US Army Corps of Engineers ®
Portland District

DRAFT ENVIRONMENTAL ASSESSMENT
WESTERN SNOWY PLOVER SITE MANAGEMENT PLAN

COOS BAY NORTH SPIT

(Photograph Source: Aquarium of the Pacific)

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EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (USACE) administers land at the Coos Bay North Spit (CBNS) in Coos County, Oregon. The USACE mission at Coos Bay is to maintain the existing north and south jetties, and the federal navigation channel. The CBNS is also an important wintering and breeding area for Endangered Species Act (ESA)-listed western snowy plover (WSP). The Site Management Plan (SMP) defines what actions the USACE may take in managing USACE-administered land for WSP to further the navigation mission at CBNS.

A Site Management Plan (SMP) was completed in December 2015 to clarify what actions the USACE may take in managing USACE-administered land for WSP. The SMP describes the range of topics that the USACE encounters regularly on lands administered at CBNS. This includes, but is not limited to, protecting habitat for WSP, as well as controlling public access and limiting predators. Conservation Measures are the tools the USACE may use to address management needs and issues. Conservation Measures are comprised of best practices and procedures of the WSP Working Group[1] at Coos Bay and include:

- Habitat management (restore and/or maintain suitable habitat)
- Human disturbance management (reduce human disturbance caused by public and administrative use activities). This can include public outreach, fencing, signage, law enforcement, and compliance.
- Predator management (reduce WSP predation)
- Population and productivity monitoring

Multiple environmental impacts on resources in the Project vicinity from the SMP activities are considered in this Environmental Assessment (EA). This EA compares the Proposed Action, as described above, with the No Action Alternative. The analysis described herein finds that the Proposed Action would not substantially affect the quality of the environment.

[1] The WSP Working Group includes agency representatives for one of six WSP recovery unit areas along the West Coast. This interagency team includes representatives from the Bureau of Land Management, U.S. Fish and Wildlife Service, Oregon Parks and Recreation, Oregon Department of Fish and Wildlife, U.S. Forest Service, U.S. Army Corps of Engineers, U.S. Department of Agriculture Wildlife Services, and the Institute of Natural Resources.

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ABBREVIATIONS AND ACRONYMS

%	percent
°F	degrees Fahrenheit
ATV	all-terrain vehicle
BA	Biological Assessment
BiOp	Biological Opinion
BMPs	Best Management Practices
BLM	U.S. Bureau of Land Management
CBNS	Coos Bay North Spit
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CH	critical habitat
CO	Carbon monoxide
CO_2	Carbon dioxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DEA	David Evans and Associates
dBA	A-weighted decibel
DSL	Division of State Lands
EA	Environmental Assessment
EC	Engineering Circular
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FERC	Federal Regulatory Energy Committee
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
FTA	Federal Transit Administration
GHG	greenhouse gas
HCP	Habitat Conservation Plan
HRA	Habitat Restoration Area
ISAB	Independent Scientific Advisory Board
JCEP	Jordon Cove Energy Project
LNG	liquefied natural gas
MHW	mean high water
MLW	mean low water
mm/yr	millimeters per year
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide

NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRC	National Research Council
NRHA	National Register of Histioric Places
NWI	National Wetlands Inventory
OBMP	Oregon Beach Monitoring Program
OCCRI	Oregon Climate Change Research Institute
OCMP	Oregon Coastal Management Program
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
OESA	Oregon's Endangered Species Act
OHV	offhighway vehicle
OPRD	Oregon Parks and Recreation Department
ORBIC	Oregon Biodiversity Information Center
$PM_{2.5}$	particulate matter (particles less than 2.5 micrometers in diameter)
PM_{10}	particulate matter (particles between 2.5 and 10 micrometers in diameter)
Port	Oregon International Port of Coos Bay
ppm	parts per million
RFFA	reasonably foreseeable future action
RHA	Rivers and Harbors Act
RM	river mile(s)
RMA	Recreational Management Area
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SLR	Sea-level rise
SMP	Site Management Plan
SO_2	sulfur dioxide
SRMA	Special Recreation Management Area
TMDL	total maximum daily loads
TOC	total organic carbon
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	U.S. Coast Guard
USDI	U.S. department of Interior
USFS	U.S. Forest Service
USGCRP	U.S. Global Change Research Program
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WSP	western snowy plover

1. *INTRODUCTION*

This draft Environmental Assessment (EA) evaluates potential environmental impacts associated with implementation of the Coos Bay North Spit Western Snowy Plover Site Management Plan (the Proposed Action). The draft EA meets the requirements set forth by the Council on Environmental Quality (CEQ) in its regulations implementing the National Environmental Policy Act of 1969 (NEPA), as amended (40 Code of Federal Regulations [CFR] 1500-1508).

1.1 LOCATION

Coos Bay is located in Coos County on the Oregon Coast, approximately 200 miles south of the Columbia River. The bay provides a harbor- and water-dependent economy for the local and state community and, as the second largest estuary in Oregon (14,000 acres), the largest located entirely within state borders (Hickey and Banas 2003, Arneson 1976), is an important biological resource. The entrance to the Coos Bay estuary and navigation channel lies between Coos Head and the Coos Bay North Spit (CBNS) (Figure 1-1). The Coos Bay north and south jetties stabilize a mile-long, 47-foot-deep entrance channel, which extends 15 miles upstream past the cities of Charleston and North Bend to the city of Coos Bay.

The CBNS is a large isolated peninsula, about 15 miles from downtown Coos Bay, supporting unique coastal habitats, including an important wintering and breeding area for the federally threatened Pacific Coast population of the western snowy plover (*Charadrius nivosus nivosus*). The western snowy plover (WSP) was listed as threatened under the Endangered Species Act (ESA) in 1993 (58 Federal Register [FR] 12864), listed as threatened by the Oregon Fish and Wildlife Commission in 1975, and confirmed under Oregon's Endangered Species Act (OESA) in 1989.

1.2 BACKGROUND

The U.S. Army Corps of Engineers (USACE) has owned and managed federal lands on the CBNS since the 1890s. The Rivers and Harbors Act of 1899 authorized the Coos Bay Federal Navigation Project. Construction of the north jetty at the southern tip of the CBNS stabilized the entrance channel, altering the dynamic coastal processes that shaped the CBNS and eliminated channel migration.

In 1915, the U.S. Navy Lifesaving Station at the Log-spiral Bay was converted into a Radio Compass Station. The Station was closed in 1950 and the land was transferred from the U.S. Navy to the USACE. The U.S. Bureau of Land Management (BLM) acquired the northern portion of the USACE land in 1984. The USACE leased their remaining lands to the Oregon Department of Fish and Wildlife (ODFW) until 2000, when (due to lack of funding) the ODFW did not renew their lease. Currently, the USACE, BLM, and Oregon Park and Recreation Department (OPRD) manage WSP habitat at the CBNS (Figure 1-2).

The USACE administers approximately 245 acres of land at the southern tip of the CBNS. The USACE parcel runs north from the boundary of the north jetty to the southern boundary of land owned by the BLM. It is bound by the Pacific Ocean to the west, which includes South Beach (the beach between the north jetty and the Federal Aviation Administration [FAA] tower shown

on Figure 1-1), and by the Log Spiral Bay and Coos Bay to the east. The USACE acquired this area to facilitate construction of the Coos Bay north jetty between 1891 and 1894 (Case 1983).

Of the 245 acres, about 104 acres are managed for the WSP, with 77 additional contiguous acres managed for the WSP on BLM lands. One hundred and eighty-one of these acres are referred to as one of five WSP Habitat Restoration Areas (HRAs) (Figure 1-3). The South Spoil area was created with placed material from maintenance dredging of the nearby Coos Bay Federal Navigation Channel in the 1980s; while the 1994 HRA Project involved a number of management activities (salt water irrigation, herbicide treatment, sand tillage) implemented to improve WSP habitat and remove European beachgrass. There are three adjacent HRAs east of the ocean foredune. One is solely on BLM property (the 1998 West HRA) and two encompass both USACE and BLM properties (the 1995 HRA and the 1998 East HRA). The 1994 HRA is partially fenced while the 1995 HRA and the 1998 East and West HRAs are not fenced.

The BLM administers the bulk of the lands on the CBNS, with about 1,864 acres of public land, while the U.S. Forest Service (USFS) manages the Oregon Dunes National Recreation Area to the north of the CBNS. The OPRD retains jurisdiction of the "ocean shores," managing the Pacific Ocean beaches from below the Mean High Water (MHW) mark. The Oregon Division of State Lands (DSL) manages lands below the Mean Low Water (MLW) mark, including submersed lands. Privately owned lands are also scattered throughout the CBNS.

1.3 AUTHORITY AND FUNDING

As part of its mission to build and maintain navigation facilities, the USACE continues to maintain ownership of CBNS land to support jetty monitoring, ensure evaluation access, and to provide construction staging and stockpile areas in the event jetty maintenance or navigation repairs are needed. The USACE has been responsible for maintaining navigable waterways of the North Pacific Coast since 1871. The Coos Bay Federal Navigation Project was authorized in 1878. Between 1891 and 1894, construction of the Coos Bay north jetty occurred, with subsequent repair and maintenance actions following over the decades, the most recent of which was in 2008.

Fluctuations in funding can limit how much work can be completed annually on and around the USACE-managed HRAs. These management activities at the CBNS, mostly to support on-site actions, are anticipated to promote continued success of the WSP population at the CBNS. While availability of annual USACE funding is uncertain, review of annual Oregon Biodiversity Information Center (ORBIC) monitoring reports and close communication with other CBNS partners and members of the WSP Working Group[2], ensures that appropriate management activities continue.

1.4 COOPERATING AGENCY

USACE coordinated with the Bureau of Land Management, Coos Bay Office, on the preparation of the Draft environmental assessment as they actively manage wildlife resources at Coos Bay.

[2] The WSP Working Group includes agency representatives for one of six WSP recovery unit areas along the West Coast. This interagency team includes representatives from the Bureau of Land Management, U.S. Fish and Wildlife Service, Oregon Parks and Recreation, Oregon Department of Fish and Wildlife, U.S. Forest Service, U.S. Army Corps of Engineers, U.S. Department of Agriculture Wildlife Services, and the Institute of Natural Resources.

1.5 PURPOSE AND NEED

The purpose of the Proposed Action is to enhance WSP conservation efforts for this federally threatened species on USACE-administered lands at CBNS. Site management activities are needed each year to protect WSP habitat; a site management plan is needed to formalize and enhance WSP conservation efforts. The purpose of this EA is to assess the impacts of implementing the WSP Site Management Plan (SMP).

1.6 PROPOSED ACTION AREA

The Proposed Action Area includes all USACE-administered land at CBNS, excluding the north jetty structure (Figure 1-3).

