2 (5)	0	0	73
<b>Rock Creek/ Big Creek</b>	108	192	139 (1)	136	131 (47)	55	25	167
<b>Totals</b>	2388	1712	2447	2970	757	859	2779	2824

The Clatsop Plains OSB population has been at risk of extirpation for the last several years. Much of the decline over the last two decades may be attributable to the cumulative effects of changes in the species' habitat, poor weather years, low population numbers all exacerbated by fragmentation of remaining habitat. The amount of survey observer hours decreased significantly over the years from 114 hours in 1998 (VanBuskirk 1998) to 39 observer hours in 2004 (Patterson 2004), possibly not enough survey hours to detect a small remnant OSB population within a large area. The last confirmed sighting of an OSB on the Clatsop Plains was in 1998, with one confirmed and two potential OSB observations (VanBuskirk 1998). Despite subsequent annual surveys, no OSBs have been confirmed on the Clatsop Plains since that time (Patterson 2004).

Little is known about the status of the Del Norte County, California (Lake Earl) OSB population. In 1998, California Department of Fish and Game estimated that there were 62 OSBs on California state-owned land. A 2003 habitat and OSB survey found significant alterations in violet and OSB distribution, likely in response to changes in lake management levels. Higher lake levels which benefit the Tidewater Goby (an endangered fish) appear to be altering the distribution and number of violets and OSBs. The maximum numbers of OSBs seen in a one week period, in 2003, were 81 OSB observed over 8 transects (Wear 2004). In 2006, a total of 196 OSB were counted during 9 weeks along 59.5 km of transects surveyed. Counts in 2006 were approximately twice as high as the 2005 counts (USFWS 2006).

### *Threats*

Range-wide the greatest threat to OSB populations include the factors that contribute to the loss of the quality and quantity of suitable habitat. The quality of OSB habitat has been degraded from native grasslands to non-native dominated grasslands or thickets of woody shrubs and trees. The introduction and spread of exotic vegetation, such as Scot's (Scotch) broom, European beachgrass, and a variety of tall exotic grasses have stabilized the dynamic processes of the coastal environment necessary to maintain the native plant community composition and structure (Lesh and Rudd 2003). The quantity of OSB habitat is threatened by habitat degradation and urban and commercial development. Development in and through native grasslands results in ground disturbing activities which destroy or alter the native vegetation community and fragment remaining habitat patches (USFWS 2001). Habitat fragmentation continues to threaten OSB by isolating populations, inhibiting recruitment and increasing the likelihood of genetic problems such as inbreeding depression (Pickering 2005). Highway 101, which cuts through OSB habitat in some areas, has contributed to OSB habitat fragmentation and may directly impact butterflies from road kills.

Climatic fluctuations are another threat to OSB populations, especially cold, wet spring and summer weather. Heavy mortality of eggs and larvae can occur as a result. While viable populations will generally rebound, provided good conditions, a small population is particularly vulnerable to loss and extirpation from otherwise natural mortality factors (Hellmann 2002).

At Rock Creek and Brays Point, the greatest threats to OSB are those that have contributed to the loss, degradation, and fragmentation OSB habitat. The Siuslaw National Forest manages OSB habitat with two or three carefully timed mowings at Rock Creek on approximately 20 acres. At Brays Point, habitat management has included brush removal and weedwacking on the steep slopes to maintain grassland/meadow structure. On the private land that lies between Brays Point and Rock Creek home construction as well as vegetation succession to brush and trees has displaced OSB habitat. Suitable OSB habitat persists in patches but is dominated by thatch producing non-native grasses, salal, Himalayan blackberry, and Shore pine which inhibits the growth and reproduction of native coastal meadow plant species.

### *Conservation Needs*

The OSB Recovery Working Group, composed of representatives from non-profit conservation organizations, state and Federal agencies, and academic and zoological institutions, works together to implement OSB recovery tasks. The revised recovery plan for the OSB describes actions that would lead to the recovery and delisting of the subspecies and would prevent its extinction (USFWS 2001). The recovery strategy includes protection of habitat to maintain existing populations, augmentation of declining populations, and management of protected habitat. The plan identifies six conservation areas. Conditions that must be met within each conservation area to delist the species include two viable populations (200 to 500 butterflies for 10 years) in protected habitat at the Coastal Mountains Habitat Conservation Area, Cascade Head Conservation Area, Central Coast Habitat Conservation Area, and Del Norte Conservation Area, with one viable population at the Long Beach Peninsula Habitat Conservation Area and one viable population at the Clatsop Plains Habitat Conservation Area.

