Low-Effect Habitat Conservation Plan to Address Potential Development-Related Effects on the Whiskey Creek Bald Eagle Nest

August 2004

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1.0 Introduction

Three private land owners (Bilyeu, Dickerson and Ghormley or permittees) propose to build houses on three lots in a platted subdivision on the east side of Netarts Bay on the Oregon Coast (Figure 1). Their development plans include a Low-Effect Habitat Conservation Plan (HCP) as required under section 10 of the Federal Endangered Species Act to address potential effects of the construction and long-term occupation of the new residences on the Whiskey Creek bald eagle nest. The HCP follows guidance provided in the Habitat Conservation Planning Handbook (1996) and includes specific management actions (i.e., Site Management Plan) and monitoring. A complete application package for a Low-Effect HCP consists of an HCP document, a completed permit application and a $25 certified check from each of the permittees. The U.S. Fish and Wildlife Service (USFWS) will publish a Notice of Receipt of a Permit Application in the Federal Register; prepare a section 7 Biological Opinion; prepare a Set of Findings, which evaluates the permit application in the context of permit issuance criteria; and prepare an Environmental Action Statement, a brief document that serves as USFWS's record of compliance with the National Environmental Policy Act (NEPA) for categorically excluded actions. While NEPA issues are addressed in the Environmental Action Statement, the USFWS has requested a letter form the Oregon State Preservation Office and an internal Cultural Resources Assessment.

An Implementing Agreement is not usually required for a Low-Effect HCP unless the permittees request one. Considering that there are three permittees and two of the permittees (Bilyeu and Ghormley) intend to sell their lots and transfer their permits and that two of the lot lines will change to accommodate access to the lots, the permittees request that the U. S. Fish and Wildlife Service (USFWS) prepare an Implementing Agreement for this project. The permittees will be given the opportunity to review the Implementing Agreement before it is finalized.

2.0 Project Description And Surrounding Land Use

2.1. Project Description

Proposed covered activities under this HCP include three conventional homes, associated utilities, access driveways and parking areas. The proposed three lots (Lots 400, 0.5 acre; 500, 0.5 acre; and 201, 4.3 acres; Figure 1) are platted in a subdivision. The proposed house footprints are diagrammatic to allow the owners some leeway in design. Given the location of the houses on Netarts Bay, the majority of the outdoor activity will be on the Bay side of the houses or away from the bald eagle nest tree. The house plans and construction will follow Tillamook County building code for set back from the Bay (i.e., 50 feet landward of the high water line) and erosion control etc. Conventional track hoes and track dozers will be used to excavate foundations and prepare driveways for gravel. Access road widths (16 feet) and the parking areas are prescribed by the local Fire District for fire access. The proposed septic system for the two houses closest to the nest tree is a sand filter that will treat household waste water in a surface sand filter and then discharge the treated waste to a drainage field. The sand filter serves the function of a septic tank but sits on the ground surface and is not expected to impair the root structure of the nest tree. The drain field will require excavation along proposed drain lines. The houses, sand filters and the drain fields are outside of the drip line of the nest tree plus 25% (i.e., 50 foot radius for the nest tree and 40 foot radius for the adjacent large tree). The attached letter from Ms. McDonald (Appendix A) provides documentation for the extent of the root zone and her opinion that the sand filter will not impair the nest tree.

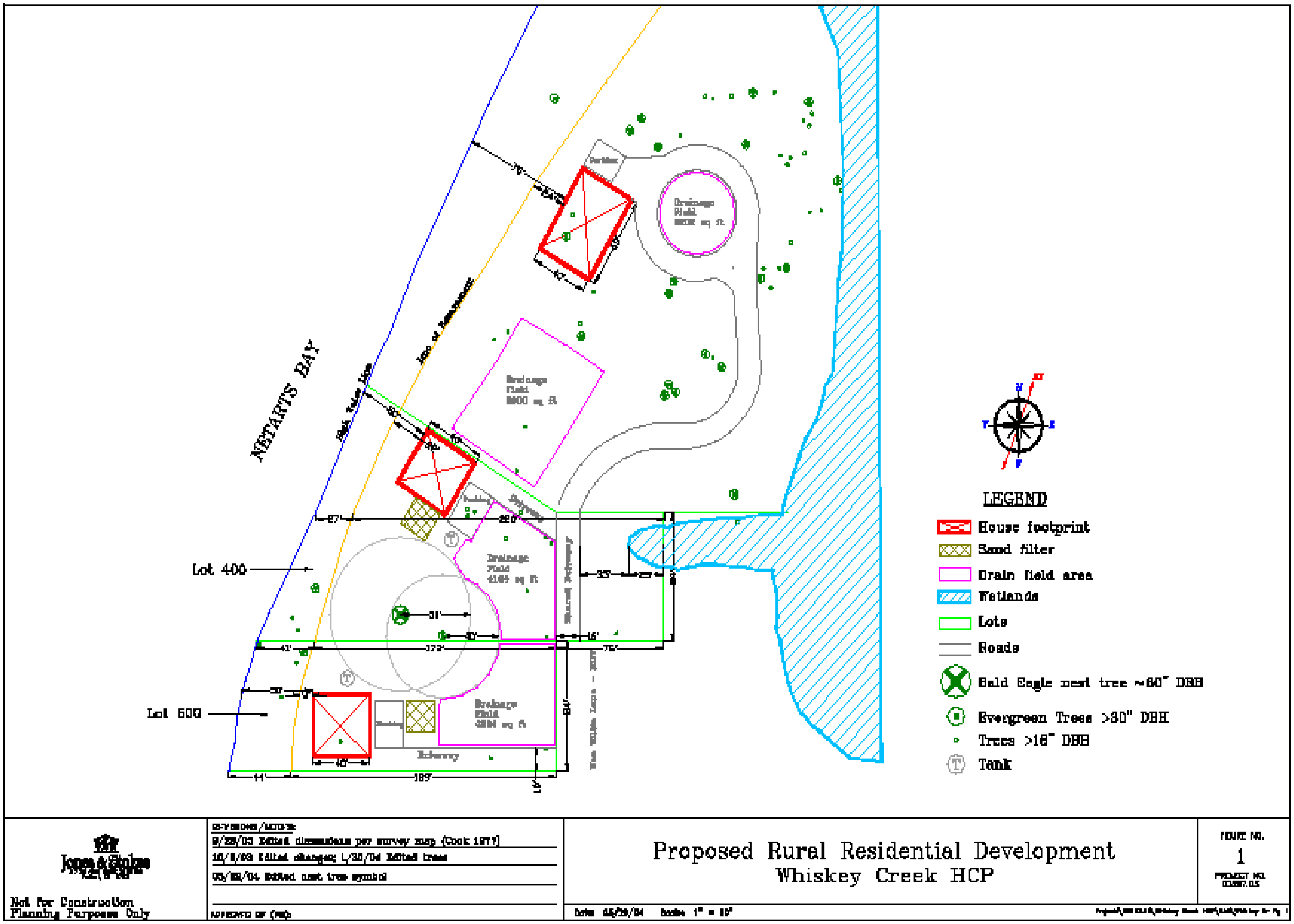
Utility poles and lines (i.e., conductors) to the houses will be above ground and will run along the access driveways. The poles will be set by trucks with augers. Auger holes will be outside the 50 foot and 40 foot radii for the nest tree and adjacent tree. Lines will be pulled from pole to pole through pulleys set by bucket trucks.

The location of the bald eagle nest tree, evergreen trees greater than 30 inches in diameter and all other trees greater than 16 inches diameter were mapped by one of the land owners, Forrest Dickerson. He used benchmarks, a tape and compass to estimate the location of the mapped trees (Figure 1). The access road to Lot 201 (north lot) comes close to some large trees and management actions are recommended to avoid and minimize damage to the large trees along the proposed road.

2.2. Surrounding Land Uses

The wetland east of the lots was delineated by the Department of State Lands. The proposed driveway is approximately 35 feet from the wetland. During driveway construction, sedimentation fence (about 50 lineal feet) will be placed between the proposed driveway and the wetlands to the east.

A restaurant (to the east) along Highway 101 is approximately 400 feet from the bald eagle nest tree. The restaurant has outdoor seating on a patio in clear view of the nest tree. A house to the south of Lot 500 is a conventional home with a relatively large lawn and landscaping. A parcel to the north of Lot 201 is tidelands. Land across Highway 101 is managed forest. A list of adjacent land owners is provided in Appendix E. Netarts Bay is directly to the west of the lots. At low tide mud flats extend far out into the Bay and at high tide the edge of the properties is accessible via a shallow draft boat (i.e., canoe).


NETARTS BAY
Lot 400
Lot 500
LEGEND
House footprint
Sand filter
Drain field area
Wetlands
Lots
Roads
Tank
Not for Construction
Planning Purposes Only
Proposed Rural Residential Development
Whiskey Creek HCP
FIGURE NO.
1

3.0 Biological Setting

3.1. Topography and vegetation

The highest elevation on the three lots is approximately 45 feet (above sea level) at the edge of the escarpment along Netarts Bay. The topography of the three lots slopes gently downward away from Netarts Bay and to the north and east. The elevation of the ground at the base of the bald eagle nest tree is approximately 40 feet. The roots of the nest tree are not likely confined by salt water.