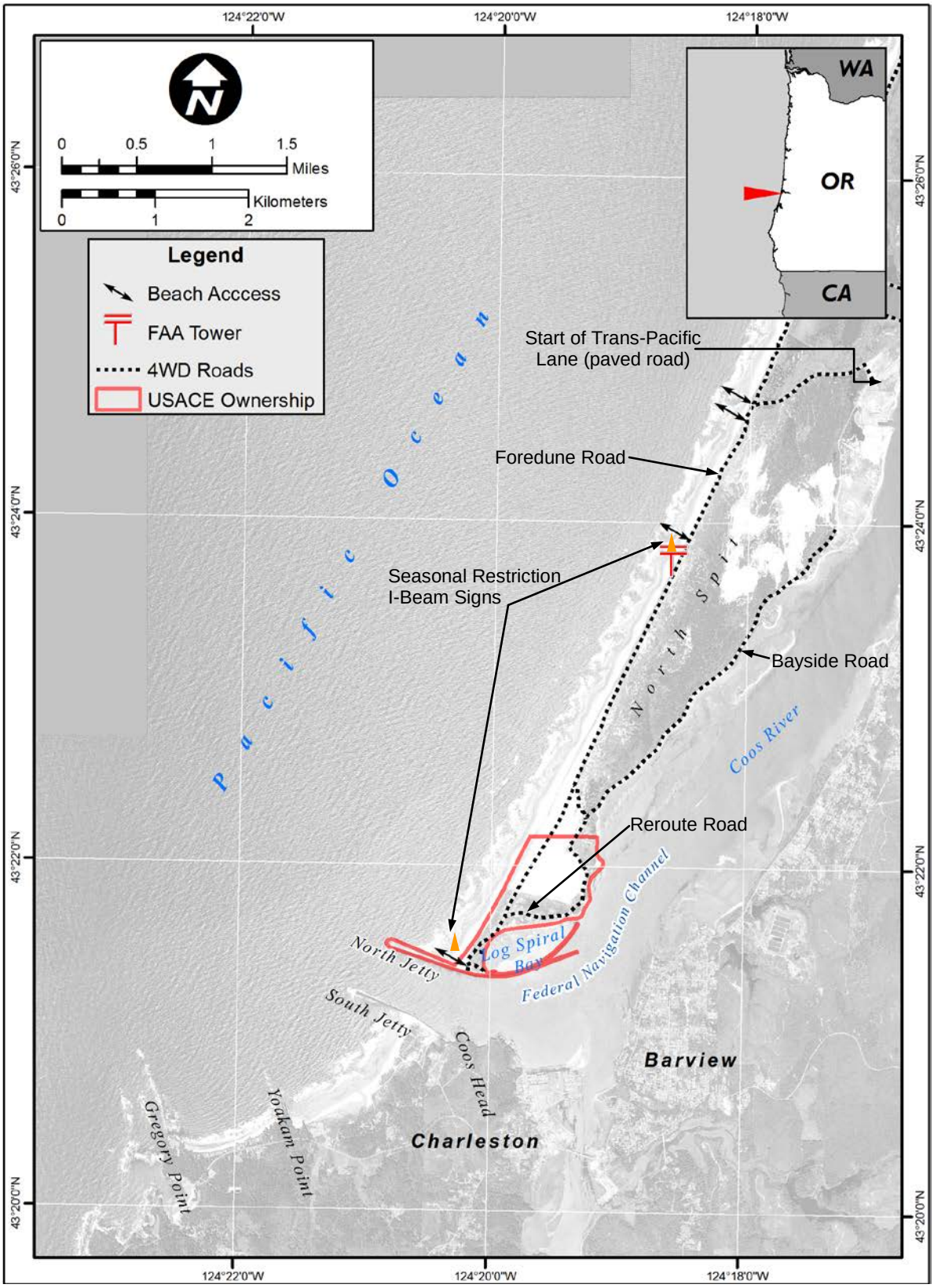

Figure 1-1. CBNS Vicinity Map

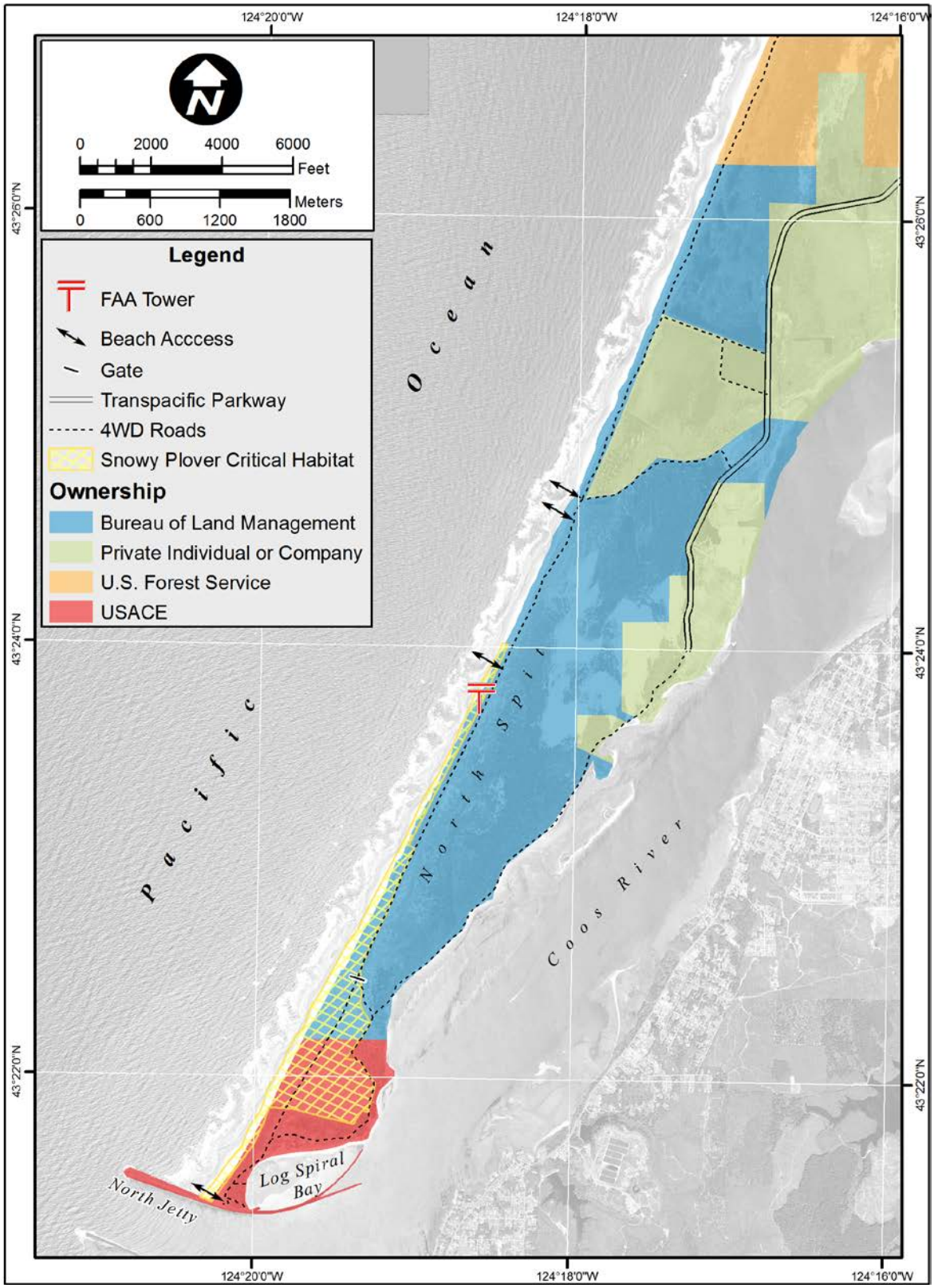

Figure 1-2. CBNS Land Ownerships

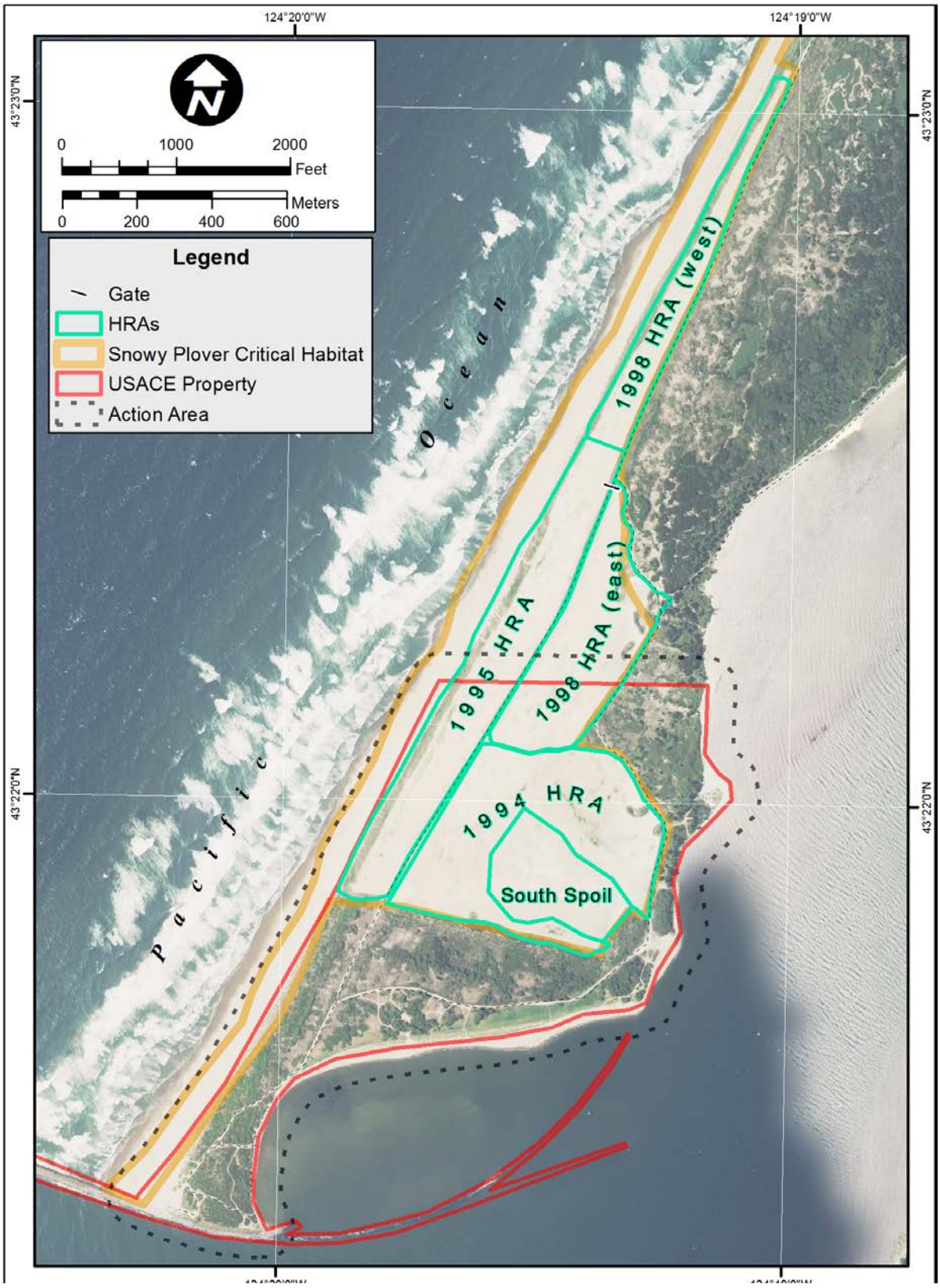

Figure 1-3. Proposed Action Area

2. ALTERNATIVES

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, there would be no SMP. Funding would not be provided to BLM for habitat management, disturbance management, predator management, population monitoring and metrics. Only maintenance activities funded and conducted by the WSP Working Group would continue.

The No Action Alternative is being used as a comparison to the Proposed Action. Resulting environmental effects from taking the No Action would be compared to the effect of permitting the Proposed Action to go forward (CEQ 1981).

2.2 PROPOSED ACTION

The SMP (USACE 2015 and attached in Appendix A) describes existing activities and proposes updated activities that provide the appropriate level of management of WSPs and their habitat on lands administered by the USACE. As funds are available, the USACE implements these proven and appropriate land management actions, without sacrificing the USACE' navigation mission and mandate to maintain the north jetty.

Proposed and continued USACE conservation measures on USACE-administered lands include:

- Habitat management (restore and/or maintain suitable habitat)
- Human disturbance management (reduce disturbance caused by public and administrative use activities). This can include public outreach, fencing, signage, law enforcement and compliance.
- Predator management (reduce WSP predation)
- Population and productivity monitoring

The following summarizes the above activities while the attached SMP (Appendix A), contains detailed descriptions of each management activity.

2.2.1 Habitat Management

Under the Proposed Action, restoration and maintenance work would primarily involve:

- **Disking, Plowing, and Bulldozing**
- **Shell Hash Placement**
- **Mobility Corridors** – Clearing cuts (by hand or small hand held equipment) into the berms along Foredune Road on the west end of the 1994 HRA and then through the foredune to the beach to improve the connectivity of the HRAs with the beach.
- **Fire/Controlled Burning** – The USACE supports this activity on USACE lands if deemed appropriate and recommended by CBNS land managers and USFWS.
- **Herbicides –** The USACE may use herbicides in the future within or outside the HRAs. Application would adhere to approved industry guidelines and BMPs.
- **Gate and Fence Installation and Maintenance**

- **Habitat Nourishment/Material Placement –** The USACE would continue to investigate this option in communication and coordination with its HRA-managing partners (BLM and USFWS). No alternatives are currently under consideration.

2.2.2 Public Use and Other Agency Activities

The USACE would continue to support these activities on USACE-administered lands at the CBNS. These methods include:

- **Seasonal and Area Restrictions, Access, and Public Use**
- **WSP Management Area Boundary Signs** – Well-placed seasonal signs inform users of areas closed to public access to help educate users from entering WSP habitat.
- **Symbolic Fencing –** Symbolic fencing placed along South Beach, above the high tide line, symbolically delineates the WSP
  area. End caps are placed March 15 with rope, posts and signs. The entire beach is roped off from mid-May to September.
- **Interpretive Signage** – Interpretive signs and kiosks located throughout the CBNS help to inform the public as to why the WSP areas are closed seasonally to public access and to potentially reduce the likelihood of encroachment into WSP habitat.

2.2.3 Disturbance Management

The USACE would support an increased effort in disturbance management on USACE-administered lands by funding and/or hiring an entity/representative to further support existing disturbance management activities on the CBNS.

2.2.4 Predator Management

The USACE would rely on recommendations of the Predator Management Subcommittee for future guidance and direction.

2.2.5 Population Monitoring and Metrics

WSP monitoring at the CBNS would continue, as in the past by ORBIC, with cooperation by appropriate WSP Working Group representatives. There are plans in the future that include a sampling approach. However, at this time the details have not been specified.

2.2.6 Reporting and Communication

Immediate reporting to USFWS would occur in cases of disturbed nests or individual mortality.

2.3 Access

Land access to the CBNS is through lands owned by the Oregon International Port of Coos Bay (Port) and the BLM. Entrance to the CBNS is off the paved Trans-Pacific Lane on the northeast side of the CBNS (Figure 1-1). The USACE-managed parcel is accessible by three land routes, the Foredune Road, the Bayside Road, and the beach.

2.4 Conservation Measures

The following measures are proposed as part of the Proposed Action to avoid and minimize adverse impacts to WSP and their habitat:

- Ongoing Implementation of the *Habitat Conservation Plan for the Western Snowy Plover*. On December 17, 2010, the OPRD and USFWS completed the HCP to conserve the WSP on "ocean shores."
- Both the USACE and BLM implement the recreational use restrictions and beach activity management on their lands. The USACE would continue to do so. This includes adhering to the access and management implementation restrictions during the WSP breeding/nesting season, March 15 through September 15.

3. AFFECTED ENVIRONMENT

3.1 PHYSICAL ENVIRONMENT

3.1.1 Coastal Processes

Coastal processes along the Oregon coast are extremely dynamic because of large winter storms that approach the coastline. These storms can produce winds exceeding 60 knots and waves greater than 20 feet several times a year. Storm events such as these have historically, and are presently, acting to shape the coastline by driving currents of sufficient magnitude to transport and redistribute sediment.

Littoral, fluvial and tidal currents are typically responsible for most sediment movement in the coastal environment. However, aeolian (wind) sediment transport can also be a substantial driver of sediment movement along the Oregon coastline and particularly at Coos Bay.

The CBNS is located within the Coos Littoral Cell, which extends 60 miles from Heceta Head on the north to Cape Arago on the south (Oregon Coastal Management Program [OCMP] 2015). The coastline along the littoral cell consists of dune backed and bluff backed shoreline with the vast majority of the shoreline being sandy and dune backed. The net sediment transport direction in the cell at present is neutral (no net transport) or slightly northward (USACE 2012). The primary present-day sediment sources to the cell include rivers (Siuslaw, Umpqua, Coos and Millicoma), coastal bluffs and dredge material placement in the littoral zone. The dominant sediment sink is coastal dunes (most notably the Coos Bay Dune Sheet) and bays in estuaries in the littoral cell.

The CBNS was formed from sand deposited by long shore drift or ocean currents running parallel to the shore. Prior to the construction of the federal jetties and channel, the outlet channel of Coos Bay migrated up and down the coastline over time as beach sands shifted in response to wave and current action. The channel crossed a bay mouth bar and was approximately 10 feet deep and 200 feet wide. The bay mouth bar and a river shoal obstructed access from the ocean to a natural harbor that was approximately 22 feet deep. Construction of the jetties in the 1890s stabilized the navigation channel and entrance. The north jetty is located along the southern end of the long littoral sand spit.

Since the construction of the north jetty, the ocean side of the north spit accreted for approximately 50 to 60 years until a maximum was reached in the 1950s. Since that time, the ocean side of the CBNS has generally been receding. Unlike the ocean side of the spit, the channel side of the CBNS has not been as stable. The Log-spiral Bay at the root of the north jetty has been enlarging due to wave activity and currents (USACE 2012). However, overall, the CBNS is actively eroding near the north jetty at an average rate of a few feet per year. Spur jetties and a “hard point” at the log spiral bay have been constructed to counter ongoing erosion. Management of this ongoing erosion is important for maintaining channel navigation at Coos Bay.

3.1.1 Air Quality and Noise

The Proposed Action Area is located along the southwest coast of Oregon. Winds are common along the coastline and winter storms can bring substantial wind and waves to the area.

3.1.1.1 Compliance with National Air Quality Standards

Air quality refers to relative concentrations of pollutants in the ambient air. The U.S. Environmental Protection Agency (USEPA) sets national air quality standards for six common pollutants (also referred to as "criteria" pollutants). These standards, known as National Ambient Air Quality Standards (NAAQS) consist of standards for carbon monoxide (CO), lead, nitrogen dioxide (NO_2), ozone, particulate matter ($PM_{2.5}$ and PM_{10}) and sulfur dioxide (SO_2). The USEPA has separated Oregon into 25 geographic monitoring areas, which are rated based on compliance with the NAAQS standards. Failure to consistently meet these levels results in the area being designated as a Nonattainment Area. An area can also be designated as a Maintenance Area if it has a history of nonattainment, but is now consistently meeting the NAAQS. USACE activities, resulting in the discharge of air pollutants, must conform to NAAQS and State Implementation Plans (SIP), unless the activity is explicitly exempted by the USEPA.

The CBNS is not located within a Nonattainment or Maintenance Area. Several Nonattainment/ Maintenance areas are located in eastern Oregon with exceedances of carbon dioxide (CO_2), ozone and particulates ($PM_{2.5}$ and PM_{10}).

3.1.1.2 Noise

Wind, waves, marine surf, vessels transiting into and from Coos Bay, aquatic and shoreline wildlife, and recreational activities all contribute to ambient in-air sound levels on the CBNS. Measured ambient in-air noise levels at the BLM boat ramp on the CBNS (bayside) ranged from about 40 to 48 dBA3 (Federal Energy Regulatory Committee [FERC] 2014). Surf, measured as a contributor to airborne noise, has been measured at around 87 to 90 dBA (Bolt Beranek and Neman Inc. 1960, Abrahamson 1974).

Other anthropogenic noises result in variations of higher noise levels for short periods of time. The Southwest Oregon Regional Airport is situated adjacent to the bay and can be expected to result in relatively high sound levels as planes can produce noise in the magnitude of 100 dBA. Nearby waterfront industrial activities can also create sounds levels in the range of 70 to 90 dBA, peaking at 99 dBA for short durations (77 FR 59904). These sounds are produced by heavy trucks, forklifts, marine vessels and tugs, and tools and equipment used on piers and shoreline industrial sites. During poor weather conditions, vessels in the Entrance Channel may use foghorns. The sounds from these horns can be quite loud, reaching levels of about 95 to 120 dBA (Federal Transit Administration [FTA] 2006). Although the Highway 101 corridor through Coos Bay may only result in traffic noise of up to 75 dBA during the day (FTA 2006) to areas between 10 and 50 miles away, wind and waves and nearby recreational and waterfront operations may result in ambient noises reaching 90 dBA intermittently.

[3] Noise levels are measured and expressed in decibels (dB). Noise levels are weighted to the A noise scale to filter out frequencies not audible to the human ear and are written dBA. In-air sound is measured on an “A” weighted decibel scale.

3.1.2 Water Quality

The CBNS is part of the Coos Bay estuary, formed at the junction of the Coos River with a number of smaller tributaries, including South Slough, Isthmus Slough, Kentuck and Wouldanch Sloughs, and North Slough. Coos Bay, and the 30 tributaries that flow into the Bay, lie within the U.S. Geological Survey designated watershed, Coos Bay (Cataloging Unit: 17100304). The estuary is primarily fed by the Coos and Millicoma Rivers (Coos and Coquille Local Advisory Committee and the Oregon Department of Agriculture 2010).

Water quality within Coos Bay and along its beaches is monitored by the Oregon Department of Environmental Quality (ODEQ) Ambient Water Quality Monitoring Program and the Oregon Beach Monitoring Program (OBMP). According to the ODEQ Watershed Quality Assessment Database (2012), 303(d) water quality limited segments exist in the Coos Watershed. Category 5 water quality limited segments of Coos Bay includes fecal coliform between RM 0 and 7.8, the water on the channel side of the CBNS. Common sources of fecal coliform in Coos Bay include sanitary sewage overflows due to large storm events, municipal storm water discharges, runoff from rural residential areas, and failing and/or poorly situated septic sewage systems (City of Coos Bay 2015).

The ODEQ is also in the "initial scoping and data collection phase" for the preparation of a total maximum daily loads (TMDL) for the watershed. A TMDL is the USEPA's way of measuring a receiving waters loading capacity for pollutants from both point and non-point sources.

The groundwater supply for the Coos Dune Sheet Aquifer (the freshwater aquifer at the CBNS) is large due to high annual recharge from rainfall and the high permeability of the dune sands (BLM 2006). The Coos Bay-North Bend Water Board has monitored water levels in the dunes. In general, there is a groundwater mound, or hydraulic ridge, of fresh water running down the center of the CBNS. Groundwater flows off the mound towards the shorelines to the west, south, and east.

The Coos Bay/North Bend Water Board monitored total organic carbon (TOC) from 2010 to 2012 in CBNS subsystems as part of their drinking water program (Schmitt et al. 2012). TOC levels were 3 to 4 milligrams/liter on average over these years. These levels are similar to the mean observed concentrations at ODEQ sites in the Coos River.

3.1.3 Climate Change

Climate is governed by incoming solar radiation and the greenhouse effect. The greenhouse effect is the result of certain naturally occurring, atmospheric gases absorbing long-wave radiation emitted from the Earth. Absorption of this long-wave radiation in the atmosphere, as opposed to being transmitted into space, warms the Earth. Greenhouse gases (GHGs) include (in order of importance to the greenhouse effect) water vapor, carbon dioxide, methane, nitrous oxide and ozone.

Human (anthropogenic) activities such as the burning of fossil fuels (adding more GHGs to the atmosphere) and clearing of forests (removing a natural sink for carbon dioxide), have intensified the natural greenhouse effect, causing global warming. Carbon dioxide emissions from the burning of fossil fuels are the most substantial source of anthropogenic GHG emissions. Global

atmospheric concentrations of carbon dioxide have risen almost 100 parts per million (ppm) since their pre-industrial (1750) value of 280 ppm (Oregon Climate Change Research Institute [OCCRI] 2010).

Natural factors, which include solar variation and volcanic activity, also contribute to climate change. However, strong scientific evidence suggests that these factors alone do not fully explain the observed accelerated global warming of the past few decades (OCCRI 2010).

According to the U.S. Global Change Research Program (USGCRP), the average regional air temperatures have increased by an average of 1.5 degrees Fahrenheit (°F) over the last century, up to 4°F in some areas (USGCRP 2009). Warming trends are expected to continue into the next century (USGCRP 2009).

Precipitation trends during the next century are less certain than those for temperature, but increased precipitation is likely to occur during October through March and less during summer, with more winter precipitation falling as rain rather than snow (ISAB 2007; USGCRP 2009). The ISAB recommends planning now for future climate conditions by implementing protective tributary, mainstem, and estuarine habitat measures, as well as protective hydropower mitigation measures (2007).