Within the Long Beach Peninsula Habitat Conservation Area, habitat improvement efforts of the Washington Department of Fish and Wildlife is on-going. Additional acreage has been acquired which may be restorable for OSB. Research to increase violet densities and decrease non-native plant invasions are also on-going. Reintroduction is being considered when the habitat quality is determined to be suitable to support an OSB population.

The Oregon Military Department's (OMD) Camp Rilea is within the Clatsop Plains Habitat Conservation Area. Camp Rilea has an OSB Management Plan (Mitchell 2001). The Camp's plan incorporates a number of individual actions which involve the management of 68 acres of meadow habitat which contain early blue violet. Securing habitat through land acquisition and improving habitat quality through increases in landowner participation in conservation agreements, conservation easements, and Safe Harbor Agreements is on-going.

The Coastal Mountains Habitat Conservation Area (Mt. Hebo) supports the largest OSB population. The conservation area is on the Siuslaw National Forest (SNF). The SNF has a management plan and has been actively managing the habitat for many years (USFS 2003). Continued effort to maintain meadow habitat from tree encroachment and invasive species is an on-going conservation need.

The Cascade Head Conservation Area is owned and managed by The Nature Conservancy (TNC). TNC has conducted habitat management experiments to determine how best to encourage increases in early blue violet and nectar plant abundance. Despite habitat management efforts and five small scale augmentations, OSB numbers remain low in comparison to historical numbers. However, much has been learned through TNC's experiments with different habitat treatments. Continued habitat improvements, research and monitoring are the primary conservation needs. Augmentation efforts are needed to decrease the likelihood of extirpation of this population and increase the likelihood of recovery.

The Central Coast Habitat Conservation Area has three areas identified as OSB habitat; (1) Brays Point/ Tenmile Creek, (2) Fairview Mountain, and (3) Rock Creek/ Big Creek on the SNF. The Brays Point / Tenmile Creek area has both SNF and private land both of which contain mostly degraded OSB habitat. The Fairview Mountain area no longer supports the OSB and is now thought to be too small to make a contribution to the Central Coast Habitat Conservation Area.

The Rock Creek /Big Creek area contains the only designated critical habitat area for the species. The SNF has actively managed and monitored the OSB population and habitat at Rock Creek/Big Creek. Efforts to halt the spread of non-native grasses, which suppress violet growth, is an on-going conservation need. Population augmentations to stabilize the declining population are planned for 2007.

The Del Norte Conservation Area has the largest unmanaged population of OSB. A 2003 habitat and OSB survey found significant alterations in violet and OSB distribution, likely in response to changes in lake management levels (Wear 2004). Conservation needs within this area include research on the effects of lake inundation upon OSB habitat. Survey efforts have increase and in 2005 and 2006 baseline surveys were completed.

#### *Critical Habitat*

Critical habitat was designated for the OSB in 1980 concurrent with the listing as a threatened species (USFWS 1980, 45 FR 44935). Critical habitat was only designated in the vicinity of Rock Creek and Big Creek which is within the Central Coast Habitat Conservation Area. At the time of listing this was the only known viable population.

The constituent biological elements essential to the continued existence of the OSB within critical habitat include: the larval food plant (violets), grasses and forbes in which the larvae find shelter, the composite plants from which the adults obtain nectar, and the spruce woods in which the adults find shelter.

### **III. ENVIRONMENTAL BASELINE**

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area which have already undergone section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultations in progress. Such actions include, but are not limited to, previous timber harvests and other land management activities.

According to the regulations implementing the Act, the "action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. For the purposes of this Opinion, occupied habitat is defined as all areas containing violets, near (within five miles) where OSB adults have been documented during survey efforts. The action area for the SHA is defined geographically as the ten-mile long corridor between the Siuslaw National Forest managed sites, Brays Point and Rock Creek/Big Creek.