Vegetation on the lots is a combination of managed understory and mature evergreen (mostly spruce, *Picea sitchensis*) and deciduous (mostly alder, *Alnus rubra*) trees. The open understory has been maintained by brush cutting and in some years mowing. Common species include vine maple (*Acer circinatum*), salal (*Gaultheria shallon*), red huckleberry (*Vaccinium parvifolium*), Oregon-grape (*Berberis sp.*), thimbleberry (*Rubus parviflorus*), western swordfern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*) and trailing blackberry (*Rubus ursinus*), among others. The bald eagle nest tree is approximately 60 inches diameter (dbh) and is the largest tree in the area. A survey of trees on the three lots indicated 28 evergreen trees greater than 30 inches dbh and 38 deciduous and evergreen trees between 16 and 30 inches dbh (Figure 1).

3.2. Bald Eagle (*Haliaeetus leucocephalus*) life history

The bald eagle, federally listed as a threatened species, is closely associated with freshwater, estuarine, and marine ecosystems that provide abundant prey and suitable habitat for nesting and communal roosting (Watson et al. 1991). The Whiskey Creek bald eagle pair is likely associated with the fish and wildlife resources dependent on the Netarts Bay ecosystem. Breeding territories are typically within 1 mile of permanent water in predominantly coniferous, uneven-aged stands with old-growth structural components (Anthony et al. 1982; Stalmaster 1987; Anthony and Isaacs 1989). The large spruce trees on the three lots are definitely old enough to be considered old growth and they offer large lateral limbs to support the nest. The managed and disturbed understory below the nest tree lacks old growth character.

Bald eagles winter along ice-free lakes, streams, and rivers where food and perch sites are abundant and the level of human disturbance is low (USFS 1977; Steenhof 1978; Stalmaster 1980). The Whiskey Creek nest tree is an exception to the association of low human disturbance. A restaurant, a home, Wee Willie Lane and Highway 101 are within 400 hundred feet of the nest tree. Similar levels of human activity occur in close proximity to several other nest trees in Oregon. There are at least seven pairs of bald eagle in Oregon that have moved into urban or populated areas and Frank Issacs suspects this may be associated with the increase in bald eagle nesting pairs in the state (Frank Issacs, Oregon State University, pers. comm. July 21, 2003). Communal night roosts are used by bald eagles primarily during the winter months. Frank Issacs (Oregon State University, pers. comm. July 21, 2003) is not aware of a communal roost in the area of Netarts Bay. In the Pacific Northwest, communal roosts generally occur in multi-layered mature or old-growth conifer stands that provide protection from weather and human disturbance (Stalmaster and Newman 1979; Rodrick and Milner 1991).

Home range size of the bald eagle varies greatly according to food abundance and the availability of suitable nest and perch trees (Stalmaster 1987). Favored nest trees are usually the largest tree or snag in a stand (e.g., the Whiskey Creek nest tree) that provides an unobstructed view of the surrounding area and a clear flight to and from the nest (Stalmaster 1987; Rodrick and Milner 1991). Nests are usually built on limbs just below the crown, with the canopy above providing cover (USFS 1977). Nesting behaviors typically begin in January, followed by egg laying and incubation in February and March (Isaacs et al. 1983). Young are reared throughout April, May, and June. Fledging occurs in July and August. These dates are the basis for the Construction Window listed in the management actions for the Whiskey Creek pair. Bald eagles are opportunistic scavengers and predators that feed on a variety of prey including migrating and spawning salmon, other fish, small mammals, waterfowl, seabirds, and carrion (Snow 1981; Rodrick and Milner 1991). Bald eagles usually forage in large open areas with a wide visual field and suitable perch trees near the food source (USFS 1985). The Whiskey Creek pair is often observed perching in large alder trees along the waters edge.

The historic decline of the bald eagle has been attributed to the loss of feeding and nesting habitat, shooting, organochloride pesticide residues, poisoning and electrocution (Snow 1981, USFWS 1986). Human interference has been shown to adversely affect the distribution and behavior of wintering bald eagles (Stalmaster and Newman 1978). In recent years, the bald eagle population in the lower 48 states has increased dramatically. On July 6, 1999, the USFWS proposed to remove the bald eagle from the list of threatened and endangered species because available data indicates the species has recovered (Federal Register 64: 36453 – 36464). This recovery is due in part to habitat protection and management initiated under the ESA, and to the reduction in levels of persistent organochlorine pesticides that have impeded bald eagle reproduction.

3.3. Status of the Whiskey Creek Bald Eagle Nest

The Whiskey Creek nest was in the upper third and on the east side of a large spruce tree away from the Bay. Branches of a close-by large spruce tree (immediately adjacent to the east) are intermingled with the branches of the nest tree and may provide some protection from the wind and rain. The nest was discovered in 2001 and has been monitored for four years (2001, 2002, 2003, 2004). During this time, no eggs or chicks were observed in the nest. The nest was not observed during the 2004 monitoring. Therefore nesting has not been successful (i.e., failed) and the nest tree status is “Nest Down”. These results are documented in Appendix B (F. Issacs, Oregon State University, pers. comm., June 28, 2003). The nest is classed as “Occupied – Failed” during 2001, 2002, and 2003. The nest territory is considered “Occupied, Outcome Unknown” in 2004. The landowners have seen bald eagles on the property prior to 2001 but are not aware of a nest prior to 2001.

Information collected from the tree survey indicates there are 28 evergreen trees 30 inches dbh on the three lots. Most of these larger trees are on the northern lot (Lot 201, approximately 4.3 acres) where one house is proposed. Only one of these trees will have to be cut for the proposed house on Lot 201. The access road to the proposed house site comes close to four other large trees and excavation near these trees will be minimized as practicable (see management actions). The landowner plans to preserve the remaining large trees as a management action. Other large trees, on an adjacent parcel across highway 101 (to the north east), are in a small grove in a recent clear cut.

3.4. Other Listed Species

No other listed species were observed during the bald eagle monitoring surveys of the nest tree (multiple visits per year, Frank Issacs, Oregon State University, pers. comm. June 28, 2003). Species listed in the attached letter (Appendix D) from the Oregon Natural Heritage Program do not use the wildlife habitat types on the three lots. For example, the California brown pelican does not nest in Oregon and does not forage or nest in mature forests. The western snowy plover does nest and forage in Oregon but not in mature forests. There are no creeks or streams on the three lots so salmon and steelhead do not occur on the lots. Therefore the bald eagle is the only federally listed species thought to occur on the three lots and is the only species covered by this HCP.

4.0 Conservation Strategy

4.1. Effects of the Proposed Action

Houses are proposed on Lots 500, 400 and 201 (Figure 1). The nest was on Lot 400 but the drip line of the nest tree is over portions of both Lots 500 and 400 and is about 60 feet from the shared access to Lot 201. This proposal has the potential to impact nesting success of the Whiskey Creek bald eagle pair by loss of the nest tree and/or disturbance (i.e., noise and human activity). The likelihood that the nest tree will be lost is related to the likelihood that the proposed houses and utilities will cut the roots of the nest tree or the adjacent large spruce tree. This issue was addressed by engaging an arborist (Christine McDonald, Stillwater Consulting) to estimate the aerial extent of the root system for both the nest tree and the adjacent tree (see Appendix A, Arborist Letter). McDonald estimated the extent of the root zone to be the drip line (crown radius) plus 25% or 50 feet for the nest tree and 40 feet for the adjacent tree. All excavations for house foundations, driveways and septic fields are proposed outside of the estimated root zones for each tree (Figure1). Septic tanks and associated excavation are not proposed on Lots 400 and 500. Instead sand filters are proposed for Lots 400 and 500. The sand filter is a 20 x 20 foot box of sand (with water proof liner) that sits on the ground surface (Washington State Department of Health 2000). It receives liquid household wastewater from a tank that settles out solids. The filter disperses the wastewater and settles out more solids. Water that leaves the filter is directed toward a drain field that further disperses the wastewater. McDonald doesn't think such a system will endanger the survival of the nest tree.

The bald eagle natural history section above gives several citations that document the potential for human activity to reduce bald eagle survival. This sensitivity is the basis for prescribing the "Construction Window" from August through December (the non nesting season). Such a "Construction Window" is recommended for this project just to be safe but there are many examples of bald eagles nesting successfully in close proximity to human activity. Examples of bald eagle nest success in close proximity to human activity in Oregon, provided by Frank Issacs (Oregon State University, pers. comm, June 30, 2003), include Wallowa Lake State Park, Portland (Ross Island), Lake Oswego (residential), Odell Lake at Highway 58, Sauvie Island, Astoria (Lowery property), Klamath Falls (Moore Park), and Salem (Minto Brown Park). These examples indicate that some nesting pairs in Oregon can acclimatize to various levels of human activity, providing the activity does not directly endanger the physical integrity of the nest or the nest tree. None-the-less, the proposed house construction and ongoing human activities could result in an ongoing "Occupied, Outcome Unknown" or "Occupied but failed" nesting status. We refer to this as a potential future impact. Since nesting has not been successful to date, the likelihood of having a negative impact on possible future nesting attempts is difficult to quantify and mitigation for potential future impact is equally difficult to quantify.

If after continued nest failure or Outcome Unknown status, the Whiskey Creek adult bald eagles abandon the nest site, one could consider this as a take. The risk of abandonment of this nest and its significance to the bald eagle breeding population along the Oregon Coast is considered minor because: 1) the bald eagle breeding territories (and population) have increased in recent years, forcing the birds into more marginal nesting habitat, 2) the territory is in a residential and commercial setting close (about 400 feet) to Highway 101 so the birds may be more tolerant of human activity, 3) the territory has not been productive since it was discovered in 2001, and 4) the Oregon Coast Recovery Zone population (45 occupied territories) and productivity (greater than one fledged bird per territory and 65% success rate) goals have been exceeded. Issacs and Anthony (2003) document that there are 80 occupied territories, 1.15 fledged birds per territory and a 70% success rate. Since recovery goals have been met and exceeded for Oregon Coastal bald eagles, the abandonment of a non-productive (i.e., occupied-failed or unoccupied) nest does not significantly increase the overall risk to the population.