3.1.3.1 Sea-Level Rise

Changes in sea level also have substantial impacts on coastal processes and the resulting geomorphology of the coastline. Sea level rose approximately 400 feet from its lowest point at the end of the last ice age, which occurred about 20,000 years ago (NRC 2012). At present, global sea levels continue to rise and are projected to accelerate in the next century. Local sea-level rise (SLR) follows this trend and is discussed further in this section.

SLR has occurred on a global scale over the last century and projections suggest that the rate might continue or accelerate into future planning horizons (i.e. 2050, 2100) under a range of potential scenarios. Global SLR is the change in ocean water volume as a result of thermal expansion (expansion of water as the climate warms) and the contribution of water from the melting of land-based ice. However, at a given coastal site, the rate of global SLR is of less practical importance than the rate of SLR relative to the land. This rate is known as relative SLR and is the net sum of the global SLR rate with addition or subtraction of local land uplift or subsidence. SLR experienced at a specific location can differ from the global SLR rate as a result of shorter time-scale climatological effects such as the El Niño Southern Oscillation and the Pacific Decadal Oscillation.

The range of global SLR projections is due to uncertainty associated with global temperature models derived from the Intergovernmental Panel on Climate Change. These models rely on predicted global GHG emissions scenarios to produce future global temperature outputs. The uncertainty in deriving these emission values (a function of social behavior), in combination with the unclear and non-linear responses these temperature increases may have on the ocean, is the primary source of uncertainty in these estimates. Because of this uncertainty, SLR guidance for use in project planning is generally separated into low, medium, and high values and is based on

various assumptions. The uncertainty in the SLR projections increases with time, with models in general agreement with one another until approximately mid-century (year 2050).

A number of state and federal government agencies have developed and adopted SLR guidance used in the planning and design of projects within their purview. Specific to the Proposed Action, Engineering Circular (EC) 1165-2-212 (USACE 2011) provides guidance for all USACE Civil Works programs for incorporation of the direct and indirect physical effects of projected SLR across the lifetime of the Proposed Action. This guidance requires consideration of a range of SLR scenarios over the Proposed Action lifetime, normalized to year 1992. The low SLR rate is a linear extrapolation of the historical water level data in the vicinity. The intermediate and high scenarios are modified National Research Council (NRC) scenarios NRC I and III as described in NRC (1987).

The low SLR curve was derived from the longest tidal record in the vicinity of the Proposed Action, which was located near Charleston (Station #9432780), and spanned from 1970 to 2006 (Figure 3-1). Based on this National Oceanic and Atmospheric Administration (NOAA) tidal record, mean sea level has risen at a rate of 1.29 ±1.15 millimeters/year (mm/yr), or 0.42 feet/century, and the land was estimated to rise at a rate of 0.57±0.24 mm/yr, or 0.19 feet/century (NOAA 2012).

Based on the EC, the three SLR scenarios for the Proposed Action over an assumed 50-year Proposed Action lifetime (i.e. through approximately 2065) are shown in Figure 3-2. Projections depict relative SLR conditions through account of the global SLR rate (assumed 1.7 mm/yr within the EC) and local land movement. Based on this analysis, relative sea level is projected to increase by between 0.2 feet and 2.1 feet at Coos Bay relative to present levels during this period. SLR contributes to shoreline erosion by allowing waves to propagate over deeper waters and reach higher elevations. Therefore, SLR is likely to cause beach erosion at the CBNS in the future.

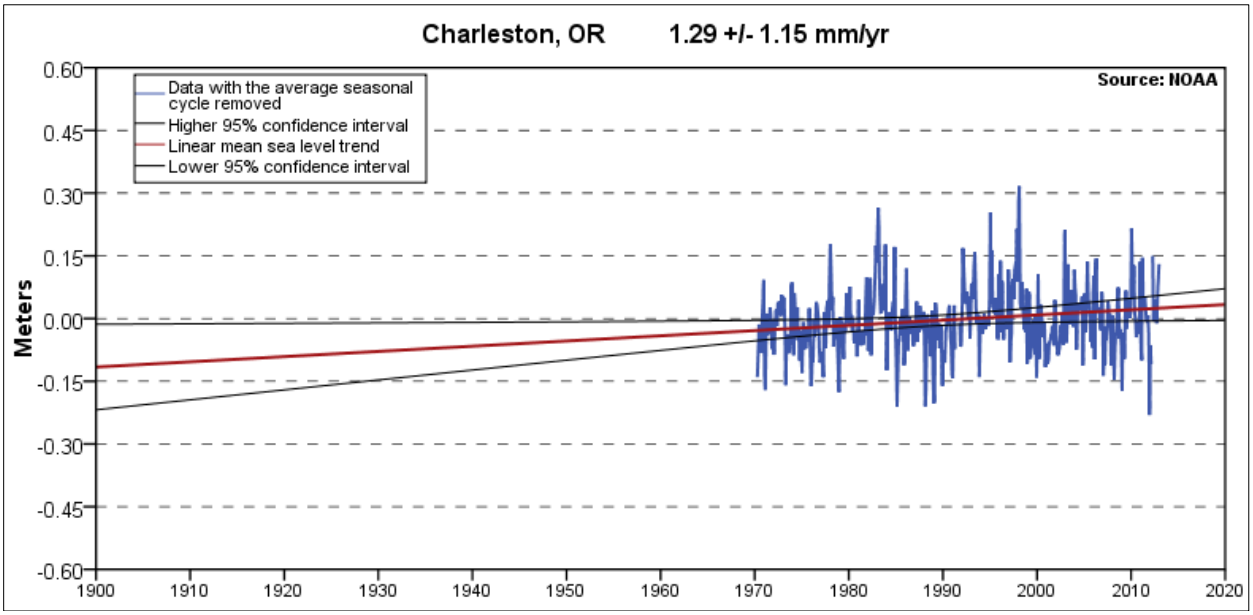

Figure 3-1. Mean Sea Level Trend at Charleston, Oregon (source: NOAA 2012)

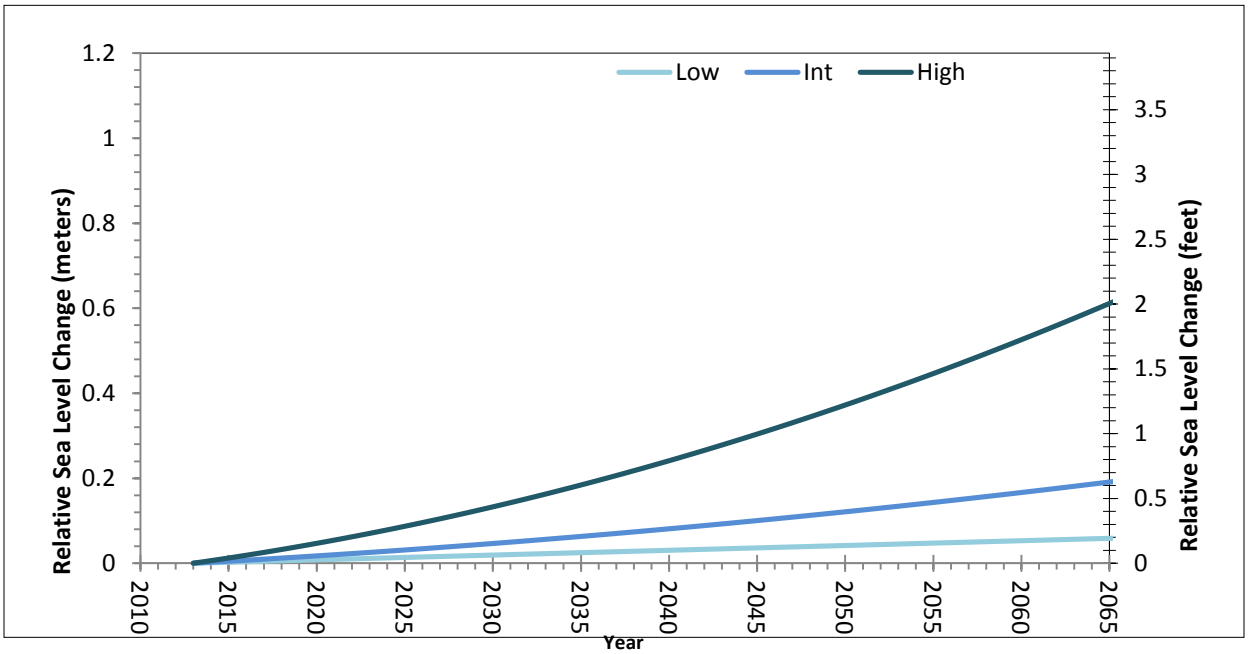

Figure 3-2. Relative Sea-Level Rise Projections for Coos Bay (derived from Charleston, Oregon Tide Gauge and USACE 2011)

3.2 BIOLOGICAL RESOURCES

The Proposed Action Area is located in the Coos Bay estuary. Similar to the other larger estuaries in the state (Columbia River and Yaquina Bay), Coos Bay has been altered by heavy development over the past century (forestry, fishing, coal mining, dredging, filling and diking).

3.2.1 Habitat and Wildlife

Coos Bay is a drowned river mouth fed by 30 tributaries and surrounded by steep forested hillsides. The estuary is approximately 13,300 acres in size and the tidelands encompass about 6,200 acres (50 percent [%]) while tidal wetlands cover about 2,738 acres (13%) (Akins and Jefferson 1973). Much of the lower elevation lands are diked and have been used for either agriculture or urban development. The remaining shallow water habitat provides important transitional habitat for marine and freshwater aquatic and terrestrial species including marine (deep water to beaches and shallow sub tidal, estuary, mudflats, seagrass beds, salt marsh), freshwater (wetlands, marshes, rivers), and upland (grasslands, coastal forests). The CBNS has sandy beaches on the ocean side and mudflats and salt marshes on the east (Figure 3-3).

Wildlife species on the CBNS include: 250 species of birds including waterfowl, shorebirds, seabirds, and marsh-birds, including the ESA-listed WSP (discussed further in 4.3.3); reptiles, such as the Northwestern pond turtle (Clemmys marmorata); mammals such as the fisher (Martes pennant), the Townsend's Big-eared Bat (Corynorhinus townsendii), deer, and rabbits; raptors such as the peregrine falcon (Falco peregrinus) and bald eagle (Haliaeetus leucocephalus),

crows; and mammalian predators such as skunks, foxes, coyotes, raccoons, mink, and bobcats (BLM 2006).

Figure 3-3. Left: Oceanside Beach Adjacent to North Jetty Looking West; Right: Bayside Beach

Noxious or non-native plant species occur on the CBNS. Recent noxious weeds mapped by the Oregon Department of Agriculture (ODA) on the CBNS include European beachgrass, Scotch broom (*Cytisus scoparius*), Canada thistle (*Cirsium arvense*), ragweed (*Ambrosia artemisiifolia*), and common gorse (*Ulex europaeas*) (ODA 2015).

3.2.1.1 Beaches

The Pacific Ocean beach face is backed by a foredune stabilized by the establishment of European beachgrass and other scrub-shrub species (Figure 3-4). The stabilization of the CBNS through the construction of the north jetty and the introduction of European beachgrass has provided reliable access from the Pacific Ocean to Coos Bay and established a steeper foredune environment. This is shown in Figure 3-4, which also shows distinct vegetative transitional boundaries around the managed HRAs versus the unmanaged areas of the CBNS. The dense dune grass not only stabilizes the foredune, but also causes vertical growth of the coastal dunes by capturing wind-transported sand and virtually eliminating landward transport of sand. The introduced beachgrass created foredunes not previously evident in the area, and had a detrimental effect on native dune plant communities (Wilson 1980; Pickart 1997; Zarnetske, Seabloom, and Hacker 2010).

Over the past several decades, the foredune has minimized supply of windblown sand to the inland sand dunes (BLM 2006). Winds continue to move the remaining inland dune sands toward the bay, stripping sand from the eastern edge of the plain and further exposing the water table. This also occurs further inland in troughs among the dunes. Rapid plant succession follows water exposure of the water table. Only plants tolerant of perennially wet soils usually survive.

Figure 3-4. Condition of Foredune (in 2014) on USACE-administered CBNS Lands

3.2.1.2 Wetlands

Seasonally flooded wetlands have surface water present for extended periods, especially early in the growing season (BLM 2006). Surface water is absent by the end of the growing season in most years. Unconsolidated shore, emergent, scrub-shrub, and forested wetlands are scattered throughout CBNS (Table 3-1).

Intertidal and estuarine wetlands are located on the bay side of the CBNS. The US Fish and Wildlife Service's National Wetlands Inventory (NWI) identifies several wetland types (USFWS 2015), as have recent delineations by David Evans Associates (DEA 2015a) (Figure 3-5).

Table 3-1. Examples of Vegetation Observed at CBNS (BLM 2006)

Vegetation Type	Species
Forest and Woodland Areas	shore pine (*Pinus contorta* ssp. *contorta*)
	Sitka spruce (*Picea sitchensis*)
Shrubland	salal (*Gaultheria shallon*)
	evergreen huckleberry (*Vaccinium ovatum*)
	wouldow (*Salix* spp.)
	wax myrtle (*Morella californica*)
	sword fern (*Polystichum munitum*)
Dwarf shrubland	bog blueberry (*Vaccinium uliginosum*)
	tufted hairgrass (*Deschampsia caespitosa*)
Herbaceous Community	salt rush (*Juncus lesueurii*)
	slough sedge (*Carex obnupta*)
	Pacific silverweed (*Argentina egedii*)
	seashore lupine (*Lupinus littoralis*)
	beach morning-glory (*Calystegia soldanella*)
	beach silvertop (*Glehnia littoralis*)
	American bluegrass (*Poa macrantha*)
	American dunegrass (*Leymus mollis*)
	floating-leaved pondweed (*Potamogeton natans*)
Salt Water Marsh	pickleweed (*Salicornia virginica*)
	fleshy jaumea (*Jaumea carnosa*)
	and salt grass (*Distichlis spicata*)

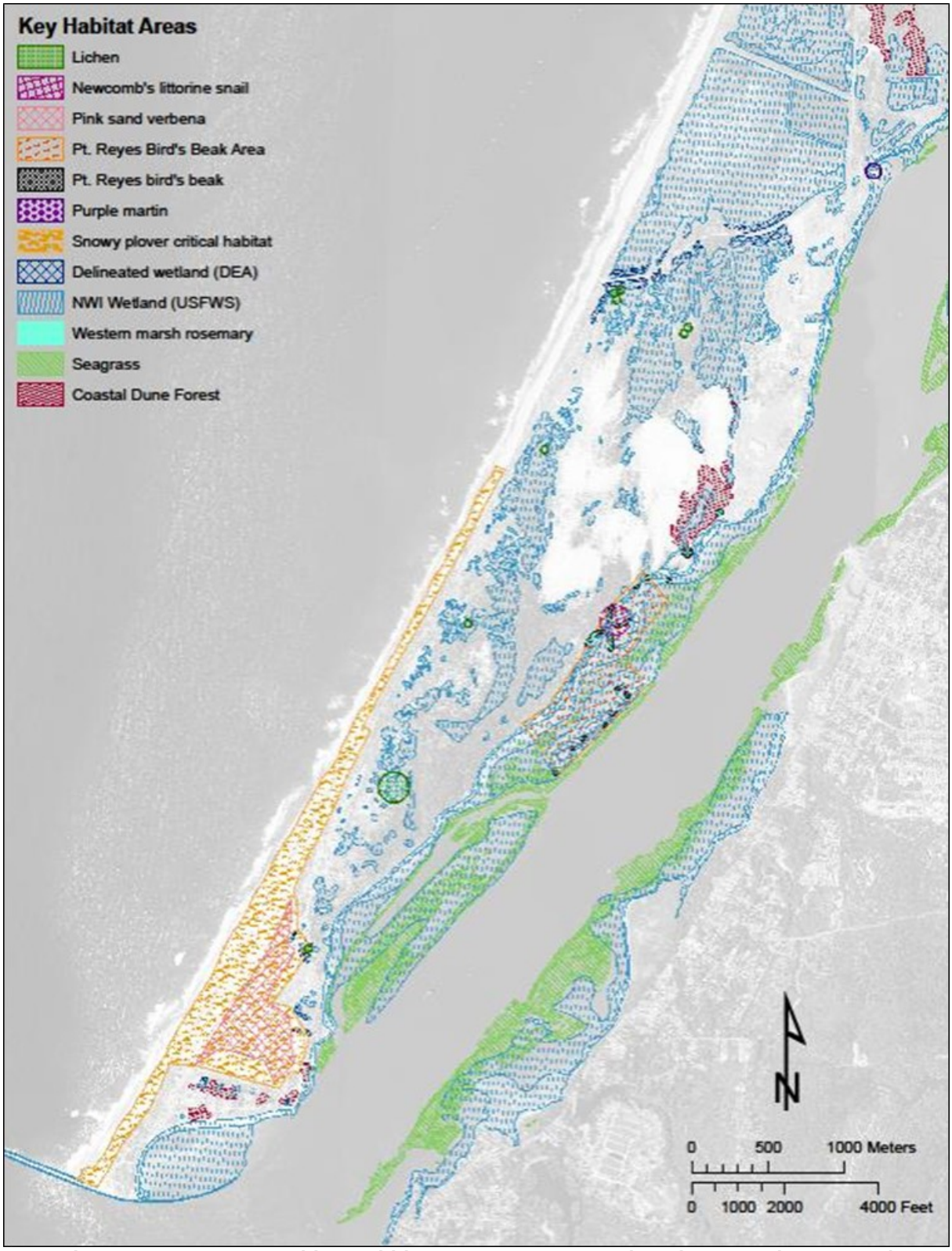

Figure 3-5. Important Habitats within Lower Coos Bay and on the CBNS (DEA 2015a)

3.2.2 Threatened and Endangered Species

Section 7 of the ESA requires federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with the USFWS and National Marine Fisheries Service (NMFS), as appropriate, to ensure that effects of actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species.

Table 3-2 identifies possible ESA-listed species that may occur in or near the Proposed Action Area. The species identified were obtained from the USFWS Information, Planning, and Conservation decision support system (USFWS 2015). The official USFWS list is included in Appendix B.