#### *Oregon Silverspot Butterfly Habitat in the SHA Area*

The covered area is directly east of the Pacific Ocean. Highway 101 bisects the area with potential habitat on either side, located between Brays Point on the north end and Big Creek located on the southern end. The plant communities are a mix of native and non-native plants. Major habitat types within the action area include: salal thickets, palustrine emergent wetland,

coastal meadow/ salt-spray meadow, grassland, and Sitka spruce dominated forest to the east. (Figure A). Of particular importance to OSB are the upland meadow and grassland hillsides within the SHA area that provide both violets and nectar plants. The meadow habitats primarily provide suitable violet abundance for egg laying and larval foraging. Past vegetation surveys conducted by TNC during the 1990's mapped areas of violets. Violet abundance is likely less than previously mapped due to successional changes from meadow to shrub and trees, and home construction. The site is currently colonized by many weedy species and does not have substantial violets or known occurrence of OSB on the privately owned lands. Despite no current confirmed OSB observations it is believed that three suitable, native nectar plants (pearly everlasting, yarrow and aster) are found in densities high enough to attract adult OSB.

#### *Critical Habitat*

Section 7 (a)(4) of the Act requires that Federal agencies consult with the Service on any Federal action that may result in the destruction or adverse modification of designated critical habitat. The term "destruction or adverse modification" is defined at 50 CFR 402.02 as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

Critical habitat extends from Big Creek north past Rock Creek to just south of Nancy Creek, therefore the proposed action does fall within designated critical habitat. No adverse modification is expected to occur with the implementation of the SHA because the biological elements essential to the continued existence of the OSB such as early blue violets and nectar plants will become more abundant and available to the OSB.

#### **IV. EFFECTS OF THE ACTION**

Effects of the action are defined as "the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with the actions, that will be added to the "environmental baseline" (50 CFR §402.02). Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action, are later in time, and are still reasonably certain to occur.

#### *Direct and Indirect Effects*

Implementation of the SHA will restore up to 90 acres of coastal meadow habitat in the vicinity of OSB occupied sites and is expected to result in a net conservation benefit to the species by providing suitable habitat that would not otherwise exist. These habitat improvements include suppression and removal of exotic plants, shrubs and small trees, and restoration of meadow structure and increases in native plant species abundance. The habitat improvements are expected to provide increases in available OSB breeding and nectaring habitat within the Central Coast Habitat Conservation Area identified within the OSB Revised Recovery Plan. The additional improved habitat will reduce the fragmentation of existing habitat. We anticipate that the butterfly population will increase in the area as a result of habitat improvements, maintaining

or reconnecting two smaller populations, increase gene flow between populations, and increase the likelihood that the species will persist following catastrophic weather events.

The proposed habitat improvements are expected to be realized over the 35 year life of the agreement; however, we anticipate that many landowners will opt not to return the property to baseline conditions. Thus, many of the improvements may persist to provide a longer-term benefit to the butterfly.

The implementation of the SHA will accomplish actions called for by the OSB Revised Recovery Plan including (Task 1.5.2) determining willing Central Coast landowners (Task 1.5.6) implementing central coast management plans, (Task 2.2.2.1) controlling exotic grasses, (Task 2.2.1.2) increasing or maintaining violets, (Task 2.2.1.3) increasing or maintaining nectar plants, (Task 2.2.1.4) controlling trees, and (Task 2.2.1.5) controlling exotic brush. The success of recovery actions within the Central Coast Habitat Conservation Area is dependant upon private landowner's willingness to participate in those efforts. The SHA provides a mechanism to achieve these recovery objectives.

Based on research done with captive-reared OSB larvae, at least two average sized violets plants (55 leaves per plant), located within 20 cm of each other, may sustain one larvae through development (Mary Jo Anderson, Oregon Zoo, pers. comm. 2005). Based on the survival rates of captive reared larvae, it is unlikely that more than one adult butterfly would be supported through development within one small patch of violets. Since current violet distribution appears to occur most frequently as isolated violets within a matrix of non-native vegetation, the potential for take from restoration efforts is minimal. Some loss of individual larvae or pupae of the species may occur due to trampling, smothering or burning during habitat restoration, or more likely during follow-up habitat maintenance such as mowing, weeding or planting of native seedlings. We anticipate these losses to be small since habitat improvements will be targeted in degraded habitat where violet plants, OSB larvae and pupae are unlikely to occur. We anticipate that increases in the population from habitat improvements will exceed any loss associated with the implementation of the SHA.