To summarize, this HCP addresses one nest tree and one pair of bald eagle. The likelihood of the proposed activities adversely influencing the nest tree is low but possible. Similarly, the likelihood of the proposed activities endangering the survival of the Whiskey Creek pair is low but possible. Consequently the level of take that is being considered by this HCP is:

1. The possibility for the Whiskey Creek pair abandoning the nest site.
2. The loss of potential future offspring from this previously occupied but failed or unoccupied nest, a rebuild in the existing nest tree or the build in a nearby tree.
3. The loss of the nest tree.

Accordingly, the incidental take permit associated with this HCP will authorize all potential future take of the Whiskey Creek pair as a result of the proposed house construction and ongoing habitation.

4.2. Biological Goal

The biological goal of the HCP is to minimize disturbance of the Whiskey Creek bald eagle pair and the root structure of the spruce nest tree and the associated tree. A variety of management actions are recommended to minimize disturbance of potential future nests and the nest tree. These measures have been reviewed and commented on by Oregon State University and the U.S. Fish and Wildlife Service and are discussed below.

4.3. Avoidance

The management actions recommended for the proposed development do not include avoidance (not building one or more of the houses). The reasons for not avoiding the impact are the financial impact to one or more of the permitees and the low likelihood and low impact of an adverse affect.

The HCP process did lead to an agreement between two of the property owners (Bilyeu and Dickerson) to trade a right-of-way access (from Wee Willy Lane across Lot 400 to Lot 201) for a wedge of land (north of Lot 400) that allows the proposed house on the “nest tree lot” to move approximately 50 feet further away from the root zone of the spruce nest tree. The right of way (across Lot 400) from Wee Willy Lane to Lot 201 and the wedge of land (north of lot 400) are illustrated on Figure 1. The survey and title work for this trade is in progress as of July 26, 2004 and is expected to be finalized in a few months.

4.4. Minimization, Mitigation and Compensation

The management actions for the proposed development include a mix of minimization, mitigation and compensation. Since the likelihood of an adverse affect is low and difficult to quantify, we do not attempt to classify the various actions as minimization, mitigation or compensation. Collectively these proposed actions reduce the likelihood of an adverse affect, preserve the habitat (especially the large evergreen trees) that will not be developed and propose restoration of disturbed areas with native plants. The proposed management actions constitute a Management Plan:

1. Preserving both large Sitka spruce trees (nest tree and associated tree) and establishing a tree protection zone (40 to 50 feet radius, Figure 1) around each tree that prohibits construction activity or tree removal within the zone;
2. Protecting all suitable perch trees (greater than 30 inches dbh) except for the 36-inch dbh tree in the proposed house footprint on the northern lot, which will be removed. Four trees greater than 30 inches dbh along the drive to the northern house will be avoided but the proposed right-of-way will fall within the drip line of four of the trees with a dbh greater than 30 inches. Road excavations adjacent to these four trees will be limited to what is practicable and what is safe. If excavation can be avoided, gravel will be placed on a scraped surface to remove the duff layer (i.e., six inches or less). If one or more of these four trees do not survive and if they present a safety hazard, they will be cut;
3. Preserving canopy closure by retaining all trees greater than 30 inches dbh during the site development (except as noted in item 2) and removing trees greater than 16-inch dbh only within the construction footprint of the house envelops, utilities rights-of-way, on-site sewage disposal systems, and parking areas;
4. Providing an on-site sewage disposal system that minimizes the area needed for operation (e.g., sand filters on Lots 400 and 500 instead of a septic tank);
5. Reducing tree root disturbance by minimizing deep excavations for the driveways and by using porous materials for the roadways. Special consideration for four large trees is discussed in item 2 above;
6. Prohibiting outdoor construction (except for safety purposes such as repairing damage due to a storm, vandalism or other repairs to maintain the integrity of the house) during the bald eagle breeding period based on bald eagle nest monitoring. Example allowed maintenance activities include work on: roof and other exterior siding that might allow wind or rain to enter the house, trees leaning on or about to lean on the house, down electric or phone lines, malfunctioning water or sewer line and trees blocking road or walkway access to the houses. Outdoor construction activities will be prohibited from 15 January to 15 August of any year if the nest is successful and from 15 January to 15 May of any year if the nest is not successful or unoccupied;
7. Planting western hemlock and/or western red cedar (greater than four feet tall) to screen the driveways and parking areas. Trees will be staggered (not lineal) on approximately 15-foot centers. Existing evergreen trees can be substituted for and serve as screen trees;
8. Seasonally prohibiting (15 January to 15 August) activities that may result in significant noise disturbance. Native plants will be used for restoration along driveways parking lots and the side of houses facing the nest tree. Lawn will only be planted on the side(s) of the houses away from the nest tree. Yard maintenance equipment will be non-motorized (e.g., rake, broom, push mower). No two-cycle engines will be allowed during the non-construction window. The only exception will be an electric mower if the permittees chooses a lawn instead of native plantings.

An incidental take permit is needed because the human disturbance associated with the residential development could result in a take of or an adverse affect on this bald eagle pair or the nest site. The proposed management actions are intended to minimize and mitigate for the impact of this potential adverse affect to the bald eagle pair.

4.5. Management Plan Implementation

Responsibilities

The HCP handbook (USFWS 1996) indicates an Implementing Agreement is not required for Low-Effect HCPs unless requested by the permit applicant. The owners of the three lots understand that they are responsible for implementing this HCP in accordance with the specifications for mitigation, monitoring, reporting, and funding described herein and will perform all obligations assigned to it in the section 10 permit and the HCP.

Scope

The HCP includes the three lots (Lots 400, 500, and 201) as described above and illustrated in Figure 1. The HCP covers the proposed covered activities (e.g., construction and maintenance of the houses, associated utilities and access) on these lots.

Permit Duration

The three lot owners seek a 25-year permit from the USFWS to cover the proposed construction and maintenance activities for the proposed houses, utilities and access. This duration will allow ample time for construction, restoration and monitoring as proposed.

Permit Holder/Permit Boundary

Each of the three lot owners will be the permit holders. Mrs. Donna Ghormley has been the main contact for the three lot owners during the HCP process (15978 Highway 20, Eddyville, Oregon, 97343; 541-875-2431; ghormley@casco.net). If and when her lot (Lot 500) is sold, additional or other contact persons will be reported to the USFWS as necessary. The permit boundary is defined as the three lots (400, 500 and 201, Figure 1).

Monitoring and Reporting

The Whiskey Creek bald eagle pair is monitored annually by Oregon State University. Results of the bald eagle monitoring are available from Oregon State University and are provided to USFWS and Oregon Department of Fish and Wildlife. The ongoing bald eagle monitoring is intended to be observational to document the ongoing status of the nest success. There are no success criteria for the bald eagle monitoring.

If the Service or their designee want to climb the nest tree to check for eggs and or fledglings, they will be allowed access to the nest tree in perpetuity. The USFWS or their designee will notify the permitees 14 days in advance of a nest inspection.

Plantings recommended by the management actions for the proposed houses include: western hemlock or western red cedar trees (greater than four feet tall) to screen the driveways and parking areas from the nest tree and native plantings in disturbed areas between the houses and the nest tree. Annual monitoring for four years will document that the proposed trees and native plantings were installed as recommended and that 100% of the trees survived. Documentation for each house following construction (Year 0) will consist of: 1. a hand sketch of where and how many trees and native plantings were installed and 2. photos (one per lot) of the installation. Monitoring during subsequent growing seasons (Years 1, 2, and 3) will document that all the trees have survived and provide photos from the same vantage point as the photos taken during Year 0. The annual monitoring reports for the plantings (Years 0, 1, 2, and 3) will describe the construction schedule for the three houses, plantings (number and species), a sketch of where the plantings were installed, comment on survival, description of replanting trees that did not survive (if any), and photos. Each permittees will be responsible for submitting a monitoring report for each monitoring year to USFWS by December 31 of each monitoring year. If the permittees prefer, a joint report that addresses all three lots can be submitted to USFWS.

Other requirements of the permittees includes:

1. Permanently marking each tree greater than 16 inch DBH that will be preserved by the HCP, as shown in Figure 1, within 60 days of permit issuance. The purpose of marking the trees is to ensure that the trees are easily identified throughout the duration of the HCP;
2. Notification of lot development at least 60 days prior to construction;
3. Notification of emergency actions within 30 days for those emergencies that may affect the management actions identified in the HCP; and
4. Notification of the sale of the property at least 30 days prior to the legal transfer of the property. This will allow USFWS to provide an opportunity for the new landowner to assume the conditions of the HCP and arrange for the transfer of the permit; and

All reports, notifications or correspondence will be sent to: Whiskey Creek HCP, U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office, 2600 S.E. 98th Avenue, Suite 100, Portland, Oregon 97226.

4.6. Unforeseen/Changed Circumstances/No Surprises

Section 10 regulations require that an HCP specify the procedures to be used for dealing with unforeseen circumstances that may arise during the implementation of the HCP. In addition, the Habitat Conservation Plan Assurances ("No Surprises") Rule defines "unforeseen circumstances" and "changed circumstances" and describes the obligations of the permittees and the USFWS.