Table 3-2 does not include any fish, sea turtle, or marine mammal species as no in-water activities are part of the Proposed Action. No sea turtle nesting areas are located on the CBNS and, although some noise from upland equipment (i.e., tractors for disking, bulldozers, etc.) may reach the nearby CBNS beaches, and public outreach may occur on these beaches, no known marine mammal haulouts or breeding grounds have been observed. Of the remaining five bird, mammal and plant species, only the WSP occurs in the Action Area.

Table 3-2. ESA-listed Species That May Occur in the Area

Species	Federal Status	Presence in the Action Area	Designated Critical Habitat in Action Area
Marbled murrelet *(Brachyramphus marmoratus)*	Threatened	Absent from the Action Area. No mature forest habitat located in the Action Area. No in-water activities proposed to affect foraging.	No
Northern spotted owl *(Strix occidentalis caurina)*	Threatened	Absent from the Action Area. No mature forest habitat located in the Action Area.	No
Short-Tailed albatross *(Phoebastria (=diomedea) albatrus)*	Endangered	Absent from the Action Area. Nesting sites are not located in the Action Area.	No
western snowy plover (WSP) *(Charadrius nivosus nivosus)*	Threatened	Yes. Breeding, nesting, foraging, overwintering.	Yes
Xantus's Murrelet *(Synthliboramphus hypoleucus)*	Candidate	Absent from the Action Area. Nesting sites are not located in the Action Area.	No
Western lily *(Lilium occidentale)*	Endangered	Absent from the Action Area. Nearest identified are at Hauser and Bastendorf bogs in Coos County.	No
fisher *(Martes pennanti)*	Proposed	Absent from the Action Area. No diverse forest habitat located in the Action Area.	No

Western Snowy Plover

The ESA-listed Pacific Coast population of the WSP nest adjacent to tidal waters of the Pacific Ocean above the high tide line, and includes all nesting birds on the mainland coast, peninsulas, offshore islands, adjacent bays, estuaries, and coastal rivers (USFWS 2007). They breed in

coastal areas in California, Oregon and Washington and typically forage for small invertebrates in wet or dry beach-sand, tide-cast kelp, or within low foredune vegetation. The breeding/nesting season in the United States begins in March and extends through September, although courtship activities can begin earlier and varies by state (USFWS 2007). Clutches, which most commonly consist of three eggs, are laid in shallow scrapes or depressions in the sand. Plovers usually return to the same breeding sites every year. Wintering birds often roost in small flocks. Roosting WSPs usually sit in small depressions in the sand, or in the lee of kelp, other debris or dunes (USFWS 2007).

WSPs have been recorded to both nest and winter on the CBNS on the beach and inland HRAs. WSPs nest throughout HRAs and on the beach adjacent to the north jetty (Figure 3-7). Productivity of WSP at CBNS has been on the rise for the last few years (Lauten et al. 2014). Public access and use restrictions are in place during the breeding/nesting season at Coos Bay (March 15 through September 15).

WSP critical habitat (CH) was first designated in 1999 and recently expanded in 2012. The CBNS now includes a total of 273 acres of CH (77 FR 36728).

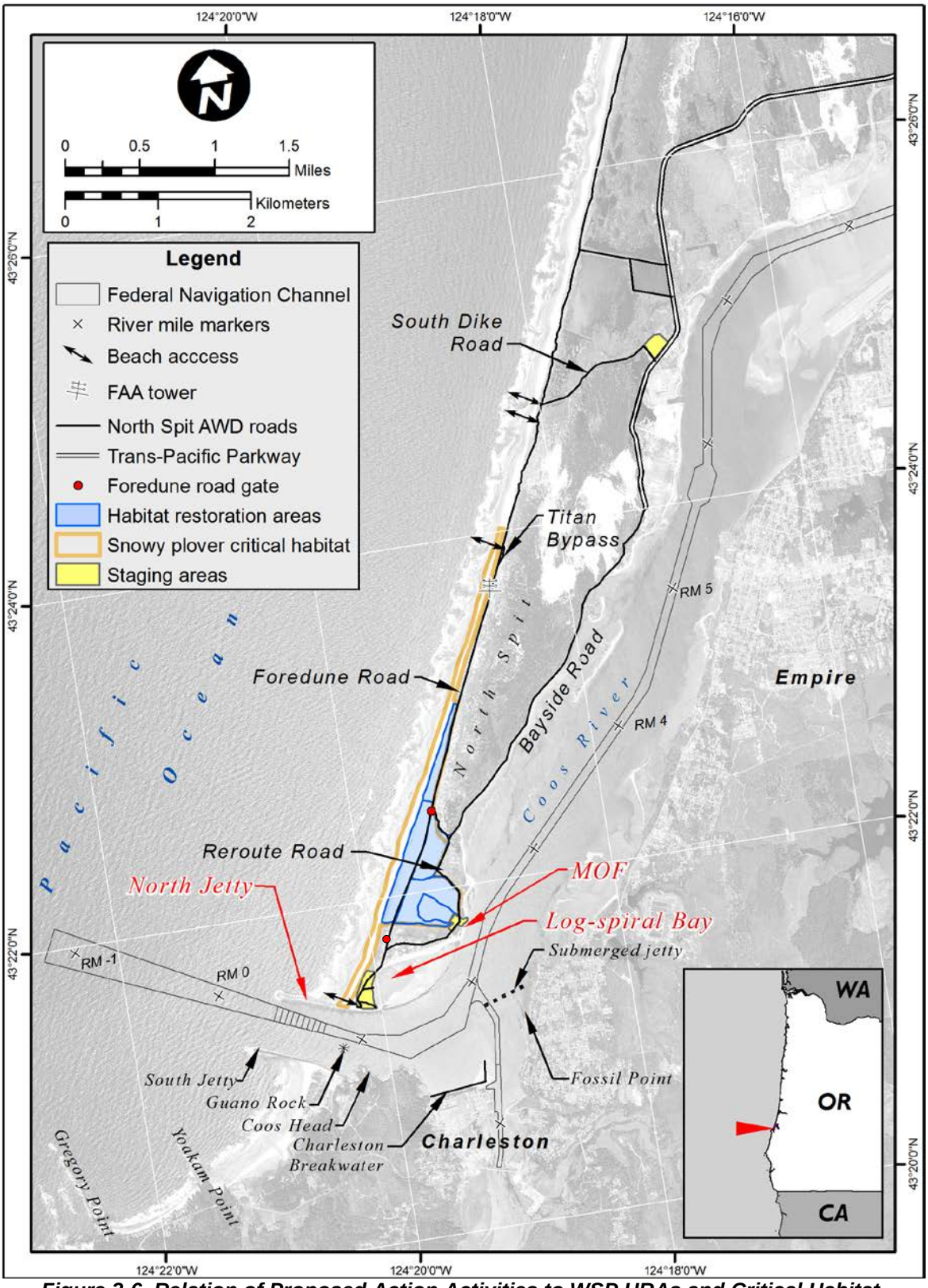

Figure 3-6. Relation of Proposed Action Activities to WSP HRAs and Critical Habitat

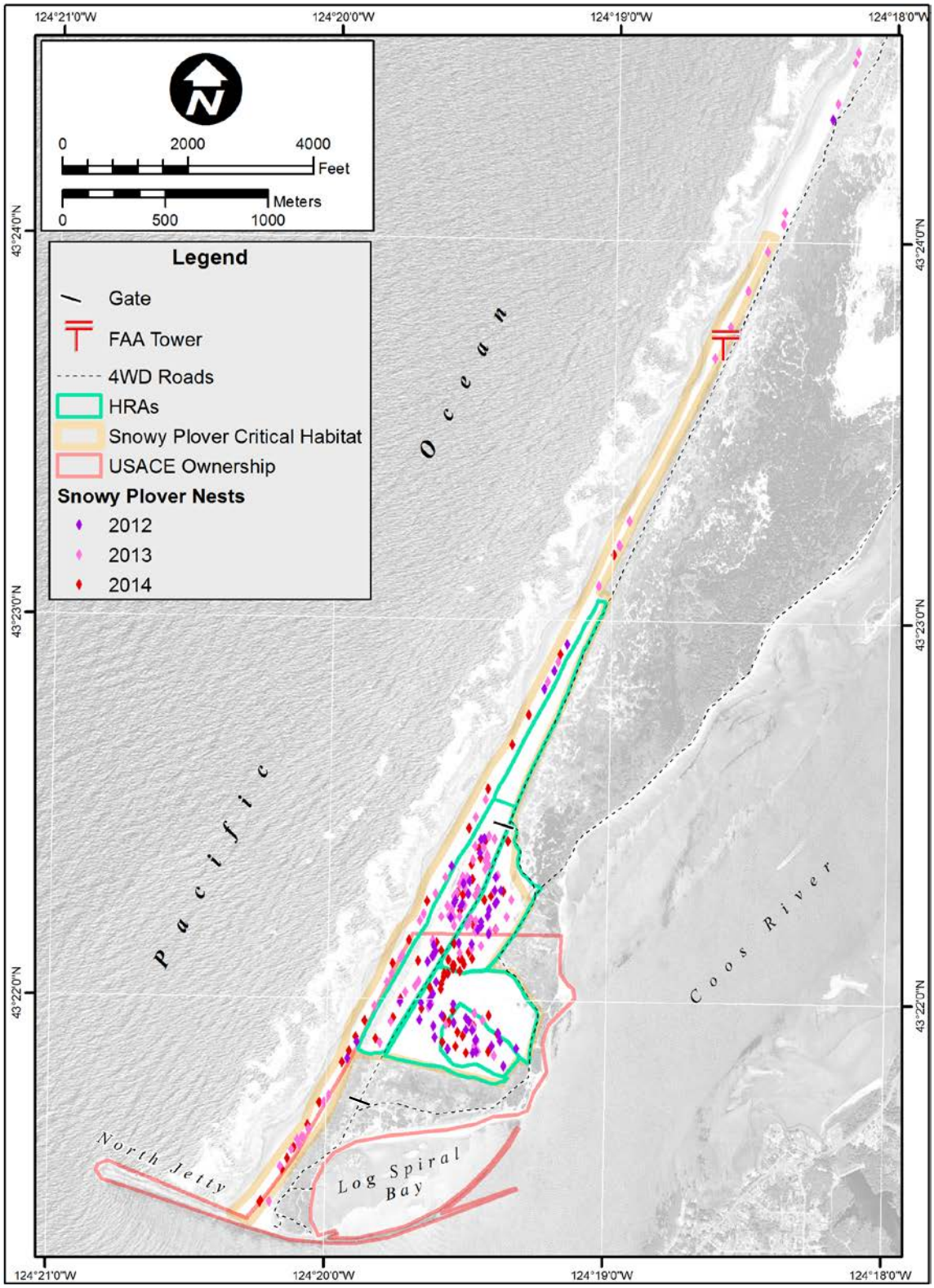

Figure 3-7. Recent WSP Nest Locations at CBNS

3.3 CULTURAL AND HISTORICAL RESOURCES

3.3.1 Cultural

The Coos River estuary area is considered an important cultural resource area for the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians. The original inhabitation of Coos Bay is unknown but estimates are that 1,500 to 2,000 Native Americans lived along the bay shore in as many as 40 to 50 villages (Ruby 2010), the largest of which was located at the position of current day Charleston (Marschner 2008). Archeological characteristics (artifacts, features, site location and chronology) of the shoreline may include the tools and camps of wandering bands of hunters using the resources of a broad coastal plain or members of a maritime-based cultural group moving down the coast in boats. Prehistoric sites are documented in the vicinity. In addition, prehistoric sites have been identified on some of the low marsh mudflats and islands within the bay (USACE 1994). None of these sites are known to be located within the Proposed Action Area at this time.

A recent inventory of the CBNS was conducted by the Port (DEA 2015b) and it included some of the lands owned by USACE. The USACE is conducting further inventories on the CBNS, including areas around the Foredune Road, and North Jetty.

3.3.2 Historical

There has been a long federal involvement on the CBNS starting with the wreck of the *Captain Lincoln* in 1852 and the establishment of Camp Castaway, located near the CBNS FAA Tower, by the survivors who erected temporary shelters for themselves and the cargo salvaged from their ship. U.S. Army mapping crews followed, and erosion control and channel improvement projects ensued leading to the establishment of project headquarters for the construction of the north jetty. Facilities for the U.S. Life-Saving Service Station, which were converted for the U.S. Navy Radio-compass Station, were built on the east side of the CBNS nearly opposite Empire.

Shipwrecks have also been documented on and around the CBNS. There have been 114 documented shipwrecks in the Coos Bay area. The majority of these wrecks occurred along the beaches and entrance to Coos Bay. Thirteen vessels wrecked within Coos Bay itself and of these, nine sank, were not salvaged, and are presumably preserved within the sediments of the bay (USACE 1994). There is a wreck immediately south of the existing Federal Navigation Channel entrance, which is almost certainly the USACE hopper dredge *William T Rossell*. Four USACE crew members lost their lives the day the vessel sank. Even though many decades have passed since the *William T. Rossell* was lost at the entrance to Coos Bay, the vessel and the lives lost are part of the USACE and the Portland District's history of supporting navigation at the Oregon Coastal Projects. A narrative is provided in U.S. Coast Guard (USCG) 1958.

The National Register of Historic Places (NRHP) database is the official list of the nation's historic places worthy of preservation nominated through Oregon's State Historic Preservation Office (SHPO). There are a number of eligible or listed historical sites within the general Coos Bay area. A railroad spur used during jetty repair work in 1939 was recommended eligible to the NRHP as a district (Tonsfeldt 2007) and Camp Castaway is a known historical site located on the CBNS.

As stated in the previous sub-section additional inventory needs are being coordinated that include the HRAs, Foredune Road, and areas by the jetty.

3.4 LAND USE RESOURCES

The primary land access to the bay side of the CBNS is through lands owned by the Port and the BLM. The Trans-Pacific Parkway is the main road on the CBNS, which extends across Hayes Inlet and intersects Highway 101 at the north end of the CBNS. Transportation on to the CBNS is along South Dike Road and the Foredune Road, both located atop a sandy dune system of the CBNS.

Public access to the CBNS is year-round with seasonal road and beach closures through the HRAs during the nesting season for the WSP. There are several public information kiosks at access points on the CBNS along with a day use area, boat ramp, and restrooms managed by the BLM. In addition, BLM provides maps to the public that include seasonal restriction information.

3.4.1 Recreation

The CBNS provides recreational opportunities such as running, walking, picnicking, camping, bird watching, nature observations, sightseeing, and ocean beach activities (e.g., clamming) (BLM 2006). Other activities include camping, surf sports, dune sports, and exercise involving dogs. About 1,800 acres of BLM-owned land on the CBNS has been designated as a Special Recreation Management Area (SRMA). SRMAs are areas where specific recreational activities are provided on a sustained yield basis (ICF 2010, BLM 2006).

On USACE-administered lands, the South Spoil area and 1994 HRA are permanently closed to the public, while the remaining HRAs are open to entry seasonally (69 FR 19220). All of the HRAs at CBNS are closed to public access from March 15 through September 15 to minimize the potential of human disturbance to nesting WSPs (69 FR 19220). The area between the HRAs and the north jetty is a popular recreation site for fishing, surfing, picnicking, and OHV use. People are also known to camp and picnic at informal, dispersed campsites along the bay front. These users may leave trash and/or food scraps behind which can attract WSP predators.

3.4.2 Non-recreational/Administrative Use

Other non-recreational activities at the CBNS are carried out to protect and maintain the area. The USACE monitors the north jetty annually to track conditions and determine when jetty repairs are necessary. A jetty repair action, whether planned or an emergency action, requires access, staging, and stockpiling of equipment and materials on land adjacent to the north jetty. The USACE continues to conduct long-term jetty monitoring and plans for jetty repairs, which can be permitted following environmental assessment, but emergency repairs can occur (last one in 2008).

Public safety and disturbance management actions, including public outreach and law enforcement, are routinely carried out at the CBNS by a number of agencies. This includes the U.S. Coast Guard (helicopters or vessels), or local police and fire vehicles to address public safety or law enforcement needs in the area. Law enforcement activities by OPRD staff and the

Coos County Sheriff's Department involve investigating crimes and enforcement of rules on the beach and within the HRAs, near the north jetty, or on the ocean beach (the jurisdiction of OPRD). BLM staff provides the public with site use and restriction information each year, and includes information kiosks. Activities related to public safety can involve vehicles having unrestricted access to the CBNS, including the HRAs and beach.

Maintaining road access, removing unsafe drift logs from storm or tsunami debris, and removing washed up vessels or marine mammals are all activities that may be required to preserve the public's safety on the CBNS.

4. ENVIRONMENTAL CONSEQUENCES

This section assesses and discusses the potential consequences (or impacts) to the environment from the Proposed Action and No Action alternatives including potential short-term or long-term impacts, and direct, indirect and cumulative impacts. Impacts are described in terms of the Proposed Action Area. Proposed avoidance, minimization and conservation measures for each resource are identified where applicable and further described in Section 6.4.

The No Action Alternative is being used as a comparison to the Proposed Action. Resulting environmental effects from taking the No Action are compared to the effect of permitting the Proposed Action to go forward. However, the No Action Alternative would not meet the purpose and need.

4.1 PHYSICAL ENVIRONMENT

4.1.1 Coastal Processes

No Action Alternative

The No Action Alternative would not cause substantial impacts to coastal processes of the site over the short-term.

Proposed Action

Under the Proposed Action, ongoing and proposed management activities would not cause substantial impacts to the coastal processes of the site over the short- or long-term.

4.1.2 Water Quality

4.1.2.1 No Action Alternative

The No Action Alternative would not cause substantial impacts to water quality of the CBNS beaches or wetlands over the short- or long-term. Reduced management activities on USACE-administered HRAs would result in less of a chance of equipment leaks or erosional-related runoff into nearby wetlands.