No loss of occupied habitat will occur below the baseline established for each property during the duration of individual CAs, which have a 10 year minimum duration. Butterflies in various life stages may be lost when the restored habitat is returned to baseline condition in the future. Return of participating properties to a baseline condition is not expected to occur all at the same time, which would limit the loss to a particular property. Since no habitat will be affected until TNC or an enrolled landowner has given the Service 60 days prior notice, potential losses may be minimized through collection and relocation of individuals in the affected area. Habitat improvements associated with the implementation of the SHA are expected to increase the butterfly population over time.

## **V. 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 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. We are unaware of any future non-federal actions within the action area that may affect the OSB.

## VI. CONCLUSION

Based on the information provided above, it is the Service's opinion that the issuance of the 10(a)(1)(A) recovery permit to TNC to implement the SHA will contribute to the survival and recovery of the OSB in the following ways.

1. The proposed habitat treatments will increase the availability of native plant species important to OSB and decrease non-native plants which is expected to increase the OSB populations in the covered area.
2. OSB population increases in the covered area will help to connect and stabilize declining adjacent OSB populations on adjoining Forest Service lands.
3. The SHA provides an opportunity and space in which to test and implement new conservation strategies which may ultimately be used at other OSB occupied sites.

After reviewing the current status of the OSB, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's Opinion that the action as proposed, is not likely to jeopardize the continued existence of the OSB, and is not likely to destroy or adversely modify designated critical habitat.

## INCIDENTAL TAKE STATEMENT

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

## AMOUNT OR EXTENT OF TAKE

We anticipate incidental take of OSB eggs, larvae, or pupae from accidental trampling, and smothering or burning treatments by the landowner or other authorized personnel involved in habitat restoration and maintenance activities during implementation of the SHA and other routine activities. Incidental take may also occur when private landowners return their properties to a baseline condition.

Incidental take from restoration activities is expected to be small because habitat improvements are likely to occur where OSB numbers are at or near zero due largely to the absence of violets. The amount of incidental take within the 90 acres of potential restorable OSB habitat in the covered area may be inferred from the populations located adjacent to the covered area. The densities of butterflies per acre have been calculated annually by TNC by dividing the summed census totals by the area censused. The seven year mean OSB per acre of area censused at Brays Point is 3 OSBs per acre. We believe the potential amount of take in the covered area from restoration activities may most closely be correlated to the density of OSB per acre at Brays Point because of the proximity of Brays Point to the SHA restoration area, and habitat components and condition are similar. Restoration in any give year will be limited by the number of private landowners who sign-up and resources available to TNC to implement restoration activities. It is assumed that TNC and landowners will not implement restoration activities on greater than 15 acres per year. Therefore 3 OSB per acre on 15 acres, or a total of 45 OSB may be taken from restoration activities per year.

Where restoration has occurred and properties are returned to baseline, the amount of take may best be inferred from averaging the number of OSB per acre at both Brays Point and Rock Creek. The seven year mean OSB per acre of area censused at Brays Point is 3 OSB per acre and at Rock Creek is 41 OSB per acre. Averaging these numbers (22 OSB per acre) is justifiable because habitat, once restored will likely be colonized by the populations immediately north and south of the covered area when OSB move along this flight corridor, between sites. Of the 90 acres in the covered area that may be restored it is likely that not more than 45 acres will be enrolled and actively managed at any one time. Multiple landowners will not likely return their properties to baseline conditions in the same year, and take will be minimized or avoided as outlined in the CA template. Therefore a maximum of 22 OSB per acre over approximately 10 acres may be taken in any given year or 220 OSB per year. However, landowner involvement, restoration activities and return to baseline conditions will not occur within the early years of the agreement at this scale and take is expected to be much less than the maximum allowed per year.

#### EFFECT OF TAKE

In the accompanying Opinion, we determined that this level of anticipated take is not likely to result in jeopardy to the OSB.

#### REASONABLE AND PRUDENT MEASURES

No reasonable and prudent measures beyond the agreed upon responsibilities of the Cooperators and TNC as described in the SHA and CA template have been identified to further minimize incidental take of OSB. These measures taken from the CA template include;

##### **5.1 Cooperator:**

**5.1.1** Implement (or allow to be implemented) the restoration and management activities specified herein in compliance with all federal, state and local laws, including, but not limited to, physical delineation of the habitat area on the ground if and as deemed necessary by TNC or the Service.