The purpose of the No Surprises is to provide assurances to nonfederal landowners participating in habitat conservation planning under ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittees. Changed circumstances means changes in circumstances affecting a species or geographic area covered by the HCP that can reasonably be anticipated by plan developers and USFWS and that can be planned for (e.g., the listing of a new species, or fire or other natural catastrophic events in areas prone to such events). The policy defines unforeseen circumstances as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and the USFWS at the time of the plan's negotiation and development and that result in a substantial and adverse change in status of the covered species.

In determining whether any event constitutes an unforeseen circumstance, USFWS will consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species' conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If the USFWS determines that the unforeseen circumstances will affect the outcome of the HCP, additional conservation and mitigation measures may be necessary. Where the HCP is being properly implemented and unforeseen circumstance has occurred, the additional measures required of the permittees must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that are already set aside in the HCP's operating conservation program. Additional conservation and mitigation measures shall not involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under the original terms of the HCP without the consent of the three permittees. Resolution of the situation shall be documented by letters between USFWS and the three permittees.

If unforeseen circumstances adversely affect the Whiskey Creek bald eagle pair, during the term of the permit, the three permittees would not be required to provide additional financial mitigation or additional land use restrictions above those measures specified in the HCP, provided that the HCP is being properly implemented. This HCP expressly incorporates by reference the permit assurances set forth in the Habitat Conservation Plan Assurances ("No Surprises") Rule adopted by the USFWS. Except as otherwise required by law or provided for under the HCP, including those provisions regarding Changed Circumstances, no further mitigation for the effects of the proposed project on the Whiskey Creek bald eagle pair or fledglings or the nest tree may be required if the terms of the HCP and permit are being properly implemented. The HCP will be properly implemented if the commitments and provisions of the HCP and the permit have been or are being fully implemented by the three permittees.

The likelihood that changed circumstances (e.g., fire, flood, insect infestation, earthquake, lightening strike, wind throw, or other natural disaster) during the duration of the permit (i.e., 25 years) makes the occurrence of any such circumstance within the permit period unlikely. However the following addresses several circumstances that may be regarded as changed or unforeseen.

Listing of New Species

- Changed Circumstance. If a species other than the bald eagle is listed under the ESA during the term of the HCP, the USFWS may consider this to be a changed circumstance. There are no candidate species (being considered for listing under the ESA) known to use the forested habitat along Netarts Bay so the likelihood of such a listing is low. However if a new listing occurred, the section 10 permit will be re-evaluated by the USFWS and the HCP-covered activities may be modified, as necessary, to ensure that the activities covered under the HCP are not likely to jeopardize or result in take or adverse modification of any designated critical habitat of the newly listed species. The three permittees will implement the modification to the HCP-covered activities identified by the USFWS as necessary to avoid the likelihood of jeopardy to or take or adverse modification of the designated critical habitat of the newly listed species. The permittees will continue to implement such modifications until such time as the permittees have applied for and the USFWS has approved an amendment of the section 10 Permit. As stated above the likelihood of a new listing for the area of this HCP is low.
- Unforeseen Circumstance. There are no unforeseen circumstances associated with the listing of new species.

Change in Listing Status

- Changed Circumstance. If the bald eagle is delisted or if it becomes endangered, the HCP conditions still apply. No more or no less minimization will be required.
- Unforeseen Circumstance. There are no unforeseen circumstances associated with the change in listing status.

No Nesting in a Particular Year

- Changed Circumstance. If monitoring surveys conducted by USFWS or their designee (e.g., Oregon State University) indicate there are no young in the nest by 15 May, house construction may start as soon as the USFWS is notified and they send an email to the permittees allowing construction in that particular year.
- Unforeseen Circumstance. There are no unforeseen circumstances associated with nest failure and early construction.

Storm and Wind Throw

- Changed Circumstance. If gale force winds topple the nest tree, nest failure will be certain and there will be no more nesting in that tree. The permittees will be allowed to clean up the debris and conduct repairs to their houses, utilities and driveways. Assuming that some large tree remain, nesting in a nearby tree is possible. Consequently the permittees will continue to implement the management actions as prescribed in the HCP.
- Unforeseen Circumstance. There are no unforeseen circumstances associated with gale force winds toppling the nest tree.

Vandalism

- Changed circumstance. If vandalism occurs in the planting and restoration area, the permittees will notify the USFWS and replant the damaged plants. If this occurs during the monitoring period, the damage and replanting will be reported in the annual Monitoring Letter.
- Unforeseen circumstance. There are no unforeseen circumstances associated with vandalism.

Fire

- Changed circumstance. If fire occurs on the lots, the permittees will be allowed to clear land and run equipment such as pumpers to bring the fire under control. The permittees will notify the USFWS, and replant damaged plants. If the fire burns and kills or severely damages the nest tree, the permittees will work with the USFWS to determine the danger of the nest tree to the houses on lots 400 and 500. If the tree is determined to be a danger, the permittees will be allowed to fell and remove the tree from the site. Since some trees will likely survive a fire, the management actions recommended in the HCP should continue to be implemented. If the fire occurs during the monitoring period, the damage and replanting will be reported in the annual monitoring letter.
- Unforeseen circumstance. There are no unforeseen circumstances associated with fire.

5.0 Adaptive Management

There are no identified data gaps associated with the implementation of this HCP. The monitoring data collected by Oregon State University provide good documentation that the nest was occupied but that the nest failed during 2001, 2002, and 2003 and that the nest was down in 2004 (Appendix B). The nesting behavior and chronology of the bald eagle in Oregon is well documented and is the basis for the recommended "Construction Window" and preservation plan for remaining large conifers. There are no additional data that could be collected that could definitively determine if ongoing nest failure, unoccupied status or abandonment is due to house construction, competition from other bald eagles in the area or another natural cause.

Future monitoring of this nest by Oregon State University might provide data that will help the USFWS determine the impact of other house construction and occupation in close proximity to an eagle nest tree. For example if the proposed houses are built and the nest is rebuilt in the existing nest tree and becomes successful, this will be evidence that house construction in close proximity to a bald eagle nest will not always result in ongoing nest failure or abandonment. If the bald eagles leave the current nest site but build a new nest site in one of the large trees that will be preserved, one might conclude that the recommended management actions were (at least in part) effective. In the sense that monitoring is a component of adaptive management, the proposed future monitoring provides a component of adaptive management. The use of the future monitoring data will depend on the monitoring results and USFWS policy and bald eagle recovery in the future. The permittees will cooperate with the bald eagle surveyors and will allow access to the nest tree or new nest tree for monitoring purposes. However, the permittees are not responsible for reporting the monitoring results or the application of the monitoring results to USFWS policy or recovery planning.

Monitoring is proposed to document native planting and survival of the planted trees. If the recommended trees and native plantings do not survive, the problem can be easily diagnosed (e.g., lack of water, unfavorable back-filled soil, poor stock etc.) and remedied. If continued replanting and watering does not result in adequate tree survival, a nursery person will be asked for recommendations to increase plant survival. Additional data collection is not necessary to determine why the trees did not survive. It is unlikely that anything in addition to the proposed monitoring will be required to document survival of the planted trees.

5.1. Funding

The cost of implementing the conditions of the HCP (i.e., management actions) is difficult to determine. For example, one could argue that a push lawn mower and a hand rake will result in a cost savings. The cost differential of the recommended sand filter system versus a conventional septic tank is likely to be low. The only direct out of pocket expense will be for the trees and native plants. The 4-foot trees will probably be in containers and can be purchased for about $10 to $20 apiece. We recommend bare root planting and or seeding in the fall or winter for the native restoration process. The cost of the trees (about 7 trees per lot for the small lots) and native bare root plants from one of several Soil and Water Conservation Districts and seed will be less than $500 per lot for the small lots and less than $1000 for the large lot to the north.

The individual lot owners may choose to install the plants. If a nursery is hired for the plantings the estimated costs could double. The cost of the native plants is likely to be equal to or less than cultivars available from local nurseries. Consequently the native plantings could (as other components of the HCP management actions) result in cost savings Funding the proposed costs for the management actions is not likely to be an issue for the HCP. The permittees are capable and willing to fulfill this obligation.

Revisions and Amendments

There are two types of changes that may be made to the HCP and/or the HCP Permits and/or its associated documents: Revisions and Amendments. Revisions and amendments will be processed in accordance with all applicable legal requirements, including but not limited to the ESA, NEPA and any applicable Federal regulations.

Revisions

Revisions to the HCP are changes to the management actions including monitoring and responses to changed circumstances. Revisions do not modify the scope or nature of activities or actions covered by the section 10(a)(1)(B) or result in operations under the HCP that are significantly different from those contemplated or analyzed in connection with the Plan as approved, adverse impacts on the environment that are new or significantly different from those analyzed in connection with the Plan as approved or additional take not analyzed in connection with the HCP as approved.

Revisions to the HCP may include, but are not limited to the following:

1. Updating the Construction Window for the bald eagle. In the event the construction window is revised by the USFWS, the revised window will be automatically adopted.
2. Correction of the site map (Figure 1) to address errors or to reflect previously approved changes in the HCP.
3. Modifying existing or establishing new Incidental Take Avoidance Measures.
4. Modifying the reporting schedule or notification process.
5. Minor changes to the monitoring method.
6. Revising the planting areas.
7. Any other modification to the HCP that are consistent with the biological goals and objectives of the HCP that the USFWS has analyzed and agreed to, and that will not result in operations under the HCP that are significantly different from those analyzed in connection with the HCP as approved. For example if the permittees chose to delegate the planting and monitoring to a third party under their direct control. Minor revisions may be proposed by either the permittees or the USFWS. The Party proposing the revision to the HCP shall circulate the proposed revision along with an explanation of why the revision is necessary or desirable. Protocol for accepting or disapproving the revision will follow guidance in the HCP Handbook.