4.1.2.2 Proposed Action

Under the Proposed Action, disking, plowing and bulldozing activities are restricted to occur only within the HRAs, minimizing the risk of erosional runoff to wetlands. Under the Proposed Action, equipment and vehicles used for management activities would be maintained and serviced regularly; in the event of a fuel or oil spill/leak during management activities, activities

would stop until the problem could be resolved and any cleanups completed. Prescribed burning would be confined to an area no more than 25 acres in size, outside of any identified wetland areas. Herbicide treatment would also be strictly controlled and carried out using approved compounds by trained staff within identified boundaries. Herbicide implementation would involve spot-treatments. Broadcast spraying would be avoided. Treatment would not occur over surface water.

Therefore, there would be no run-off of soot or herbicide into nearby water bodies during rain events and no adverse impacts to water quality as a result of the Proposed Action.

4.1.3 Air Quality and Noise

No Action Alternative

The No Action Alternative would not cause substantial impacts to air quality or noise. Reduced management activities on USACE-administered lands could result in slightly decreased emission of GHGs (likely to be unmeasurable) and less in-air noise levels from equipment. Noise from ongoing public access and recreational activities, which include the use of vehicles, would likely continue.

Proposed Action

Under the Proposed Action, equipment and vehicles used for management activities (disking, plowing, and bulldozing) would emit GHGs and dust to the air. Smoke and GHGs from controlled burn activities would also be emitted.

However, this impact would be incrementally small and difficult to measure. Given the strong winds at the CBNS, measurable reductions to air quality are unlikely. The Proposed Action Area is not a non-attainment or maintenance area and management activities are anticipated to remain in compliance with the Clean Air Act and the SIP. This is not a transportation project and it does not qualify as a major stationary source of emissions of criteria pollutants.

The Proposed Action would result in nominal increases in GHG levels in the atmosphere (most notably carbon dioxide). This increase in emissions would be episodic and not substantial on a global scale. Therefore, no substantial impacts to climate change are anticipated from the Proposed Action.

In-air noise emanating from the Proposed Action would increase intermittently when implemented. Construction equipment and vehicles could produce sound levels up to 80 dBA (FTA 2006). However, impacts are not expected to rise to the level of harm or harassment given the timing restrictions through the CBNS.

4.1.4 Climate Change

No Action Alternative

The No Action Alternative would not cause substantial impacts to climate change or SLR. Reduced management activities on USACE-administered lands could result in a very slightly

decreased emission of GHGs. However, this reduction is unlikely to be measurable, and therefore, the effect on SLR also undetectable.

Proposed Action

Under the Proposed Action, equipment and vehicles used for management and controlled burn activities would emit GHGs.

The Proposed Action would result in nominal increases in GHG levels in the atmosphere (most notably carbon dioxide). This increase in emissions would be episodic and not substantial on a global scale. Therefore, no substantial impacts to climate change or SLR are anticipated.

4.2 BIOLOGICAL RESOURCES

4.2.1 Habitat and Wildlife

4.2.1.1 No Action Alternative

Under the No Action Alternative, vegetation within the USACE-administered HRAs would likely convert from open sand to vegetated dune without ongoing European beachgrass removal. European beachgrass would spread, as would other non-native and invasive species. This may reduce the viability of existing native dune vegetation communities and rare plants.

Without ongoing non-native vegetation removal, habitat for WSP predators on USACE-administered lands would increase and improve. Predator management would continue to not be implemented by the USACE specifically, although it would most likely continue on surrounding BLM-managed lands. Predator populations would most likely increase, given increased habitat availability and no increase in predator management activities. WSP population monitoring, law enforcement (on adjacent BLM land), public outreach, and recreational access would continue at CBNS under existing mechanisms and funding and most likely have no effects (adverse or beneficial) on habitat or wildlife.

4.2.1.2 Proposed Action

The HRAs have been managed for many years and their boundaries are well defined. If the width or number of mobility corridors were increased, minor disturbances to previously undisturbed terrestrial wildlife habitat could occur, although this management activity is focused at European beachgrass removal.

Wetlands and CBNS sand roads have also been identified over the years. The HRAs remain within their existing footprints and existing road widths would not be increased. If substantial road improvements were required, any adjacent wetlands would be avoided to minimize disturbing wetland habitat.

Some native wildlife (mammals, corvids, raptors) would be removed from USACE-administered lands as part of predator management at the CBNS. Although some individuals may be eliminated, the impact to wildlife populations is considered minor in a regional context (throughout the Oregon coastline). Predator management is, and would continue to be, directed towards priority species and individuals that exhibit focused attention on WSP nests, chicks, and

adults. Predator management guidelines are reviewed each year by the WSP Predator Management Subcommittee. A Predator Management Action Plan is reviewed and revised every year to guide management activities, methods to be used, and species to be targeted. The most effective and humane tools available would continue to be used to deter or remove species threatening nesting, breeding, or foraging WSPs. Past environmental review on different protected species (e.g. common ravens are protected under the Migratory Bird Treaty Act) has been completed for all WSP populations in Oregon (USFWS, BLM, and USFS 2002, 2004). On-going coordination between the WSP Working Group and the WSP Predator Management Sub-committee has maintained intra-agency efficiency in the use of this tool.

Additional minor disturbance to terrestrial wildlife would also continue from routine WSP monitoring by ORBIC. This impact is considered minor and short-term, since it is done on foot by trained ORBIC staff.

4.2.2 Threatened and Endangered Species

4.2.2.1 No Action Alternative

Under the No Action Alternative, habitat management activities would not be funded by the USACE, resulting in no disking, plowing or other types of vegetation removal on USACE-administered HRAs. Non-native vegetation would grow unchecked, encroaching into areas that would normally be used by the WSP for nesting. Increases in European beachgrass within USACE-administered HRAs would increase predator habitat as well. A limited amount of vegetation management would continue to occur around the Foredune Road, as a maintenance activity for access to the North Jetty.

Predator management would continue to not be implemented by the USACE specifically, although it would most likely continue on surrounding BLM-managed lands. Population monitoring, law enforcement (on adjacent BLM land), public outreach, and recreational access would continue at CBNS under existing mechanisms and funding.

Given reduced habitat management activities, and no increases in predator management or public outreach on USACE-administered lands, WSP populations would be adversely impacted. Nesting habitat would be reduced and predator habitat (for cover) would increase. Human activities near WSP may disturb the birds depending upon their proximity to nesting and roosting areas, frequency of occurrence, and type of use. Under the No Action Alternative, WSP populations on USACE-administered CBNS lands would be adversely impacted.

4.2.2.2 Proposed Action

Under the Proposed Action, individual WSPs may be temporarily disturbed by habitat management, routine monitoring of reproductive success, implementation of seasonal beach closures, law enforcement activities, and predator management activities. These adverse impacts are considered minor and short term, and typically include flushing individuals resulting in WSP flying to an alternate location. All existing and proposed management activities on USACE-administered lands would result in beneficial long-term impacts to the WSP population at CBNS.

Under the Proposed Action, the USACE would make every effort to further support and improve ongoing public outreach and education, and manage human disturbance on USACE-administered lands, whether in the form of funding efforts by others (e.g. BLM) or developing and implementing USACE activities. Public outreach and education and disturbance management has been shown to promote protection of WSP individuals and habitat.

The removal of non-native vegetation maintains open sand habitat to breeding and nesting WSP. European beachgrass encroachment is reduced on the HRAs, along the foredune, and cleared within mobility corridors to maintain access for WSP chicks to and from the HRAs and the beach.

A Biological Assessment has been prepared to evaluate impacts to the WSP, and USACE will be consulting with USFWS.

4.3 CULTURAL AND HISTORIC RESOURCES

4.3.1.1 No Action Alternative

The No Action Alternative would not cause substantial impacts to cultural or historic resources. Reduced management activities on USACE-administered lands would result in fewer vehicles and equipment implementing ground disturbing activities on the HRAs. Vehicle use and access would not change on the CBNS roads or beaches as the USACE would continue to require access to the north jetty and public access to the site would also continue.

4.3.1.2 Proposed Action

The USACE is completing surveys of possible cultural and historic resource sites within USACE-administered lands and is coordinating with interested tribal governments and SHPO.

Camp Castaway is a known historical site located on the CBNS and a railroad spur used during jetty repair work in 1939 is considered eligible to the NRHP as a district (Tonsfeldt 2007). The location of both sites has been delineated by the USACE. Camp Castaway is outside of the WSP area and would not be impacted. The railroad grade is between the habitat area and the water, the WSP cross over the grade to get to the ocean. SMP management activities, however, would not impact the railroad grade. A village site has been noted adjacent to the WSP site and is slated for additional subsurface testing to determine location. The site boundary would be assessed to determine if it is located within the SMP. If it is, a determination of eligibility would be conducted and the site would be assessed for potential adverse effects.

4.4 LAND USE RESOURCES

4.4.1 Recreation and Non-recreation Uses

4.4.1.1 No Action Alternative

The No Action Alternative would not cause substantial impacts to recreational and non-recreational resources. Reduced management activities on USACE-administered lands would result in fewer vehicles and equipment implementing ground disturbing activities on the HRAs.

Vehicle use and access would not change on the CBNS roads or beaches as the USACE would continue to require access to the north jetty and public access to the site would also continue.

Non-recreational uses of the CBNS would continue.

4.4.1.2 Proposed Action

Under the Proposed Action, no additional use and access restrictions are proposed. Enforcement of seasonal area restrictions on USACE-administered lands would continue to be funded by the USACE and improved. Additionally, funded public outreach and disturbance management by the USACE would inform CBNS public users of the importance of the habitat access and use restrictions on the CBNS. USACE activities carried out to protect and maintain the area would not have adverse impacts on recreation.

4.5 CUMULATIVE IMPACTS

A cumulative impact is defined in CEQ NEPA regulations as the "impact on the environment that results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (CFR Title 40, Section 1508.7). CEQ interprets this regulation as referring only to the cumulative impact of the direct and indirect impacts of the Proposed Action and its alternatives when added to the aggregate impacts of past, present and reasonably foreseeable future actions (RFFAs).

Assessing cumulative impacts may involve assumptions and uncertainties because data on the environmental impacts of other past, present and RFFAs are often incomplete or unavailable and expressing impacts must often be done in qualitative terms or as a relative change. Cumulative impacts were assessed for each resource, consistent with CEQ guidance (CEQ 2005, 1997) and that of USEPA (USEPA 1999).

4.5.1 History of the Coos Bay Proposed Action Area

This section identifies past, present and RFFA projects that could incrementally contribute to resources affected by the Proposed Action and No Action Alternative.

4.5.1.1 Past Actions

The CBNS has been substantially altered from the 1800's through development, the introduction of non-native species, and alteration of the entrance to the bay (construction of the jetties). Changes in public expectations concerning how resources are managed began in the 1970's, and today the protection of unique ecosystems, such as coastal estuaries and dunes, has increased with the support of stricter environmental regulation.

Past actions relevant to the cumulative analysis in this EA are those that have previously taken place and are largely complete, but that have lasting impacts on one or more resources that could also be affected by the Proposed Action. For these past actions, CEQ guidance states that consideration of past actions is only necessary to better inform agency decision-making. Past

actions considered in this analysis are summarized below and their impacts, which have resulted in the existing conditions, as described in Section 3.

- Early Euro-American settlement of the Coos Bay area during the late 1800's and early 1900's.
- Authorization of the Coos Bay and Coos and Millicoma River Federal Navigation Projects by the Rivers and Harbors Act (RHA) of 1880, 1892, 1910, 1919, 1930, 1935, 1945, etc., which included construction, maintenance and periodic reconstruction of the north and south jetties by the USACE.
- USACE maintenance dredging and placement activities.
- USACE management of USACE property on the CBNS. This includes management of USACE HRAs for the ESA-listed WSP.
- Continued human use and modification of the CBNS including recreational areas established and managed by federal, state, and local agencies.

4.5.2 Present and Reasonably Foreseeable Future Actions

Present actions identified in this analysis are those that are currently occurring and result in impacts to the same resources as would be affected by the Proposed Action. Present actions generally include on-going use activities (CBNS management activities for the ESA-listed WSP by BLM).

Reasonably foreseeable future actions identified in this analysis are those that are likely to occur and affect the same resources as the Proposed Action. For a future action to be considered reasonably foreseeable, there must be a level of certainty that it would occur. This level of certainty is considered met with the submission of a formal project proposal or application to the appropriate jurisdiction, approval of such a proposal or application, inclusion of the future action in a formal planning document, or other similar evidence. For future actions in the proposal stage, the action also must be sufficiently defined in terms of location, size, design, and other relevant features to allow for meaningful consideration in the cumulative analysis.

Present and RFFAs include many of the same operational and maintenance activities described above. To determine whether there are other present and/or future actions reasonably certain to occur in the Proposed Action Area, USACE studies of the area were reviewed, local government websites were reviewed and local entities queried.

The following actions were also identified as being reasonably certain to occur over the next 10 years (the "general" locations for these three projects can be found in Figure 4-1):

- **Jordon Cove Energy Project:** Jordon Cove Energy Project L.P. (JCEP) recently announced that the FERC has issued a final Environmental Impact Statement (EIS) for the JCEP and Pacific Connector Gas Pipeline project. Final permits and approvals from state and federal regulators are still being sought to construct and operate the liquefied natural gas (LNG) export terminal on an undeveloped site zoned for industrial development, approximately seven nautical miles from the entrance of the federally controlled and maintained navigation channel. In order to accommodate the LNG

tankers, development includes both dredging and upland excavation from a 53-acre site along the CBNS (includes portions of Henderson Marsh). Once final permits are obtained, construction would start (anticipated within the within the next five years).

- **Coos Bay North Jetty Repair and Rehabilitation Project:** A preliminary Major Maintenance Report (MMR) was prepared by the USACE in 2012 to investigate several repair design alternatives with the primary goal of extending the functional life of the north and south jetties and maintaining deep-draft navigation through the entrance. Repair of the north jetty, including the jetty-land connection (the portion of the CBNS between the Pacific Ocean and Log-spiral Bay) is currently undergoing NEPA environmental review, and further design. It is anticipated that maintenance and rehabilitation of the north jetty will be funded within the next 10 years.
- **Coos Bay Channel Deepening Project:** The Port is currently conducting a Feasibility Study and NEPA EIS to investigate the feasibility of improving the Federal Navigation Channel. This study is being conducted by the Port under the authority granted by Section 204 of Public Law 99-662, the Water Resources Development Act (WRDA) of 1986, amended 1990. Section 204 delegated authority to the Assistant Secretary of the Army for Civil Works to approve requests by non-Federal entities to design and construct non-Federal improvements to USACE navigation projects, and also to accept Federal responsibility for maintenance of those improvements after non-Federal construction is completed.

  The project proposes modifications to the existing federally authorized Coos Bay Navigation Channel to accommodate larger deep draft vessels while providing a net positive local, state, and Federal economic and environmental benefit. Also included in the proposed project is ecosystem restoration, maintenance dredging and minor jetty modifications on the CBNS Jetty.

Four actions identified as still being within the planning and feasibility stage are listed below. It is not clear what would be required to support such projects or when/if they would move forward. Therefore, these projects were not included in the cumulative effects analysis.

- **North Spit Barge Slip Project:** In 2004, the Port sold 32 acres of industrial land and the barge slip to Southport Forest Products for the construction of a modern small-log sawmill. Prior to the opening of the mill, the Port also developed the North Spit Rail Spur to serve the mill and other industrial lands in the TransPacific Parkway corridor. The Connect Oregon multimodal transportation system funding program presented an opportunity for the Port and Southport to collaborate on development of a multimodal barge facility with access to rail and road. The barge slip is now reconfigured to handle ocean going cargo barges able to move inbound logs, outbound woodchips and a variety of breakbulk general cargo. The Southport facilities were completed December 2007. The privately owned barge slip is now suitable for intermodal cargo movements, which could result in further development of the upland and in-water portions of the site.
- **Southwest Oregon Regional Airport Runway Expansion:** The Southwest Oregon Regional Airport (SORA) is located within the city of North Bend. The SORA is planning to extend its runway to accommodate larger planes. To do this may require

approximately 4 acres of fill at the end of their existing runway into the shoreline (extension equates to about 400 linear feet) at about RM 8.

- **Roseburg Forest Products:** The Roseburg Forest Products Chip Terminal is located on the CBNS at about RM 8. Roseburg is considering additional terminal upgrades to their facilities, which could result in new dredging at their terminal. However, these plans are preliminary in nature.
- **Possible Bulk Terminal (previously called Project Mainstay):** Project Mainstay was a proposed dry bulk coal terminal to be located on the North Spit (at about RM 6). The initial proposal called for channel deepening and construction of a new terminal that would result in the export of 6 to 10 million metric tons of coal a year. In-water work necessary to construct the terminal was to include about 15 acres of new dredging between the shoreline and existing federal navigation channel boundary at about RM 7.5. Mitigation was to be proposed as part of this project to offset adverse impacts on biological resources. In April of 2013, negotiations between the Port and Project Mainstay partners ended. At this time, there are no definite plans, or development partners, to support a bulk terminal at this site.