**5.1.2** Provide the Service and TNC with written notice six months (or, per Service approval, sufficient notice to move violets or adult butterflies, if applicable) in advance of any planned activity that TNC or the Cooperator reasonably anticipates will result in "take" (i.e., death, injury, or other harm) of the covered species, above the baseline

conditions, on the \_\_\_\_\_ Property, and provide the Service the opportunity to capture and/or relocate any potentially affected species, if appropriate. For situations involving the potential for bodily injury, loss of life, or significant property damage (including, e.g., responses to address surface drainage of roads and septic system repair), the Cooperator may incidentally take species without prior notice. However, the Cooperator will provide notice to the Service and TNC as soon as practicable before or immediately following those actions. Post-action notice will not exceed 10 days.

**5.1.3** Upon reasonable notice, allow access to the \_\_\_\_\_ Property by the Service, TNC, and their approved contractors, for purposes related to this Agreement, including, but not limited to, biological and compliance monitoring, technical assistance, baseline determinations, management actions, and capture and relocation of the covered species.

**5.1.4** Notify the Service and TNC of any transfer of ownership at least 90 calendar days prior to the intended transfer, so that the Service and/or TNC can attempt to contact the new owner, explain the baseline responsibilities applicable to the enrolled property, and seek to interest the new owner in signing the existing Agreement or a new one to benefit listed species on the \_\_\_\_\_ Property.

**5.1.5** Report to the Service and TNC any dead, injured, or ill specimens of the covered species observed on the \_\_\_\_\_ Property.

**5.1.6** Within 14 days, inform TNC and the Service when Oregon silverspot butterflies are known or suspected to be present on the \_\_\_\_\_ Property.

**5.1.7** Assist TNC in compiling an annual report on activities on the \_\_\_\_\_ Property related to Oregon silverspot butterflies management and any activities that resulted in or may have resulted in incidental take of Oregon silverspot butterflies on the \_\_\_\_\_ Property.

**5.1.8** Consider adaptive management recommendations that TNC may present to the Cooperator.

**5.1.9** Seek technical assistance from TNC on appropriate action if considering implementing Covered Species habitat restoration activities not specified herein.

**5.2 TNC's responsibilities include the following:**

**5.2.1.** Apply for and hold the Permit, subject to the terms of the Safe Harbor Agreement.

**5.2.2** TNC will assist the Cooperator in ensuring that the management activities specified in this Cooperative Agreement to be implemented by the Cooperator comply with all relevant local, state, and federal regulations and statutes, and with the terms of the Agreement.

**5.2.3** Designate a Project Field Manager for the \_\_\_\_\_ Property.

**5.2.4** Provide oversight of baseline condition assessment.

**5.2.5** Provide technical assistance to the maximum extent practicable in implementing management activities.

**5.2.6** Provide 48 hours advance notification to the Cooperator before any visit by TNC and/or Service staff to the \_\_\_\_\_ Property.

**5.2.7** In situations where there is the potential for take in connection with activities on the property, consult with Cooperator and the Service to determine the number and status

of Oregon silverspot butterflies present, and assess whether the butterflies above baseline conditions should remain on the Enrolled Property or be relocated.

5.2.8 Depending upon funding availability, monitor and report the implementation of agreed-upon management activities and terms of this Cooperative Agreement, as well as take authorized by the Permit. In the event that TNC has reductions in staff or funding for compliance or effectiveness monitoring, the Service will try to fulfill the monitoring responsibilities outlined in this Agreement.

5.2.9 Report to the Service any dead, injured, or ill specimens of the Covered Species observed on the \_\_\_\_\_ Property.

5.2.10 With assistance from the Cooperator provide annual reports due December 31 to the Service describing the current status of \_\_\_\_\_ Property, including: (i) an assessment of butterflies and their habitat, (ii) management actions implemented and outcomes if known, and (iii) descriptions of activities required by the CA and/or related to butterflies management and any activities that resulted in or may have resulted in incidental take of butterflies.”

## TERMS AND CONDITIONS

No additional terms and conditions are necessary beyond the responsibilities outlined for each party above.

## 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 minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop information.