Amendments to the HCP

The following summarizes the types of changes that may require a plan Amendment and the procedure for approval.

Major Amendments may include any of the following types of changes to the HCP:

1. The listing under the ESA of a new species that occurs within the habitat type of the lots and within 400 meters of the lots which may be affected by the proposed management actions.
2. Significant changes to the HCP which were not addressed in the HCP including, but not limited to the following:
    a. Changes to Covered Activities that were not addressed in the HCP as originally adopted, and which otherwise do not meet the revisions addressed above.
    b. Changing the term of the HCP from the proposed 25-year term. For example if one of the houses was not built within the proposed 25-year term.

The procedure for an amendment will follow guidelines in the HCP Handbook. Following receipt of a complete application package for an Amendment to a HCP Permit, the USFWS will publish a notice of the proposed amendment to the Permit in the Federal Register. The amendment will be treated as an original permit application. The amendment will require a revised HCP document, application form and the appropriate fee.

Alternatives Considered

To comply with the requirements for an HCP, three alternative strategies to the HCP that would avoid take of the Whiskey Creek bald eagle pair, their fledglings and the nest tree are discussed below.

1. Alternative 1: No-Action Alternative. Under the No-Action Alternative, the proposed houses, utilities and access would not be constructed and the permittees would not implement an HCP and would not receive an incidental take permit. The lots would remain in their existing condition. This alternative would avoid potential future impact to the bald eagle pair but would not necessarily assure future nest success. The No-Action Alternative is inconsistent with the development goals of the owners of the three platted lots. Although this alternative might reduce the likelihood of potential future disturbance, it was rejected because of its incompatibility with the goals of each of the lot owners. The No-Action Alternative does not protect the majority of the large trees on the three lots
2. Alternative 2: Alternative Sites Alternative. The three lots are the last lots to be developed in the subdivision. There are no other lots of similar size in the area. If three lots were available they would be at least if not more expensive that the lots to be covered by this HCP. If one assumes land along this area of the coast is worth approximately $200,000 per acre and the proposed three lots comprise approximately 5 acres, the price for comparable size lots would be approximately $1,000,000. This type of expenditure does not meet the goal of the property owners and is therefore rejected.
3. Alternative 3: Reduced Project Alternative: The reduced project alternative would reduce the size of the houses but the houses would not be substantively further from the nest tree. In general, biological impact on potential future bald eagle nesting would be the same for the reduced house size as it would be for the proposed house size. In fact the reduced house size could encourage more out of door activity rather than activity within the house. This alternative was rejected because the small size of the house would likely be attractive to fewer people and would likely result in a lower selling price or would not meet the needs of the permittees.

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APPENDIX A

Arborist Letter

Stillwater Consulting
Christine McDonald
6530 Weber Road, Tillamook Oregon 97141
Phone: (503) 842-6695 FAX: (503) 842-6695

Forest Dickerson
7500 Whiskey Creek
Tillamook, Oregon 97141
September 19, 2003

Dear Mr. Dickerson,

As requested, I have evaluated the planned construction activities on the two mature Sitka spruce trees located on lots 400 and 500. The largest spruce has been identified as an eagle tree by the USFWS.

The most effective way to protect the Sitka spruce trees is to establish a tree protection zone around the circumference of each tree that restricts construction activities. Limiting activities within this zone would reduce compaction, gouging from equipment, ripping of roots from trenching, and other ground disturbing activities that might occur during construction. Damage to the trunk or root system may make the trees more susceptible to disease and windthrow. My evaluation used existing reports, best available science and site-specific information on soils and plant characteristics to determine the zone that would provide adequate protection for the two trees.

Soil and Rooting Zone Analysis: The rooting zone for spruce trees can vary from flat platelike roots to deep narrow spreading roots. Shallow, more lateral spreading roots are more common on shallow and very poorly drained soils with high water tables. Deeper rooting commonly occurs where soils have good drainage and depth.

Soils investigation showed that the NRCS (preliminary report available on request) has mapped the soils in this area as the Walluski-Chitwood medial silt loam, 3-15% slopes. Soils are very deep and moderately well to somewhat poorly drained. My field investigation showed that soils are typical of the Walluski-Chitwood soil series and would support spruce trees with deep rooting.

Several methods have been used to define the size of a tree protection zone such as using the trees crown width, height, or diameter as a guide. While these methods can produce adequate protection zones they commonly are not species specific or consider on-site properties. Harry Smith (Forestry Chronicle 40:456-473) studied the root spread on 30 open grown spruce trees in British Columbia forest and developed the following equation:

$$\text{Root spread} = 2.32 + 1.14 * \text{crown width}$$

I found this to be the best guide to calculate the tree protection zone. Table 1 uses the Smith equation to predict the root spread radius for the two trees the landowners desire to protect. The tree protection zone circumference can then be measured using the root spread radius*.

Table 1. Estimated root spread radius using crown width

Tree description	**Crown width (average)**	**Root Spread radius**
Eagle tree	40 feet	48 feet
Big spruce	32 feet	39 feet

Recommended by Doug McGuire, OSU Extension Service silviculturist.
* Circumference=2(Pi) r =Tree Protection Zone

Lot 500 Sand Filter Septic System Analysis: Because of the small lot size the landowners of Lot 500 would like to place the sand filter box near the outside circumference of the tree protection zone. The planned location of the drain fields are outside the tree protection zone. During a site visit on September 9, 2003 I evaluated the possible effects of placing the 20x20 foot sand filter box within the tree protection zone. I used a spade to dig several small soil pits to examine root and soil properties. I also used the backhoe excavated pits that were nearby to further examine soil properties. My findings did not show any spruce roots present in the area of the proposed 20'x20' foot sand filter box. Roots from nearby alder, shrubs, herbs and grasses were present in the upper 16-20 inches of organic rich soils. It is probable that some roots may be in this area, however the effect on the health of the two trees would be minimal.

Windthrow damage—High winds can uproot trees and cause windthrow. My evaluation did not focus on assessing windthrow risk. Protecting the root system and leaving adjacent large trees that act as a buffer can reduce the risk of windthrow during storm events.

Summary— Soil analysis showed that shallow soils or high water tables are not restricting root growth and that the roots are free to grow where moisture, nutrients, aeration and mechanical soil properties are most favorable. Using the formula developed by Harry Smith as a guide, the predicted radius of the lateral root zone is 48 feet for the eagle tree and 38 feet for the large spruce. Restricting construction activities within this zone will protect the two trees from gouging, compaction, trenching or other ground disturbing activities that may take place. My analysis showed that placing the sand filter box within the circumference of the tree protection zone would have minimal effect on the trees because of the low density or absence of spruce tree roots growing in this area. Care should be taken to keep ground disturbance from construction activities to a minimum to further protect the two highly valued spruce trees. If you have any questions please feel free to contact me.

Sincerely,

Christine McDonald
Environmental Consultant

APPENDIX B

Bald Eagle Nest Observation Data

Table A-1. Monitoring data for the Whiskey Creek nest tree. This tree has been monitored for four years. Data for 2001, 2002, and 2003 are listed below. 2004 data are not available for this HCP but Frank Issacs (pers. comm. July 2, 2004) indicates the nest is down. Bald eagles have been observed in the area of the nest tree.

DATE	METHOD	ADULTS	STATUS	OUTCOME	NOTE
3/28/01	G	?	OC	oF	J Bird :R Schlemp
3/29/01	G	0	?	oF	B Price
3/30/01	G	0	?	oF	B Price
4/3/01	G	0	?	oF	B Price & B & J Woodhouse
4/14/01	G	2	OC	oF	J Bird
4/15/01	G	0	?	oF	B & J Woodhouse
4/18/01	G	0	?	oF	B Price
4/19/01	G	0	?	oF	B & J Woodhouse; also obs by :D Nuzum
4/20/01	G	1	OC	oF	B & J Woodhouse : B Price; 1 Sub :J Bird
4/22/01	G	1	OC	oF	1 Sub in area :B Price
5/1/01	G	2	OC	oF	B Price & K Swindle
6/6/01	H	0	?	oF	1 Sub in area :R Lowe
6/16/01	G	0	?	oF	B & J Woodhouse
6/30/01	G	0	?	oF	B & J Woodhouse
7/3/01	G	0	?	oF	B & J Woodhouse
7/5/01	G	0	?	oF	
4/2/02	G	0	?	F	M Mefford
4/3/02	G	1	OC	F	New material on nest :B&JWoodhouse
4/5/02	G	0	?	F	B&JWoodhouse
4/8/02	G	1	OC	F	B&JWoodhouse
4/18/02	G	1	OC	F	B&JWoodhouse
4/19/02	G	1	A	F	B&J Woodhouse
5/3/02	G	0	?	F	B&J Woodhouse
5/4/02	G	1	OC	F	B&J Woodhouse
5/10/02	G	0	?	F	B&J Woodhouse
5/31/02	G	0	F?	F	MMefford
6/3/02	H	0	F	F	DPitkin&RLowe
3/13/03	G	1	OC		WLogan
3/14/03	G	1	OC		W&TLogan
3/21/03	G	1	OC		w/FSeavey, HBiederbeck
3/24/03	G	0	?		WLogan-
3/25/03	G	1	OC		WLogan-
4/8/03	G	2	OC		J&BWoodhouse
4/15/03	G	0	?		Nest in disrepair
5/11/03	G	0	?		J&BWoodhouse
5/29/03	G	1	OC		MMefford - 2 Subs
6/4/03	G	0	?		MMefford
7/3/03	G	0	?		1 freshly broken stick w/BPrice
7/10/03	G	2	OC		J&BWoodhouse- M&F perched together

APPENDIX C

Cultural Letter

Oregon
Theodore R. Kulongoski, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St. NE, Suite C
Salem, OR 97301-1271
(503) 986-0707
FAX (503) 986-0793
www.hcd.state.or.us

February 27, 2004

Mr. Paul Whitney
Jones & Stokes
317 SW Alder Ste 800
Portland, OR 97204-2583

RE: SHPO Case No. 04-0295
Whiskey Creek Habitat Conservation Plan
Construction of three homes
Jones & Stokes
Eastern Shore of Netarts Bay, Netarts vicinity, Tillamook County

Dear Mr. Whitney:

A search through the SHPO archaeological statewide database has revealed that there are no reported sites in your proposed project area, however, there have been no previous cultural surveys. Future ground disturbing activities may reveal the presence of buried cultural resources.