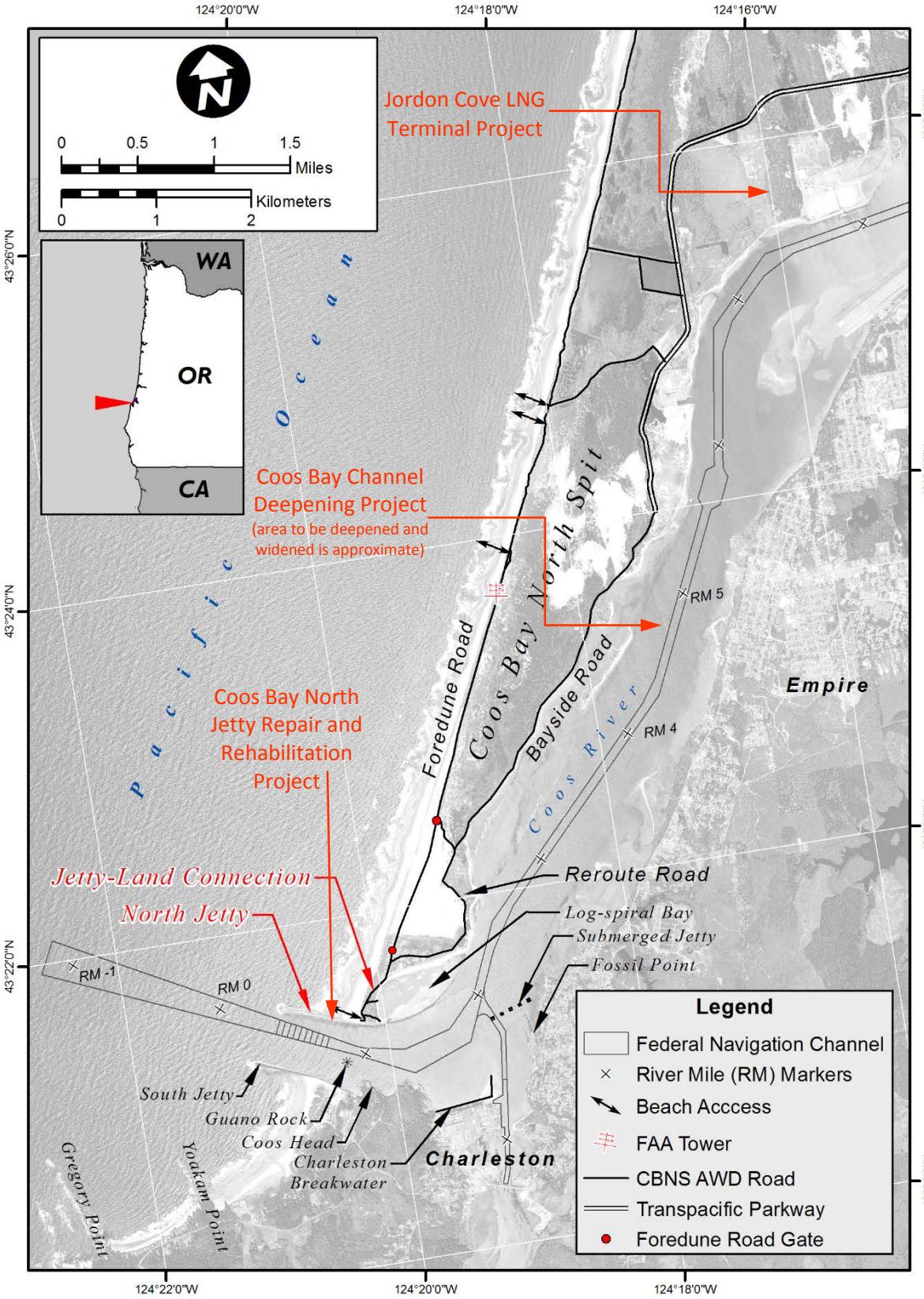

Figure 4-1. Cumulative Project Locations (General) at Coos Bay

4.5.3 Impacts

The expected cumulative impacts for the Proposed Action were identified according to a process recommended by the CEQ (CEQ 1997) where it was considered how past and present actions have already affected the geographic area. Those past and present actions (developments) have changed several of the environmental elements discussed in this EA relative to their original conditions and continue to influence current trends.

The past temporal boundary, or environmental reference point, for the cumulative impacts analysis was based on the unique history of each resource. Lasting impacts due to past actions have accumulated in the Proposed Action vicinity since the early nineteenth century and have continued to shape the developments that have occurred in the area. In order to understand the contribution of past actions to the cumulative impacts of the alternatives, this analysis relies on current environmental conditions to understand the impacts of past actions. The existing conditions reflect the aggregate impact of all prior actions that have affected the environment and might contribute to cumulative impacts. CEQ issued a memorandum regarding analysis of past actions, which states, "agencies can conduct an adequate cumulative impacts analysis by focusing on the current aggregate impacts of past actions without delving into the historical details of individual past actions" (CEQ 2005).

Like the past temporal boundaries, the geographic boundaries used for the cumulative impacts analysis vary by resource. These boundaries may be natural ecological boundaries or sociocultural boundaries selected to ensure that all the potential impacts are included. They also may take into account the distance at which an impact can influence a particular resource. The geographical boundary for SMP activities at the CBNS includes all USACE-administered land at the CBNS.

In accordance with CEQ, cumulative impacts of direct and indirect impacts of the Proposed Action and No Action Alternatives are analyzed in this section (CEQ 2005). Resource categories that were not determined to result in direct or indirect impacts were not included in this analysis (CEQ 2005). Resources subject to this provision include Coastal Processes, Air Quality and Noise, and Climate Change (including impacts on SLR). Justification for determinations of "no impact" for these resources can be found in Section 5.1 of this EA.

The year WSP management activities began at the CBNS was used as the environmental reference point for past and present development related to the following resources (water quality, habitat and wildlife, threatened and endangered species, cultural and historic resources, and land uses (recreational and non-recreational uses). The following analyzes cumulative impacts for these resources:

- **Cumulative impacts on water quality.** For the Proposed Action, water quality impacts to marine beaches or wetland surface waters (dust, rainwater runoff, herbicide treatments) are expected to be temporary and localized, and BMPs would further reduce effects. Stricter controls placed on foreseeable future projects on the CBNS (e.g. stormwater treatment requirements for developed industrial/commercial sites, and BMPs to reduce debris and turbidity from entering wetlands or marine waters from jetty repair work and access road maintenance) would reduce short-term, adverse impacts to surface waters at

the CBNS. Increases in the amount of impervious surfaces and associated runoff on the CBNS are anticipated from a number of future development projects. However, all projects are required to adhere to local, state, and federal stormwater control regulations and BMPs that are designed to limit surface water inputs. As a result, the combined effects from present and reasonably foreseeable future actions, including the Proposed Action, would have negligible effects on water quality.

- **Cumulative impacts on habitat and wildlife, and endangered and threatened species.** Biological resources include fish and wildlife, vegetation, wetlands, federal threatened and endangered species, other protected species, and natural resources management. While the encroachment of European beachgrass on the CBNS has caused losses of aquatic and riparian habitats, this occurred in a regulatory landscape that is very different from today where federal, state and local resource agencies work to protect and restore estuaries that support biological resources. Restoration and protection efforts of the nation's estuaries began in the 1970s and continue today and more stringent federal and state laws require increased effort to avoid dramatic impacts on resources and mitigation of impacts when necessary. Future development would likely have localized impacts on these resources; under the current regulatory regime, these resources are unlikely to suffer substantial losses.
- **Cumulative impacts on cultural and historic resources.** Additional cultural and historic surveys are proposed at the CBNS by the USACE. Future CBNS projects would also require ongoing consideration of these resources, along with additional site surveys, and continued communication and coordination with interested tribal governments and SHPO. Therefore, these resources are also unlikely to suffer substantial cumulative impacts.
- **Cumulative impacts on land use resources (recreation and non-recreational uses).** With increased development of the CBNS, adverse impacts to recreation could occur. Temporary closure of the north jetty for repair work would restrict CBNS access. Development of private land on the CBNS could further reduce long-term recreational use to only those lands that allow for and promote public use and access. This could adversely impact the local economy, although these impacts are not anticipated to be significant given the increase in other economy-boosting projects (e.g. channel deepening, new LNG terminal, other new cargo terminals).

The Proposed Action and future activities are not expected to cause a cumulative, adverse change to population or other indicators of social wellbeing, and should not result in a disproportionately high or adverse effect on minority populations or low-income populations.

This cumulative impacts analysis considered the impacts of implementing the Proposed Action against the No Action Alternative in association with past, present and RFFAs by the USACE and other parties in and adjacent to the Proposed Action Area. Cumulative impacts from the Proposed Action do not reach a level of substantial environmental impact.

5. *COMPLIANCE WITH LAWS AND REGULATIONS*

The USACE is required to comply with all applicable laws and regulations; compliance is described in Table 5-1.

Table 5-1. USACE Compliance with Applicable Laws and Regulations

Law/Regulation	Description	Compliance
National Environmental Policy Act (NEPA) 42 United States Code (USC) 4321 et seq.	It is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.	The EA has been prepared in accordance with this law.
Bald and Golden Eagle Protection Act of 1940 ((16 U.S.C. 668-668d)	Prohibits the taking, possession or commerce of bald and golden eagles, except under certain circumstances.	The Proposed Action would not result in "take" as defined by the Act.
Clean Air Act (42 USC §7401 *et seq*.)	Established a comprehensive program for improving and maintaining air quality. Goals are achieved through permitting of stationary sources, restricting the emission of toxic substances from stationary and mobile sources, and establishing National Ambient Air Quality Standards. Title IV of the Act includes provisions for complying with noise pollution standards.	Air and noise impacts would be minor and temporary in nature and would cease once actions are completed.
The Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) is more commonly referred to as the Clean Water Act (CWA)	This act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The CWA was established to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The CWA sets goals to eliminate discharges of pollutants into navigable waters, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment.	Runoff of rainwater into marine or wetland surface waters is not anticipated to adversely impact state waters, given the proposed activities and applicable BMPs. Fill is not proposed in any wetlands or on any beaches as part of the Proposed Action.
Coastal Zone Management Act (CZMA)	Protects environmental quality of coastal areas.	The Proposed Action will not affect any coastal use or resource outside of the federal lands, therefore, a consistency determination is not required (Appendix B).
Endangered Species Act (ESA) 16 USC 1531 et seq.	It is Federal policy, under the ESA, that all Federal agencies seek to conserve threatened and endangered species and utilize their authorities in furtherance of the purposes of the Act (Sec. 2(c).	A BA was developed to address impacts to the WSP in the Proposed Action area under the jurisdiction of USFWS.
Fish and Wildlife Coordination Act (FWCA) 16 USC 661 et seq.	This Act states that federal agencies involved in water resource development are to consult with the USFWS concerning proposed actions or plans.	The Proposed Action is not a water development project; therefore, USACE complies with this Act.
Migratory Bird Treaty Act of 1918 USC 703	Makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received	The Proposed Action Complies with this Act because taking of any migratory birds has been approved as part of Oregon's WSP predator management

Law/Regulation	Description	Compliance
	any migratory bird, part, nest, egg or product, manufactured or not.	environmental review process (USFWS, BLM, and USFS 2002, 2004).
National Historic Preservation Act 16 USC 461	Requires that federally assisted or federally permitted projects account for the potential impacts on sites, districts, buildings, structures, or objects that are included in or eligible for inclusion in the National Register of Historic Places.	The Proposed Action complies with this Act. Upland sites of significance have been identified and would be avoided.
Executive Order 11593 Protection and Enhancement of the Cultural Environment	Requires federal agencies to preserve, restore, and maintain the historic and cultural environment of the U.S.	The Proposed Action complies with this Act. Upland sites of significance have been identified and would be avoided. The USACE is coordinating with SHPO and relevant tribal governments.
Executive Order 11990 Protection of Wetlands	Requires federal agencies to minimize the destruction, loss or degradation of wetlands. The Proposed Action does not affect any wetlands.	The Proposed Action does not affect any wetlands.
Executive Order 11988 Floodplain Management	Requires federal agencies to consider how their actions may encourage future development in floodplains, and to minimize such development.	The Proposed Action would not encourage development in or alter any floodplain areas.
Executive Order 12898 Environmental Justice	Requires federal agencies to consider and minimize potential impacts on subsistence, low-income, or minority communities. The goal is to ensure that no person or group of people shoulder a disproportionate share of any negative environmental affects resulting from programs.	Proposed Action does not cause changes in population, economics, or other indicators of social well-being. It does not result in an adverse impact on minority or low-income populations.
Executive Order 13175 Native American Graves Protection And Repatriation Act	Provides for the protection of Native American and Native Hawaiian cultural items, established ownership and control of cultural items, human remains, and associated funerary objects to Native Americans. It also establishes requirements for the treatment of Native American human remains and sacred or cultural objects found on federal land, and provides for the protection, inventory, and repatriation of cultural items, human remains, and funerary objects.	The Proposed Action complies with this Act. Upland sites of significance have been identified and would be avoided. The USACE is coordinating with SHPO and relevant tribal governments.
Executive Order 13514 Federal Leadership In Environmental, Energy And Economic Performance	Requires federal agencies to increase energy efficiency; measure, report, conserve and reduce their GHG emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; leverage agency acquisitions to foster markets for sustainable technologies and environmentally preferable materials, products, and services; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which federal facilities are located; and inform federal employees about and involve them in the achievement of these goals.	The Proposed Action complies with this Executive Order because no new development would occur and all actions would be conducted in a manner to be as energy efficient as possible and prevent pollution and spills.

6. *REFERENCES*

Abrahamson, A. 1974. Correlation of actual and analytical helicopter aural detection criteria. Tech. Report 74-102A, U.S. Army Air Mobility Research and Development Laboratory, Fort Eustis, VA.

Akins, G. J. and Jefferson, C. A. 1973. Coastal Wetlands of Oregon. Oregon Coastal Conservation and Development Commission.

Arneson, R. J. 1976. Seasonal Variations in Tidal Dynamics, Water Quality, and Sediments in the Coos Bay Estuary (Master's Thesis). Retrieved from OSU Scholars Archive.

Bolt Beranek and Neman Inc. 1960. Investigation of Acoustic Signalling Over Water in Fog. BBN Report 674. Unpublished report for the U.S. Coast Guard, Washington, DC, various paging.

Case, G. B. 1983. The History of the Port of Coos Bay, 1852 – 1952. Thesis Presented to Graduate School of Pan American University, Edinburg, TX.

City of Coos Bay. 2015. Evaluation of DB Western's Proposal Regarding the Construction of a Treatment Plant on the North Spit. Prepared by the City of Coos Bay Public Works. May.

Coos and Coquille Local Advisory Committee and the Oregon Department of Agriculture. 2010. Coos and Coquille Area Agricultural Water Quality Management Plan. Prepared with assistance from the Coos County Soil and Water Conservation District. Completed March 29, 2006 and updated June 3, 2010.

Council on Environmental Quality (CEQ). 2005 (June 24). Guidance on the Consideration of Past Actions in Cumulative Effects Analysis Memorandum to Heads of Federal Agencies. Memorandum from James L. Connaughton, Chairman. Washington, DC. Available at: http://ceq.hss.doe.gov/nepa/ regs/Guidance_on_CE.pdf. Last viewed October 15, 2015.

———. 1997. Considering Cumulative Effects Under the National Environmental Policy Act Available: http://ceq.hss.doe.gov/publications/cumulative effects. html. Last viewed October 15, 2015.

———. 1981. Memorandum to Agencies: Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act. March 23.

David Evans and Associates (DEA). 2015a. Environmental Habitat Map for Coos Bay North Spit. Received from DEA on March 25.

———. 2015b. Coos Bay Channel Modification Section 204/408 Report and Environmental Impact Statement Cultural Resources Technical Report. Internal Draft. June.

Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. May.

Federal Regulatory Energy Committee (FERC). 2014. Draft Environmental Impact Statement for the Jordan Cove Liquefaction and Pacific Connector Pipeline Projects (Docket Nos. CP13-483-000 and CP13-492-000).Issued November 7.

Hickey, B. and Banas, N. S. 2003. Oceanography of the U.S. Pacific Northwest coastal ocean and estuaries with application to coastal ecology. Estuaries 26 (4), 1010–1031.

ICF International (ICF). 2010. Habitat Conservation Plan for the Western Snowy Plover. August. (ICF 06537.06.) Portland, OR. Prepared for Oregon Parks and Recreation Department.

Independent Scientific Advisory Board (ISAB). 2007. Climate Change Impacts on Columbia River Basin Fish and Wildlife. ISAB Climate Change Report, ISAB 2007-2, Northwest Power and Conservation Council, Portland, OR.

Kirkland, J. and Bloch, T. 2014. 2013 Annual Report of Plover Management on the Coos Bay North Spit. Including Visitor Use Management and Education, Law Enforcement, Habitat Maintenance/ Restoration Activities to protect the Western Snowy Plover on the North Spit of Coos Bay.

Lauten, D. J., Castelein, K. A., Farrar, J. D., Kotaich, A. A., and Gaines, E. P. 2014. The Distribution and Reproductive Success of the Western Snowy Plover Along the Oregon Coast – 2014. Unpublished report for the Coos Bay District Bureau of Land Management, the Siuslaw National Forest, the U.S. Fish and Wildlife Service, and the Oregon Department of Fish and Wildlife. The Oregon Biodiversity Information Center (ORBIC). Institute for Natural Resources. Portland State University/INR. December.

National Oceanic and Atmospheric Administration Tides and Currents (NOAA). 2012. Charleston, Oregon (Station Id: 9432780). Available at: http://tidesandcurrents.noaa.gov/. Last viewed January 23, 2013.

National Resources Council of the National Academy of Sciences (NRC). 2012. Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present and Future. The National Academies Press.

———. 1987. Responding to Changes in Sea-level: Engineering Implications. Committee on Engineering Implications of Changes in Relative Mean Sea-level; Marine Board, Commission on Engineering and Technical Systems, National Research Council. National Academy Press. Washington, D.C.

Oregon Climate Change Research Institute (OCCRI). 2010. Climate Change Service. Available at: http://occri.net/climate-science. Oregon State University, College of Earth, Ocean, and Atmospheric Sciences. Copyright 2010. Last viewed on February 13, 2013.

Oregon Coastal Management Program (OCMP). 2015. Oregon Coastal Atlas, Oregon State University. Available at: http://www.coastalatlas.net/. Last viewed on June 17, 2015.

Oregon Department of Agriculture (ODA). 2015. Weed Distribution Weedmapper. Available at: http://www.oregon.gov/ODA/programs/Weeds/Pages/WeedMapper.aspx. Last viewed on December 30, 2015.

Oregon Department of Environmental Quality (ODEQ). 2012. Air Quality Index and Maintenance and Nonattainment Areas. Available at: http://www.deq.state.or.us/aqi/index.aspx. Last viewed on February 13, 2013.

Pickart, A. J. 1997. Control of European beachgrass (Ammophila arenaria) on the west coast of the United States. Proceedings, 1997, California Exotic Plant Council Annual Meeting, Concord, CA. 13 pp.

Ruby, R.H. 2010. A Guide to the Indian Tribes of the Pacific Northwest: Third Edition. Volume 173 in the Civilization of the American Indian Series. University of Oklahoma Press, Norman, OK.