## REINITIATION NOTICE

This concludes formal consultation for the potential effects of the Safe Harbor Agreement with The Nature Conservancy and Private Property Owners for Voluntary Enhancement/ Restoration Activities Benefiting the Oregon Silverspot butterfly Central Coast Populations in Lane County Oregon. 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 where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

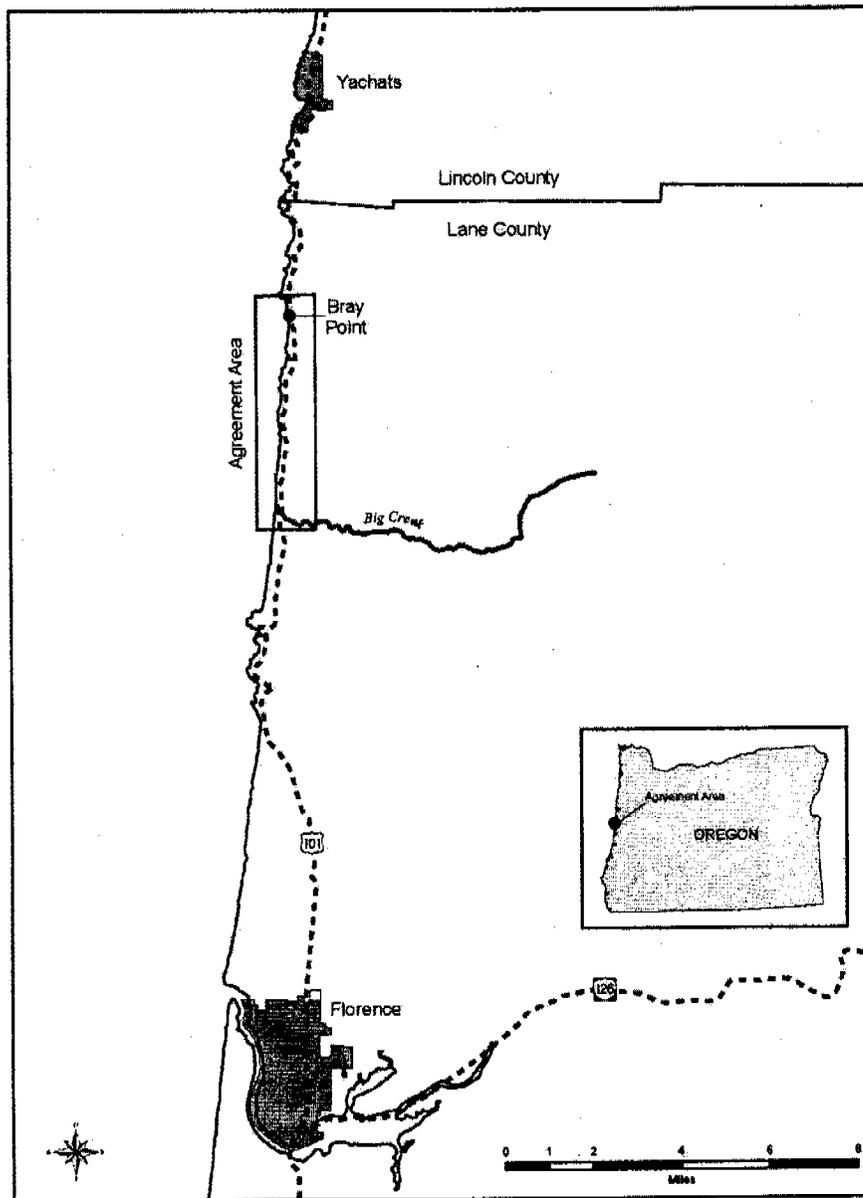


Figure A. Geographic area covered under the Oregon Silverspot Butterfly Safe Harbor Agreement, Bray Point to Big Creek, Lane County, Oregon

## Appendix A

Oregon Silverspot Butterfly Density (OSBs/acre of census area) at central coast sites, 2000-2006 (D.L. Pickering 2007).				
Year	Mt. Hebo	Cascade Head	Bray Point	Rock Creek
2000	600	34	12	40
2001	398	25	0	72
2002	645	5	2.5	49
2003	746	42	5	52
2004	185	7	2.5	47
2005	210	32	0	20
2006	850	27	0	10
17 Year MEAN	519	25	3	41

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