Under state law (ORS 358.905-955) it is a Class B misdemeanor to impact an archaeological site on public or private land in Oregon. Impacts to Native American graves and cultural items are considered a Class C felony (ORS 97.740-760). Please be aware that if during development activities you or your staff encounter any cultural material (e.g., prehistoric stone tools or flaking debris, human remains, historic material caches), all activities should cease and a professional archaeologist needs to be contacted to evaluate the discovery. If you have any questions regarding such a discovery, feel free to contact the SHPO office at your convenience. I can be reached at (503) 986-0674 or dennis.griffin@state.or.us.

Dennis Griffin

Dennis Griffin, Ph.D., RPA
(503) 986-0674
dennis.griffin@state.or.us

APPENDIX D

Oregon Natural Heritage Program Letter

Oregon Natural Heritage Information Center

Institute for Natural Resources

Oregon State University
1322 SE Morrison Street
Portland, Oregon 97214-2423

April 7, 2004

Paul Whitney
Jones & Stokes
317 SW Alder Street, Suite 800
Portland, OR 97204-2583

Dear Mr. Whitney:

Thank you for requesting information from the Oregon Natural Heritage Information Center (ORNHIC). We have conducted a data system search for rare, threatened and endangered plant and animal records for your Whiskey Creek Development Project in Township 2 South, Range 10 West, Section 19, W.M.

Sixteen (16) records were noted within a two-mile radius of your project and are included on the enclosed computer printout. A key to the fields is also included.

Please remember that the lack of rare element information from a given area does not mean that there are no significant elements there, only that there is no information known to us from the site. To assure that there are no important elements present, you should inventory the site, at the appropriate season.

This data is confidential and for the specific purposes of your project and is **not to be distributed**.

If you need additional information or have any questions, please do not hesitate to contact me.

Sincerely,

Cliff Alton

Cliff Alton
Conservation Information Assistant

encl.: invoice (H-040701-CWA1)
computer printout and data key

Scientific Name: ***Pelecanus occidentalis californicus***
Common Name: **California Brown Pelican**

Federal Status: LE	GRANK: G4T3	NHP List: 2	Category: Vertebrate Animal
State Status: LE	SRANK: S2N	HP Track: Y	ELCODE: ABNFC01021
EO ID: 3231	First Obs: 1985-10-21	Last Obs: 1985-10-21	Confirmed:

Directions: NETARTS BAY

County Name: Tillamook
Ecoregion: CR
Source Feature [Uncertainty Type (Distance)]: Point [Areal - Estimated (4000 m)]

Town-Range	Sec	Note	QuadCode	QuadName
002S010W	05		45123-D8	Netarts
002S010W	08			

Watershed: 1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type
Owner Comments
Managed Area Name

EO Type:
Minimum Elev.(m):
Annual Observations

EO Data: FEEDING, RESTING & GATHERING AREA FOR BROWN PELICANS - USUALLY 20-30 BIRDS. APPROX 1000 PELICANS REPORTED 10-21-85 BY DOUG TAYLOR, ODFW. FAIR CONCENTRATIONS PRESENT IN SUMMER & FALL, PER DALE SNOW, ODFW.
EO Comments: SAND BARS IN BAY. AREA ALSO USED BY WATERFOWL & GULLS
Protection:
Management:
General: LARGEST KNOWN CONCENTRATION FOR THIS AREA

Scientific Name: ***Haliaeetus leucocephalus***
Common Name: **Bald Eagle**

Federal Status: PS:LT,PD	GRANK: G4	NHP List: 4	Category: Vertebrate Animal
State Status: LT	SRANK: S4B, S4N	HP Track: Y	ELCODE: ABNKC10010
EO ID: 26103	First Obs: 2001	Last Obs: 2003	Confirmed:

Directions: Whiskey Creek site, along Netarts Bay.

County Name: Tillamook
Ecoregion: CR
Source Feature [Uncertainty Type (Distance)]: Point [Areal - Estimated (50 m)]

Town-Range	Sec	Note	QuadCode	QuadName
002S010W	17		45123-D8	Netarts

Watershed: 1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type
Owner Comments
Managed Area Name

EO Type:
Minimum Elev.(m): 12
EO Data: See annual observations.

Annual Observations
- 2003 - breeding failure
- 2002 - nesting failure
- 2001 - breeding failure

EO Comments:
Protection:
Management:
General: Isaacs and Anthony nest 1012.

Scientific Name: ***Charadrius alexandrinus nivosus***
Common Name: **Western Snowy Plover**

Federal Status: PS:LT	GRANK: G4T3	NHP List: 2	Category: Vertebrate Animal
State Status: LT	SRANK: S2	HP Track: Y	ELCODE: ABNNB03031
EO ID: 15058	First Obs: 1982	Last Obs: 1991-	Confirmed:

Directions: NETARTS SPIT, NORTH PORTION OF CAPE LOOKOUT STATE PARK

County Name: Tillamook
Ecoregion: CR
Source Feature [Uncertainty Type (Distance)]: Polygon [Areal - Delimited (8 m)]

Town-Range	Sec	Note	QuadCode	QuadName
002S010W	07		45123-D8	Netarts

Watershed: 1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type: STATE
Owner Comments: OREGON STATE PARKS AND RECREATION
Managed Area Name: CAPE LOOKOUT STATE PARK

EO Type: | Minimum Elev.(m): 3

EO Data: SEE ANNOBS

Annual Observations
- 1990-91-WINTER - NOT SURVEYED
- 1989-WINTER - 0 PLOVERS
- 1989-SUMMER - NOT SURVEYED
- 1988-WINTER - NOT SURVEYED
- 1988-SUMMER - 0 PLOVERS
- 1985-87-SUMMER - NOT SURVEYED
- 1983-87-WINTER - 0 PLOVERS
- 1983-84-SUMMER - 0 PLOVERS
- 1982-SUMMER - 3 PLOVERS
- 1978-81-SUMMER - 0 PLOVERS

EO Comments: DUNE SYSTEM
Protection:
Management:
General:

Scientific Name: ***Oncorhynchus keta pop. 4***
Common Name: **Chum Salmon - Pacific Coast Runs**

Federal Status: | GRANK: G5T3Q | NHP List: 2 | Category: Vertebrate Animal
State Status: SC | SRANK: S2 | HP Track: Y | ELCODE: AFCHA02024
EO ID: 19960 | First Obs: | Last Obs: 1999-PRE | Confirmed:
Directions: AUSTIN CREEK

County Name: Tillamook
Ecoregion:
Source Feature [Uncertainty Type (Distance)]: Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName
			45123-C8	Sand Lake
			45123-D8	Netarts

Watershed: 1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type | Owner Comments | Managed Area Name

EO Type: SPAWNING & REARING - fish | Minimum Elev.(m): | Annual Observations
EO Data: ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE
EO Comments:
Protection:
Management:
General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF CHUM IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus keta pop. 4***
Common Name: **Chum Salmon - Pacific Coast Runs**

Federal Status: | GRANK: G5T3Q | NHP List: 2 | Category: Vertebrate Animal
State Status: SC | SRANK: S2 | HP Track: Y | ELCODE: AFCHA02024
EO ID: 19961 | First Obs: | Last Obs: 1999-PRE | Confirmed:
Directions: WHISKEY CREEK

County Name: Tillamook
Ecoregion:
Source Feature [Uncertainty Type (Distance)]: Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName
			45123-D8	Netarts

Watershed: 1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type | Owner Comments | Managed Area Name

EO Type: SPAWNING & REARING - fish | Minimum Elev.(m): | Annual Observations
EO Data: ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE
EO Comments:
Protection:
Management:

General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF CHUM IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus keta pop. 4***
Common Name: **Chum Salmon - Pacific Coast Runs**
Federal Status: GRANK: G5T3Q NHP List: 2 Category: Vertebrate Animal
State Status: SC SRANK: S2 HP Track: Y ELCODE: AFCHA02024
EO ID: 21683 First Obs: Last Obs: 1999-PRE Confirmed:
Directions: NETARTS BAY

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook		Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
			45123-C8	Sand Lake	17100203 - Wilson-Trusk-Nestuccu
			45123-D8	Netarts	

Owner Name/Type	Owner Comments	Managed Area Name

EO Type: REARING & MIGRATION - fish Minimum Elev.(m): Annual Observations
EO Data: ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE
EO Comments:
Protection:
Management:
General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF CHUM IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus keta pop. 4***
Common Name: **Chum Salmon - Pacific Coast Runs**
Federal Status: GRANK: G5T3Q NHP List: 2 Category: Vertebrate Animal
State Status: SC SRANK: S2 HP Track: Y ELCODE: AFCHA02024
EO ID: 23527 First Obs: Last Obs: 1999-PRE Confirmed:
Directions: JACKSON CREEK

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook		Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
			45123-C8	Sand Lake	1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type	Owner Comments	Managed Area Name

EO Type: SPAWNING & REARING - fish Minimum Elev.(m): Annual Observations
EO Data: ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE
EO Comments:
Protection:
Management:
General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF CHUM IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus kisutch pop. 3***
Common Name: **Coho Salmon (Oregon Coastal Runs)**
Federal Status: LT GRANK: G4T2Q NHP List: 1 Category: Vertebrate Animal
State Status: SC SRANK: S2 HP Track: Y ELCODE: AFCHA02033
EO ID: 115 First Obs: Last Obs: 1999-PRE Confirmed:
Directions: WHISKEY CREEK

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook	CR	Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
			45123-D8	Netarts	1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type	Owner Comments	Managed Area Name
PRIVATE		

EO Type: SPAWNING & REARING - fish Minimum Elev.(m): Annual Observations

EO Data: ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE.