Schmitt, J., Larsen, E., Helms, A., Johnson, C. B., Tanner, B., and Andazola-Ramsey, A. 2012. Chapter 8: Water Quality in the Coos Estuary and Lower Coos Watershed. Prepared for the South Slough NERR.

Tonsfeldt, W. 2007. Determination of Eligibility for the Coos Bay North Jetty Railroad. In fulfillment for a historic district National Register of Historic Places nomination submitted to US Department of Interior, BLM.

U.S. Army Corps of Engineers (USACE). 2015. Western Snowy Plover Site Management Plan, Coos Bay North Spit. December 31.

———. 2012. Coos Bay Jetties Preliminary Major Maintenance Report. Prepared for U.S. Army USACE of Engineers, Portland District by Moffatt & Nichol. July.

———. 2011. Sea-level Change Considerations for Civil Works Programs. Department of the Army, U.S. Army Corps of Engineers. EC 1165-2-212. October 1.

———. 1994. Feasibility Report on Navigation Improvements with Environmental Impact Statement, Volume 1 (Final Report). January.

U.S. Bureau of Land Management (BLM). 2006. Final North Spit Plan. An Update to the Coos Bay Shorelands Plan of 1995. December.

U.S. Coast Guard (USCG). 1958. Commandant's Action on Marine Board of Investigation; Collision of U.S. Army Corps of Engineers Dredge WILLIAN T. ROSSELL and MV THORSHALL (Norwegian), Coos Bay, Oregon, on 10 September 1957 with loss of life. Viewed online at: http://www.uscg.mil/hq/cg5/ cg545/docs/boards/williamrossell.pdf.

U.S. Department of Agriculture (USDA) Siuslaw National Forest, U.S. Department of the Interior (USDI) Fish and Wildlife Service (USFWS) - Region 1, and USDI Bureau of Land Management (BLM) - Coos Bay District. 2004. Reanalysis of Raven removal for the Environmental Assessment Predator Damage Management to Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover. Prepared by USDA, APHIS, Wildlife Services Program and the Siuslaw National Forest, USDI, Fish and Wildlife Service and Bureau of Land Management, and in cooperation with the Oregon Department of Fish and Wildlife, and Oregon Parks and Recreation Department. Portland, Oregon.

———. 2002. Predator Damage Management to Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover. Prepared by USDA, APHIS, Wildlife Services Program and the Siuslaw National Forest, USDI, Fish and Wildlife Service and Bureau of Land Management, and in cooperation with the Oregon Department of Fish and Wildlife, and Oregon Parks and Recreation Department. Portland, Oregon.

U.S. Environmental Protection Agency (USEPA). 1999. Consideration of Cumulative Impacts in EPA Review of NEPA Documents. EPA 315-R-002. May.

U.S. Fish and Wildlife Service (USFWS). 2015. National Wetlands Inventory Mapper for Coos Bay, Coos County, Oregon. Available at http://www.fws.gov/wetlands/index.html. Last viewed on October 14, 2015.

———. 2014. Biological Opinion for Western Snowy Plover Monitoring and Nest Protection in Oregon. September 30.

———. 2007. Recovery Plan for the Pacific Coast Population of the Western Snowy Plover (Charadrius alexandrinus nivosus). In 2 volumes. Sacramento, California. xiv + 751 pages.

U.S. Global Change Research Program (USGCRP) 2009. Our Changing Planet: The U.S. Climate Change Science Program. Available at http://www.usgcrp.gov/usgcrp/Library/ocp2009/. Last viewed October 1, 2015.

Wilson, R. A. 1980. Snowy Plover Nesting Ecology on the Oregon Coast. MSc. Thesis. Oregon State University, Corvalis, OR. 41 pp.

Zarnetske, P. L., Seabloom, P. L., and Hacker, S. D. 2010. Non-target effects of invasive species management: beachgrass, birds, and bulldozers in coastal dunes. Ecosphere. 1(5):1-20.

Appendix A

Western Snowy Plover Site Management Plan, Coos Bay North Spit, U.S. Army Corps of Engineers, Portland District, December 31, 2015

US Army Corps
of Engineers ®
Portland District

WESTERN SNOWY PLOVER SITE MANAGEMENT PLAN

COOS BAY NORTH SPIT

(Photograph Source: Aquarium of the Pacific)

U.S. Army Corps of Engineers
Portland District
PO Box 2946
Portland, OR 97208

February 11, 2016

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (USACE) administers land at the Coos Bay North Spit (CBNS) in Coos County, Oregon. The USACE mission at Coos Bay is to maintain the existing north and south jetties, and the federal navigation channel. The CBNS is also an important wintering and breeding area for Endangered Species Act (ESA)-listed western snowy plover (WSP). This Site Management Plan (SMP) defines what actions the USACE may take in managing USACE-administered land for WSP to further the navigation mission at CBNS.

The SMP is comprised of seven sections: Introduction; Background; WSP Status and Life History, Habitat and Population; Management Issues; Conservation Measures; Reporting and Communication; and, References. The core of the SMP is Section 4 (Management Issues) and Section 5 (Conservation Measures). Management Issues describe the range of topics that the USACE encounters regularly on lands administered at the CBNS. This includes protecting habitat for WSP, as well as controlling public access and limiting predators. Conservation Measures are the tools the USACE may use to address management needs and issues. Conservation Measures are comprised of best practices and procedures of the WSP Working Group[1]. They include:

- Habitat management (restore and/or maintain suitable habitat)
- Human disturbance management (reduce human disturbance caused by public and administrative use activities). This can include public outreach, fencing, signage, law enforcement, and compliance.
- Predator management (reduce WSP predation)
- Population and productivity monitoring

The USACE may implement Conservation Measures, described in Section 5 of this SMP and as such, these activities will receive environmental compliance review, including National Environmental Policy Act (NEPA) review and ESA consultation.

[1] The WSP Working Group includes agency representatives for one of six WSP recovery unit areas along the West Coast. This interagency team includes representatives from the Bureau of Land Management, U.S. Fish and Wildlife Service, Oregon Parks and Recreation, Oregon Department of Fish and Wildlife, U.S. Forest Service, U.S. Army Corps of Engineers, U.S. Department of Agriculture Wildlife Services, and the Institute of Natural Resources.

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ABBREVIATIONS AND ACRONYMS

%	percent
APHIS	Animal and Plant Health Inspection Service
ATV	all-terrain vehicle
BiOp	Biological Opinion
BLM	U.S. Bureau of Land Management
CBNS	Coos Bay North Spit
CFR	Code of Federal Regulations
CH	Critical Habitat
CZMA	Coastal Zone Management Act
DOA	Department of Agriculture
DSL	Division of State Lands
EA	Environmental Assessment
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FR	Federal Register
HCP	Habitat Conservation Plan
HRA	Habitat Restoration Area
ITP	Incidental Take Permit
MHW	mean high water
MLW	mean low water
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
ODLCD	Oregon Department of Land Conservation and Development
ODNRA	Oregon Dunes National Recreation Area
OESA	Oregon's Endangered Species Act
OHV	off-highway vehicle
OPRD	Oregon Parks and Recreation Department
ORBIC	Oregon Biodiversity Information Center
Port	Oregon International Port of Coos Bay
RMA	Recreational Management Area
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SMP	Site Management Plan
SPMA	Snowy Plover Management Area
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UTV	utility vehicle
WSP	western snowy plover

1 INTRODUCTION

Coos Bay is located in Coos County on the Oregon Coast, approximately 200 miles south of the Columbia River. The bay provides a harbor- and water-dependent economy for the local and state community and, as the second largest estuary in Oregon, the largest located entirely within state borders (Hickey and Banas 2003, Arneson 1976), is an important biological resource. The entrance to the Coos Bay estuary and navigation channel lies between Coos Head and the Coos Bay North Spit (CBNS) (Figure 1-1). The Coos Bay north and south jetties stabilize a mile-long, 47-foot-deep entrance channel, which extends 15 miles upstream past the cities of Charleston and North Bend to the city of Coos Bay.

The CBNS is a large isolated peninsula, about 15 miles from downtown Coos Bay, supporting unique coastal habitats, including an important wintering and breeding area for the federally threatened Pacific Coast population of the western snowy plover (*Charadrius nivosus nivosus*). The western snowy plover (WSP) was listed as threatened under the Endangered Species Act (ESA) in 1993 (58 Federal Register [FR] 12864), listed as threatened by the Oregon Fish and Wildlife Commission in 1975, and confirmed under Oregon's Endangered Species Act (OESA) in 1989.

1.1 PURPOSE

U.S. Army Corps of Engineers (USACE) administered lands at the CBNS were originally acquired and continue to serve a navigational mission Part of the USACE land management activities at CBNS includes carrying out this WSP Site Management Plan (SMP). To achieve this goal, on-going management activities are necessary to aid in the protection and recovery of the WSP, and include identifying and maintaining WSP habitat areas and use, public access, and predator management. This SMP describes these activities (past, present day, and future).

The USACE has limited capabilities to carry out land management activities in Coos Bay. The Coos Bay Federal Navigation Project was authorized as early as 1878 and as recently as recently as the 1996 Energy and Water Development Appropriations Act of 1996 (Public Law 104-46). These authorizations provide USACE with the ability for construction, operation, and maintenance of the north and south jetty structures and associated deep-draft federal navigation channels and turning basins. These are the only USACE authorities at CBNS. Therefore, habitat maintenance and other "on-the-ground" activities at the CBNS have been, and will continue to be, shared and coordinated with others, either through the use of contractors or cooperatively with the assistance of other agencies and/or regional partners.

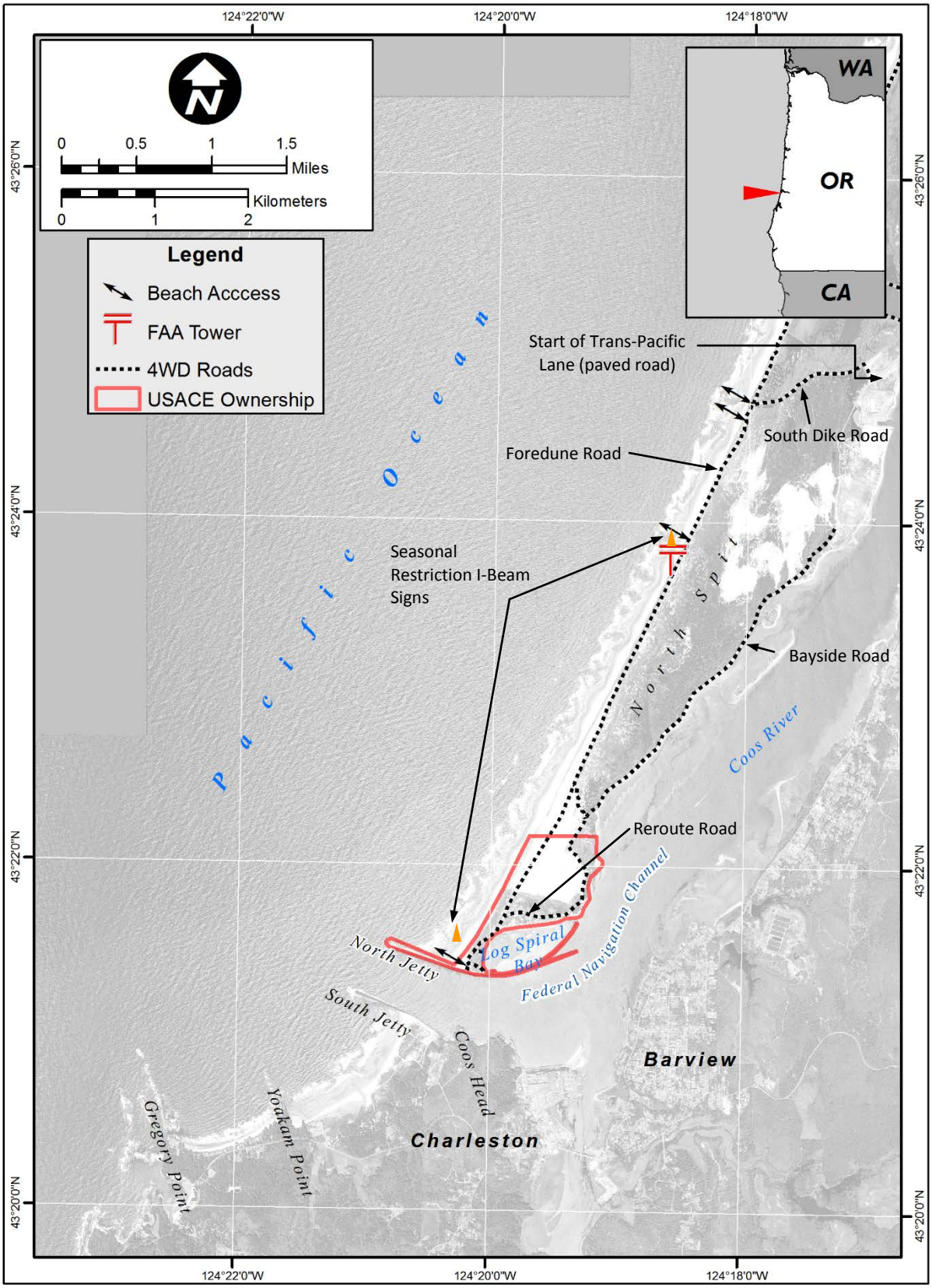

Figure 1-1. CBNS Vicinity Map

2 BACKGROUND

2.1 HISTORY OF THE WESTERN SNOWY PLOVER

Historical records indicate that nesting WSPs were once more widely distributed and abundant along the Pacific Coast than they are currently. Between 1977 and 1980, there were about 2,300 breeding WSPs along the coast (Page et al. 1991). The Pacific Coast population of the WSP was listed as a threatened species under the ESA in 1993 (58 FR 12864). The listing was a result of a number of threats, including loss of habitat from urban development and encroachment by introduced European beachgrass (Ammophila arenaria), predators, and human disturbance (e.g. recreational activities). Activities such as walking, jogging, running pets, horseback riding, camping, and off-road vehicle use can result in the destruction of nests and young if conducted in active nesting areas (destruction is less likely to occur on "wet" sand). These activities may also cause indirect loss of nests and young by flushing adults off nests, thereby increasing the risk of eggs being buried by blowing sand or exposed to predation. Critical habitat (CH) for the WSP was first designated in 1999 (64 FR 68508), remanded by the U.S. District of Oregon in 2003, re-designated in 2005 (70 FR 56969), and updated in 2012 (77 FR 36728). A recovery plan was prepared for the Pacific Coast population in 2001 and updated in 2007 (72 FR 54279). Recent changes in 2012 to WSP CH expanded the CBNS area to 273 acres. Critical habitat boundaries on the CBNS are shown on Figure 2-2 and Figure 3-1, and are further defined in 77 FR 36752.

In Oregon, birds have been observed nesting at 14 sites since 1990 (Castelein et al. 2002; Lauten et al. 2006a, 2006b). Nesting has occurred most frequently at nine sites, including Sutton, Siltcoos, Dunes Overlook, Tahkenitch, Tenmile Spits, the CBNS, Bandon, New River, and Floras Lake. Of these, the CBNS site is the largest remaining nesting colony in Oregon. Loss of habitat, predation pressures, and disturbances, such as those listed previously, are key factors in the cause of reduced nesting success of WSPs at this site (58 FR 12864).

Since its listing, a number of management methods have been implemented to protect the WSP population. At the CBNS, habitat restoration, predator management, and recreational management have all been implemented by the managing agencies over the years:

- In 1994, the USACE entered into a cooperative Continuing Authorities Section 1135[2] project with the Oregon International Port of Coos Bay (Port). This project resulted in the creation and management of about 71 acres of WSP habitat on the CBNS (north of the jetty) for WSP nesting habitat, known as the 1994 Habitat Restoration Area (HRA) (Figure 2-1). This area is currently partially fenced to reduce human disturbance on WSPs and includes an area of past dredged material placement known as the South Spoil area.
- The 1995 HRA and the 1998 East and West HRAs (east and west of Foredune Road), were created in subsequent years and are not fenced. An additional small area was added at the south end of the 1995 HRA during emergency repairs in 2003. The HRAs encompass both USACE and U.S. Bureau of Land Management (BLM) lands.

[2] Section 1135 of the Water Resources Development Act of 1986, as amended, provides the authority to modify existing USACE projects to restore the environment and areas degraded by USACE projects.

- Management activities of the CBNS by the different landowners and managers are implemented annually, as funding allows, and these are described further in Section 4 of this report.

2.1.1 Habitat Conservation Plan (HCP)

On December 17, 2010, the Oregon Parks and Recreation Department (OPRD) and U.S. Fish and Wildlife Service (USFWS) completed a Habitat Conservation Plan (HCP) to conserve the WSP on "ocean shores." The HCP also filled a requirement for OPRD to address potential ESA take issues occurring on lands within their jurisdiction, and obtain an incidental take permit (ITP) for the WSP. The ITP (TE30687A-0), issued in 2010 provides OPRD with the long-term regulatory assurance that implementation of its coastal management responsibilities will comply with the ESA, while providing protection for WSPs (ICF International 2010). The HCP identified five potential Western Snowy Plover Management Areas (SPMAs) and 11 Recreation Management Areas (RMAs) based on breeding and wintering habitat, geographic location, and other factors. SPMAs are owned or leased by OPRD as part of the state park units (none are located at Coos Bay). RMAs are not part of OPRD state park units, but are managed by OPRD as part of the Ocean Shore, are privately owned, or are adjacent to federal land that lies within and adjacent to the Ocean Shore. An RMA adjacent to federal land extends from the extreme low tide line to the mean high tide line only. One is located at the CBNS.

The 2010 HCP identifies a number of conservation measures to carry out on the SPMAs and RMAs. At the CBNS RMA, the following measures apply:

- Implementation of recreational use restrictions by the USACE and BLM on their lands
- Implementation of beach activity management

A number of agencies, including the USACE, OPRD, Oregon Department of Fish and Wildlife (ODFW), BLM, and the U.S. Forest Service (USFS) entered into a Memorandum of Understanding (MOU) in December of 2010. The MOU provides a framework for cooperation and achievement of mutual goals associated with the conservation of the WSP in Oregon (see Appendix A for a copy of the MOU). Pursuant to the signed MOU, the USACE has agreed to manage occupied RMAs in a manner consistent with the HCP, subject to available USACE funding. The USACE often provides funding to the BLM, Coos Bay District to support the implementation of these activities on USACE managed lands.