EO Comments:

Protection:

Management:

General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF COHO IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus kisutch pop. 3***

Common Name: **Coho Salmon (Oregon Coastal Runs)**

Federal Status: LT	GRANK: G4T2Q	NHP List: 1	Category: Vertebrate Animal
State Status: SC	SRANK: S2	HP Track: Y	ELCODE: AFCHA02033
EO ID: 1425	First Obs:	Last Obs: 1999-PRE	Confirmed:

Directions: NETARTS BAY & TRIBUTARIES

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook		Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
			45123-C8	Sand Lake	17100203 - Wilson-Trusk-Nestuccu
			45123-D8	Netarts	

Owner Name/Type	Owner Comments	Managed Area Name

EO Type: REARING & MIGRATION - fish Minimum Elev.(m): Annual Observations

EO Data: ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE.

EO Comments:

Protection:

Management:

General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF COHO IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus kisutch pop. 3***

Common Name: **Coho Salmon (Oregon Coastal Runs)**

Federal Status: LT	GRANK: G4T2Q	NHP List: 1	Category: Vertebrate Animal
State Status: SC	SRANK: S2	HP Track: Y	ELCODE: AFCHA02033
EO ID: 8360	First Obs:	Last Obs: 1999-PRE	Confirmed:

Directions: JACKSON CREEK

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook		Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
			45123-C8	Sand Lake	1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type	Owner Comments	Managed Area Name

EO Type: SPAWNING & REARING - fish Minimum Elev.(m): Annual Observations

EO Data: ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE.

EO Comments:

Protection:

Management:

General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF COHO IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus mykiss pop. 31***
Common Name: **Steelhead - Oregon Coast Winter Run**

Federal Status: C | GRANK: G5T2T3Q | NHP List: 1 | Category: Vertebrate Animal
State Status: SV | SRANK: S2S3 | HP Track: Y | ELCODE: AFCHA02136
EO ID: 1440 | First Obs: | Last Obs: 1999-PRE | Confirmed:
Directions: WHISKEY CREEK

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook		Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
			45123-D8	Netarts	1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type	Owner Comments	Managed Area Name

EO Type: SPAWNING & REARING - fish | Minimum Elev.(m): | Annual Observations
EO Data: WINTER RUN: ODFW DISTRIBUTIION MAPS USED TO CREATE THE 1:24,000 COVERAGE
EO Comments:
Protection:
Management:
General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF STEELHEAD IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus mykiss pop. 31***
Common Name: **Steelhead - Oregon Coast Winter Run**

Federal Status: C | GRANK: G5T2T3Q | NHP List: 1 | Category: Vertebrate Animal
State Status: SV | SRANK: S2S3 | HP Track: Y | ELCODE: AFCHA02136
EO ID: 4195 | First Obs: | Last Obs: 1999-PRE | Confirmed:
Directions: NETARTS BAY & TRIBUTARIES

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook		Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
			45123-C8	Sand Lake	1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL
			45123-D8	Netarts	

Owner Name/Type	Owner Comments	Managed Area Name

EO Type: MIGRATION - fish | Minimum Elev.(m): | Annual Observations
EO Data: WINTER RUN. ODFW DISTRIBUTION MAPS USED TO CREATE THE 1:24,000 COVERAGE.
EO Comments:
Protection:
Management:
General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 2001. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF STEELHEAD IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Oncorhynchus mykiss pop. 31***
Common Name: **Steelhead - Oregon Coast Winter Run**

Federal Status: C | GRANK: G5T2T3Q | NHP List: 1 | Category: Vertebrate Animal
State Status: SV | SRANK: S2S3 | HP Track: Y | ELCODE: AFCHA02136
EO ID: 19776 | First Obs: | Last Obs: 1999-PRE | Confirmed:
Directions: JACKSON CREEK

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook		Data currently not available.

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
			45123-C8	Sand Lake	1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type | Owner Comments | Managed Area Name

EO Type: SPAWNING & REARING - fish Minimum Elev.(m): Annual Observations

EO Data: WINTER RUN: ODFW DISTRIBUTIION MAPS USED TO CREATE THE 1:24,000 COVERAGE

EO Comments:

Protection:

Management:

General: DISTRIBUTION INFORMATION USED IN THIS EOR WAS DERIVED FROM ODFW GEOGRAPHIC RESOURCES DATA PRODUCED AND DISTRIBUTED IN 1999. UNLESS SPECIFIC DATA EXISTS IN THE DATA FIELD, THE INFORMATION PRESENTED IN THIS EOR REPRESENTS THE "BEST PROFESSIONAL JUDGMENT" BY ODFW'S DISTRICT FISHERIES BIOLOGIST; THE PRESENCE OF STEELHEAD IN DESCRIBED AREAS SHOULD BE CONSIDERED UNDOCUMENTED BUT AS HAVING A POTENTIAL OF BEING PRESENT.

Scientific Name: ***Arborimus albipes***
Common Name: **White-footed Vole**

Federal Status: SOC GRANK: G3G4 NHP List: 4 Category: Vertebrate Animal
State Status: SRANK: S3 HP Track: N ELCODE: AMAFF23010

EO ID: 5467 First Obs: 1952 Last Obs: 1952-06 Confirmed: Y

Directions: 3 MILES SOUTH OF NETARTS AT WHISKEY CREEK.

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook	CR	Point [Areal - Estimated (50 m)]

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
002S010W	17		45123-D8	Netarts	1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type	Owner Comments	Managed Area Name
PRIVATE		

EO Type: Minimum Elev.(m): 24 Annual Observations

EO Data: 1 SPECIMEN COLLECTED BY ML JOHNSON.

EO Comments: IN AN AREA OF WOODED, BRUSHY LEVEL COASTAL CREEK IN A FLOOD BOTTOM WITH A NUMBER OF LOGS AND LITTLE GROUND COVER.

Protection:

Management:

General: MUSEUM COLLECTION AT PUGET SOUND MUSEUM OF NATURAL HISTORY AT UPS IN TACOMA. COLLECTION #UPS 3330.

Scientific Name: ***Arborimus albipes***
Common Name: **White-footed Vole**

Federal Status: SOC GRANK: G3G4 NHP List: 4 Category: Vertebrate Animal
State Status: SRANK: S3 HP Track: N ELCODE: AMAFF23010

EO ID: 18938 First Obs: Last Obs: - Confirmed: Y

Directions: 6.5 - 7 MILES SW OF TILLAMOOK

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook	CR	Point [Areal - Estimated (8050 m)]

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
002S010W	33		45123-C8	Sand Lake	1710020303 - TILLAMOOK RIVER

Owner Name/Type	Owner Comments	Managed Area Name
FEDERAL-?; PRIVATE-?	SIUSLAW NF-?; PRIVATE-?	HEBO RANGER DISTRICT SIUSLAW NATIONAL FOREST

EO Type: Minimum Elev.(m): 244 Annual Observations

EO Data: MUSEUM RECORD. 1 SPECIMEN COLLECTED 7 MILES SW, 3 SPECIMENS COLLECTED 6 MILES SW OF TILLAMOOK. DATES AND COLLECTORS NOT SPECIFIED.

EO Comments:

Protection:

Management:

General:

Scientific Name: ***Cordylanthus maritimus ssp. palustris***
Common Name: **Salt-marsh Bird's-beak**

Federal Status: SOC	GRANK: G4?T2	NHP List: 1	Category: Vascular Plant
State Status: LE	SRANK: S1	HP Track: Y	ELCODE: PDSCR0J0C3
EO ID: 23577	First Obs: 1978	Last Obs: 1978-11	Confirmed: Y

Directions: NETARTS SPIT, CAPE LOOKOUT STATE PARK, 12 MILES SW OF TILLAMOOK, ALONG THE SAND LAKE-TILLAMOOK COUNTY HIGHWAY.

County Name	Ecoregion	Source Feature [Uncertainty Type (Distance)]
Tillamook	CR	Point [Areal - Estimated (1500 m)]

Town-Range	Sec	Note	QuadCode	QuadName	Watershed
002S010W	19		45123-D8	Netarts	1710020309 - NETARTS / SAND LAKE / NESKOWIN CREEK FRONTAL

Owner Name/Type	Owner Comments	Managed Area Name
STATE	OREGON STATE PARKS AND RECREATION	CAPE LOOKOUT STATE PARK

EO Type:
Minimum Elev.(m): 2

EO Data: FRENKEL OBSERVED SMALL POPULATION IN THE SUMMER OF 1977 IN LOW MARSH COMMUNITY, (SEC 19) NONE OBSERVED THE FOLLOWING 2 SEASONS, PRESUMED EXTIRPATED. KAGAN WAS UNABLE TO LOCATE THE SPECIES DURING 1984 TNC FIELD SURVEY-POSSIBLY EXTIRPATED

Annual Observations
- 1984 - NONE
- 1979 - NONE
- 1978 - NONE
- 1977 - SMALL POPULATION

EO Comments: SPECIES OCCURS IN LOW ELEVATION, HIGH SALINITY SALTMARSH WITH SANDY SUBSTRATE, LOCATED IN FRINGE ALONG EAST EDGE OF SAND SPIT.

Protection:

Management: VEGETATION IS FRAGILE BUT EASILY DEFENSIBLE

General: PHYSICALLY THE FINEST SAND SPIT AREA ON THE OREGON COAST

16 records total

Key to Oregon Natural Heritage Information Center Data

Field Name	Description
Scientific Name	The scientific name of the species.
Common Name	The common name of the species.
Category	Value that indicates the broad biological category for each species.
ELCODE	Unique Heritage Program code for identifying this element. 1st and 2nd byte (PD=Plant dict, PM=Plant monocot, PG=Plant gymnosperm, PP=Plant pteridophyte, AA=amphibian, AB=bird, AF=fish, AM=mammal, AR=reptile, I=invertebrate. 3rd-5th byte (family abbreviation). 6th-7th (genus code). 8th-9th (species). 10th (tie breaker).
Federal Status	US Fish and Wildlife Service or National Marine Fisheries Service status. **LE**=listed endangered, **LT**=listed threatened, **PE** or **PT**=proposed endangered or threatened, **C**=candidate for listing with enough information available for listing, **SOC**=species of concern, **-PD**=proposed delisting, **-NL**=not listed (in part of the range).
State Status	For animals, Oregon Department of Fish and Wildlife status; **LE**=listed endangered, **PE**=proposed endangered, **PT**=proposed threatened, **SC** or **C**=sensitive-critical, **SV** or **V**=sensitive-vulnerable, **SP** or **P**=sensitive-peripheral, **SU** or **U**=sensitive-undetermined status. For plants, Oregon Department of Agriculture status; **LE**=listed endangered, **LT**=listed threatened, **C**=candidate.
GRANK/SRANK	ORNHIC participates in an international system for ranking rare, threatened and endangered species throughout the world. The system was developed by The Nature Conservancy and is now maintained by NatureServe in cooperation with Heritage Programs or Conservation Data Centers (CDCs) in all 50 states, in 4 Canadian provinces, and in 13 Latin American countries. The ranking is a 1-5 scale, primarily based on the number of known occurrences, but also including threats, sensitivity, area occupied, and other biological factors. In this book, the ranks occupy two lines. The top line is the Global Rank and begins with a "G". If the taxon has a trinomial (a subspecies, variety or recognized race), this is followed by a "T" rank indicator. A "Q" at the end of this line indicates the taxon has taxonomic questions. The second line is the State Rank and begins with the letter "S". The ranks are summarized as follows: **1** = Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences; **2** = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences; **3** = Rare, uncommon or threatened, but not immediately imperiled, typically with 21-100 occurrences; **4** = Not rare and apparently secure, but with cause for long-term concern, usually with more than 100 occurrences; **5** = Demonstrably widespread, abundant, and secure; **H** = Historical Occurrence, formerly part of the native biota with the implied expectation that it may be rediscovered; **X** = Presumed extirpated or extinct; **U** = Unknown rank; **?** = Not yet ranked, or assigned rank is uncertain.
NHP list	All rare species in Oregon are assigned a list number of 1, 2, 3 or 4, where **1**=threatened or endangered throughout range, **2**=threatened or endangered in Oregon but more common elsewhere, **3**=Review List (more information is needed), **4**=Watch List (currently stable). A null value indicates the species is not currently on our rare species list.
HP Track	We currently obtain and computerize locational information for only those elements marked with **Y**(es). Those species marked with **N**(o) or **W**(atch) have incomplete data because we do not actively track them at this time.
EO ID	Unique identifier for the Element Occurrence (EO).
First_obs	First reported sighting date for this occurrence in the form YYYY-MM-DD.
Last_obs	Last reported sighting date, usually in the form YYYY-MM-DD.
Confirmed	Indication of whether taxonomic identification of the Element represented by this occurrence has been confirmed by a reliable individual. Blank=unknown, assumed to be correctly identified. Y=Yes, confident identification. ?=identification questions.
Directions	Site name and/or directions to site.
County	County name(s) in which EO is mapped.
Ecoregion	Physiographic Province in which EO is mapped: **CR**=Coast Range, **WV**=Willamette Valley, **KM**=Klamath Mountains, **WC**=West slope and crest of the Cascades, **EC**=East slope of the Cascades, **BM**=Ochoco, Blue and Wallowa Mts., **BR**=Basin and Range, **CB**=Columbia Basin, **SP**=Snake River Plains.

Key to Oregon Natural Heritage Information Center Data

Field Name	Description
Source Feature	A Source Feature is the initial translation of a discrete unit of observation data as a spatial feature. Creation of a Source Feature requires an interpretive process. The likely location and extent of an observation is determined through consideration of the amount and direction of any variability between the recorded and actual locations of the observation data. In most cases, the Source Feature is delineated to encompass locational uncertainty. A Source Feature can be a point, line, or polygon. The type of Source Feature developed depends on both the preceding conceptual feature type and the locational uncertainty associated with the feature.
Uncertainty Type (Distance)	The recorded location of an observation of an Element may vary from its true location due to many factors, including the level of expertise of the data collector, differences in survey techniques and equipment used, and the amount and type of information obtained. This inaccuracy is characterized as locational uncertainty, and is assessed for Source Feature(s) based on the uncertainty associated with the underlying information on the location of the observation. Four categories of locational uncertainty have been identified, as follows: Negligible uncertainty is less than or equal to 6.25 meters in any dimension. Source Features with negligible uncertainty are based on a comprehensive field survey with high quality mapping and a high degree of certainty. Linear uncertainty is greater than 6.25 meters, and varies along an axis (e.g., a path, stream, ridgeline). The true location of an observation with linear uncertainty may be visualized as effectively sliding along a line that delineates the uncertainty. Areal delimited uncertainty is greater than 6.25 meters, and varies in more than one dimension. The true location of an observation can be visualized as floating within an area with a boundary that can be specifically delimited. Boundaries can be defined using roads, bodies of water, etc. Areal estimated uncertainty is greater than 6.25 meters, and varies in more than one dimension. A boundary cannot be specifically delimited based on the observation information, i.e., the actual extent is unknown. The true location of the observation can be visualized as floating within an area for which boundaries cannot be specifically delimited. Source Features with areal estimated uncertainty require that the user specify an estimated uncertainty distance to be used for buffering the feature to incorporate the locational uncertainty.
Town-Range, Sec, and Note	United States rectangular land survey (also known as the Public Land Survey System) legal township, range, and section descriptions that best define the location of the Element Occurrence. Township first (4 bytes), range second (4 bytes). For example: 004S029E = Township 4S, Range 29E. All locations are with reference to the Willamette Meridian. Fractional ranges or townships are indicated in the Note field.
Quadcode	USGS code for the USGS topographic quadrangle map(s) where the record is mapped.
Quadname	Name of the USGS topographic quadrangle map(s) where the record is mapped.
Watershed	Watershed(s), identified according to the U.S. Geological Survey (USGS) Hydrologic Unit Map 10-digit code, within which the Element Occurrence is located.
Owner Name/Type and Comments	Federal, State, Private, etc.
Managed Area Name	BLM District, USFS Forest, Private Preserve
EO Type	For animals, type of occurrence, eg. roost, nest, spawning, etc.
EO Data	Species and population biology - numbers, age, nesting success, vigor, phenology, disease, pollinators, etc.
EO Comments	Habitat information, e.g. aspect, slope, soils, associated species, community type, etc.
Minimum Elevation	Minimum elevation of the area covered by the range of the taxon, in meters. -339 or blank=not determined.
Annual Observation	Summary of yearly observation.
Protection	Comments on protectibility and threats.
Management	Comments on how the site is managed.
General	Miscellaneous comments.

APPENDIX E

The Neighbors

List of adjacent land owners for the Whiskey Creek HCP.

Lot 200 Steve Iijima SW Southridge, Portland 97219

Lot 300 Kendra Hall Whiskey Creek Cafe 6060 Whiskey Creek , Tillamook 97141
buying from Harold Holmes 5455 Regent Oceanside 97134

Lot 700 Donald Mills PO Box 230170, Tigard 97281-0170

Lot 800 Arwen Bird 2445 NE 47th, Portland 97213

Lot 801 Richard Hudders PO Box 102, Netarts 97143

Lot 900 Tillamook County

Lot 1000 Scot Hallowell 10635 NW Jericho Court, Portland 97229

Lot 1001 Arthur Rubiera 6350 Whiskey Creek, Tillamook 97141

Lot 1100 Dennis Tate 6075 Whiskey Creek, Tillamook 97141

Lot 1200 Donald Sheneberger 6355 Whiskey Creek, Tillamook 97141

Lot ? Forrest Land, Willamette Industries 1300 SW 5th, Suite 3800, Portland 97201