2.2 U.S. ARMY CORPS OF ENGINEERS' NAVIGATION MANDATE AT COOS BAY

As part of its mission to build and maintain navigation facilities, the USACE continues to maintain ownership of CBNS land to support jetty monitoring, ensure evaluation access, and to provide construction staging and stockpile areas in the event jetty maintenance or navigation repairs are needed. The USACE has been responsible for maintaining navigable waterways of the North Pacific Coast since 1871. Between 1891 and 1894, construction of the Coos Bay north jetty occurred, with subsequent repair and maintenance actions following over the decades, the most recent of which was in 2008.

2.3 OWNERSHIP AND MANAGEMENT

The USACE, BLM, and OPRD manage WSP habitat at the CBNS. The USACE administers approximately 245 acres of land at the southern tip of the CBNS (Figure 2-2). The USACE parcel runs north from the boundary of the north jetty to the southern boundary of land owned by the BLM. USACE land is bound by the Pacific Ocean to the west, which includes South Beach (the beach between the north jetty and the Federal Aviation Administration (FAA) towers as shown on Figure 2-2), and by the Log-spiral Bay and Coos Bay to the east. The USACE acquired this area to facilitate construction of the Coos Bay north jetty between 1891 and 1894 (Case 1983).

Of the 245 acres, about 104 acres are managed for the WSP, with 77 additional contiguous acres managed for the WSP on BLM lands. One hundred and eighty-one of these acres make up one of five WSP HRAs (Figure 2-1). The South Spoil area was created with placed material from maintenance dredging of the nearby Coos Bay Federal Navigation Channel in the 1980s, while the 1994 HRA Project involved a number of management activities (salt water irrigation, herbicide treatment, and sand tillage) implemented to improve WSP habitat and remove European beachgrass. As mentioned previously in Section 2.1, there are three adjacent HRAs east of the ocean foredune. One is solely on BLM property (the 1998 West HRA) and two encompass both USACE and BLM properties (the 1995 HRA and the 1998 East HRA). The 1994 HRA is partially fenced (sections have been lost on the south side and fence fragments remain along Foredune Road). The 1995 HRA and the 1998 East and West HRAs (east and west of Foredune Road), are not fenced.

The USACE has limited capabilities to carry out land management activities in Coos Bay. Therefore, habitat maintenance and other "on-the-ground" activities at the CBNS have been, and will continue to be, shared and coordinated with others, either through the use of contractors or cooperatively with the assistance of other agencies and/or regional partners.

The BLM administers the bulk of the lands on the CBNS, with about 1,864 acres of public land, while the USFS manages the Oregon Dunes National Recreation Area (ODNRA) to the north of the CBNS (Figure 2-2). The OPRD retains jurisdiction of the "ocean shores," managing the Pacific Ocean beaches from below the Mean High Water (MHW) mark. The Oregon Division of State Lands (DSL) manages lands below the Mean Low Water (MLW) mark, including submersed lands. The primary land access to the bay side of the CBNS is through lands owned by the Port and the BLM. Privately owned lands are also scattered throughout the CBNS.

Public access to the CBNS is year-round with seasonal road and beach closures through the HRAs during the breeding/nesting season for the WSP. There are several public information kiosks at access points on the CBNS along with a day use area, boat ramp, and restrooms managed by BLM. In addition, BLM provides maps to the public that include seasonal restriction information.

The USACE parcel is accessible by three land routes, Foredune Road, Bayside Road, and the beach; as well as by boat (Figure 1-1). Although the USACE uses these access routes to maintain the north jetty (described in Section 4.2.2), the public also uses these routes to enjoy recreational activities at the CBNS seasonally due to closures.

2.4 REGULATIONS

Federal laws and regulations guide federal agencies, activities, and actions. At Coos Bay, the USACE complies with these laws and regulations while maintaining effective navigation into the bay, and ensuring that USACE-administered CBNS lands are appropriately managed. The following apply to management and activities on the CBNS.

2.4.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 was established to ensure that environmental consequences of federal actions are incorporated into an agency's decision-making processes. The NEPA requires all federal agencies to, among other things: assess the environmental impacts of major federal projects, decisions (i.e., issuing permits), spending federal money, or actions on federal lands; consider the environmental impacts in making decisions; and, disclose the environmental impacts to the public. Environmental considerations are fully integrated into the decision-making process.

2.4.2 Endangered Species Act

Section 7 of the ESA states that federal agencies shall ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species, or result in destruction or adverse modification of designated CH (50 Code of Federal Regulations [CFR] 402 of USFWS 1998). Therefore, federal agencies consult with the USFWS and/or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), depending on the species that may be affected. In the case of the SMP, the consulted agency will be USFWS. Section 7 (a)(1) further directs federal agencies to use their existing authorities to further the purposes of the Act, aid in recovering listed species, and to address existing and potential conservation issues with regard to preserving, enhancing, and restoring important habitat types (USFWS 1998).

2.4.3 National Historic Preservation Act

Section 106 of the National Historic Preservation Act requires that federally assisted or federally permitted projects account for the potential effects on sites, districts, buildings, structures, or objects that are included in, or are eligible for, inclusion in the National Register of Historic Places.

2.4.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not, unless a permit has been obtained.

2.4.5 36 CFR 327 Governing Public Use of Water Resource Development Projects

The regulations covered in Part 327 apply to water resources development projects, completed or under construction, administered by the USACE. It is the policy to manage the natural, cultural and developed resources of each project in the public interest, providing the public with safe and healthful recreational opportunities while protecting and enhancing these resources. The primary pertinent language within this CFR outlines the type of management of vehicles (§327.2), camping (§327.7), and control of animals (§327.11) to occur on designated USACE recreational land. All other federal, state and local laws and regulations remain in full force and effect where applicable to those water resources development projects.

2.4.6 Coastal Zone Management Act

Under the Coastal Zone Management Act (CZMA), any federal agency conducting or supporting activities directly affecting the coastal zone must demonstrate that the activity is, and will proceed in a manner consistent with, the approved Coastal Zone Management Program for that state, to the maximum extent practicable. As no federal agency activities are categorically exempt from this requirement, the USACE must obtain concurrence from the Oregon Department of Land Conservation and Development (ODLCD) pursuant to Section 307(c)(1) of the CZMA. The CBNS USACE-administered federal lands are not part of the coastal zone, and CZMA compliance is only required if effects from activities on these lands are affecting the coastal zone. In personal communications with the Oregon Coastal Management Program Coordinator, most of the ongoing activities do not affect the Coastal Zone (Hickner 2013). If this were to change in the future, CZMA compliance may need to be re-examined.

2.5 SITE DESCRIPTION, MORPHOLOGY, AND HISTORY

The CBNS includes narrow, sandy beaches on the ocean side, and mudflats and salt marshes east into the bay. The Pacific Ocean beach face is backed by a foredune stabilized by the establishment of European beachgrass and other scrub-shrub species. Sand dunes, wetlands, upland shore pine (Pinus contorta), and Sitka spruce (Picea sitchensis) characterize the CBNS interior. This is shown in Figure 2-1, which also shows distinct vegetative transitional boundaries around the managed HRAs versus the unmanaged areas of the CBNS (Figure 2-2). Section 2.3 describes past and present day management activities for the USACE-administered portions of the HRAs.

Sand deposited by longshore drift or ocean currents running parallel to the shore originally formed the CBNS (USACE 2008). Prior to construction of the north jetty, the CBNS was a highly changing natural environment. The CBNS did not remain constant; there were periods where the Coos Bay channel effectively divided the CBNS from the mainland creating an island (Beckham 2000, BLM 2006). As settlers moved into the area in the early 1800s, the CBNS became a key juncture in travels between San Francisco and the Columbia River. The towns within Coos Bay grew, but the bar crossing was dangerous for vessels due to migration of the Coos Bay outlet channel (Case 1983). The first effort towards stabilizing the CBNS was undertaken in 1878, with a failed attempt at building a jetty on the east shore of the Coos Bay estuary. The Rivers and Harbors Act of 1890 recommended the construction of two parallel jetties to confine the Coos bay Federal Navigation Channel. Construction of the existing north

jetty began in 1891 and was completed in 1894 (Case 1983). In 1893, two 150-foot long groins were constructed on the channel side near the upstream limit of the work (Case 1983), to minimize erosion damage to the support tramway and associated wharf. Construction of a 4,200-foot-long South Jetty was initiated in 1924 after it had been determined that an adequate navigation channel could not be maintained with only the North Jetty (USACE 2012). Construction of the north jetty stabilized the location of entrance channel, altering the dynamic coastal processes that shaped the CBNS. Erosion of the CBNS continues and the adjacent LSB, located at the root of the north jetty, has been enlarging since 1939 (Hays and Moritz 2003).

The USACE or the U.S. Navy owned and managed the majority of the CBNS for the first half of the 20th century. In 1915, the Lifesaving Station at the Log-spiral Bay was converted into a Radio Compass Station. The Station was closed in 1950 and the land was transferred from the U.S. Navy to the USACE. The BLM acquired the northern portion of the USACE land in 1984. The USACE leased their remaining lands to the ODFW until 2000, when (due to lack of funding) the ODFW did not renew their lease.

Between 1891 and 1915, the USACE planted non-native European beachgrass to minimize beach and dune erosion and stabilize 1,000 acres on the CBNS (Beckham 2000). This was common practice on Pacific Northwest shores at the time. The dense dune grass stabilizes and causes vertical growth of the coastal dunes by capturing wind-transported sand and virtually eliminating the landward transport of sand. The introduced beachgrass created steeper foredunes (Figure 2-4 and Figure 2-5) not previously evident in the area, and had a detrimental effect on native dune plant communities (Wilson 1980; Pickart 1997; Zarnetske et al. 2010).

The CBNS is actively eroding near the north jetty (Figure 2-3) at an average rate of a few feet per year (USACE 2012). Erosion is occurring on both the ocean- and bay-side of the CBNS, including within the Log-spiral Bay. Spur jetties and a “hard point” at the Log-spiral Bay were constructed to counter ongoing erosion. Management of this ongoing erosion is important for maintaining channel navigation at Coos Bay.

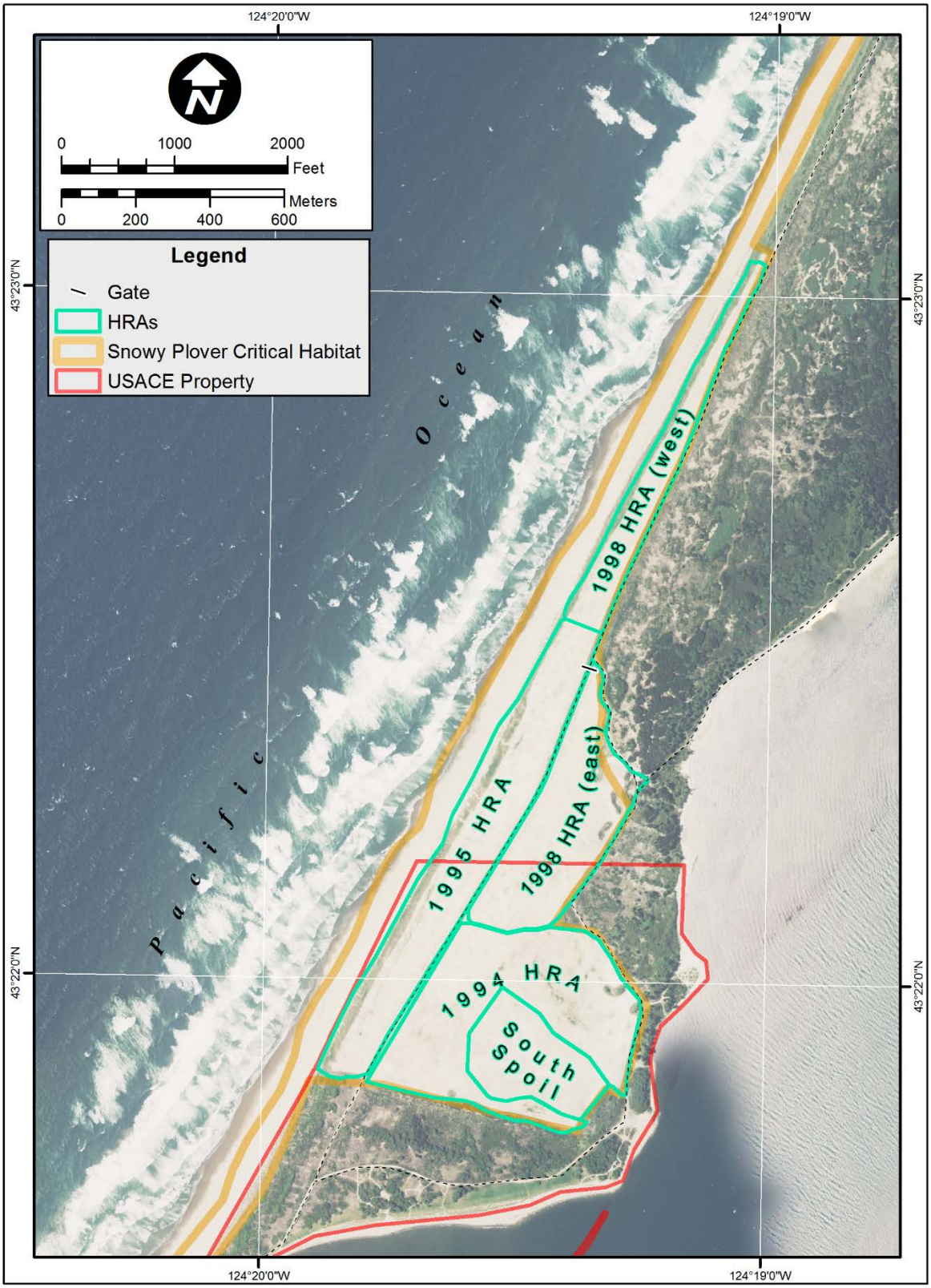

Figure 2-1. WSP Habitat Restoration Areas on the CBNS

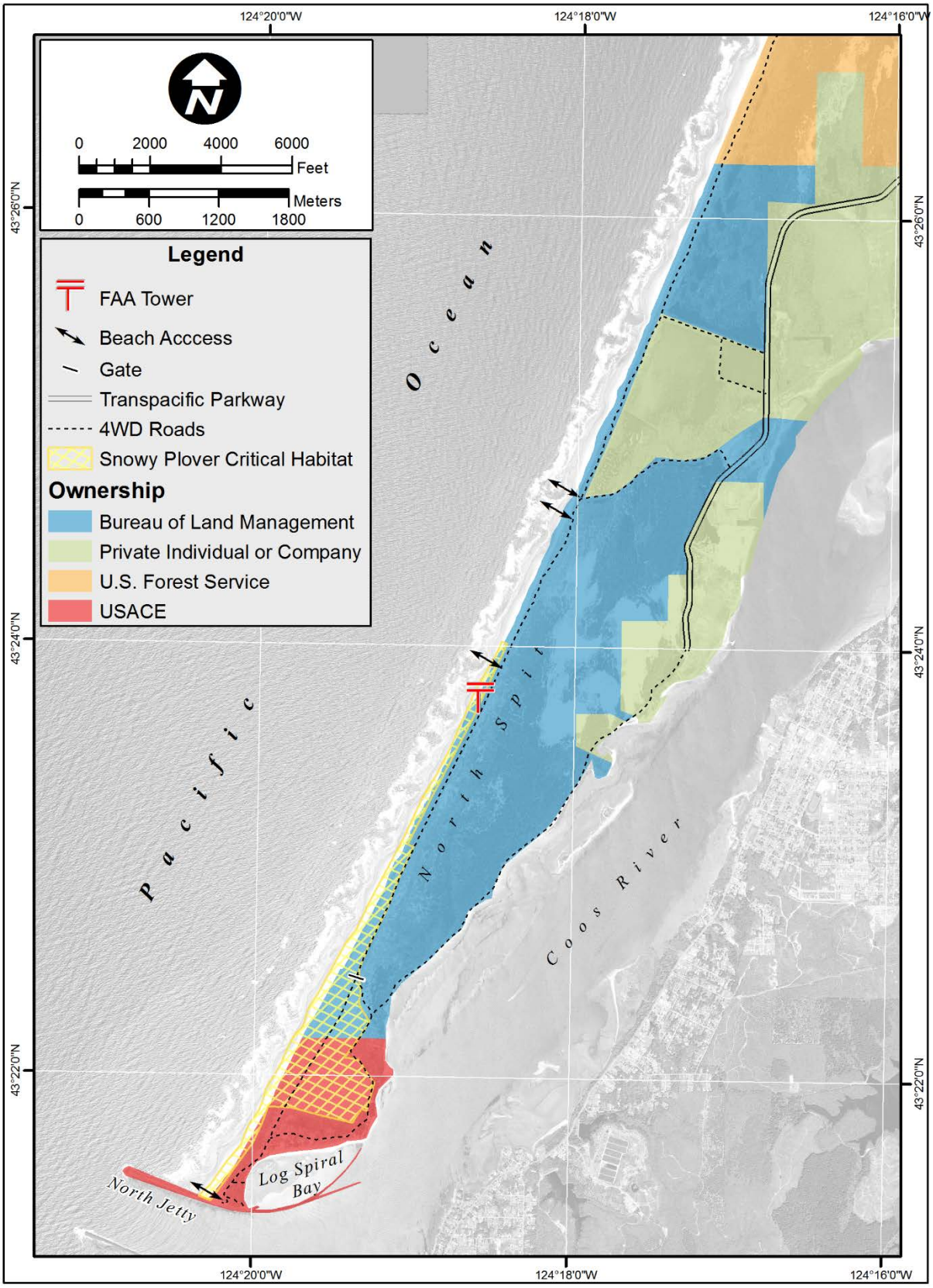

Figure 2-2. CBNS Land Ownerships

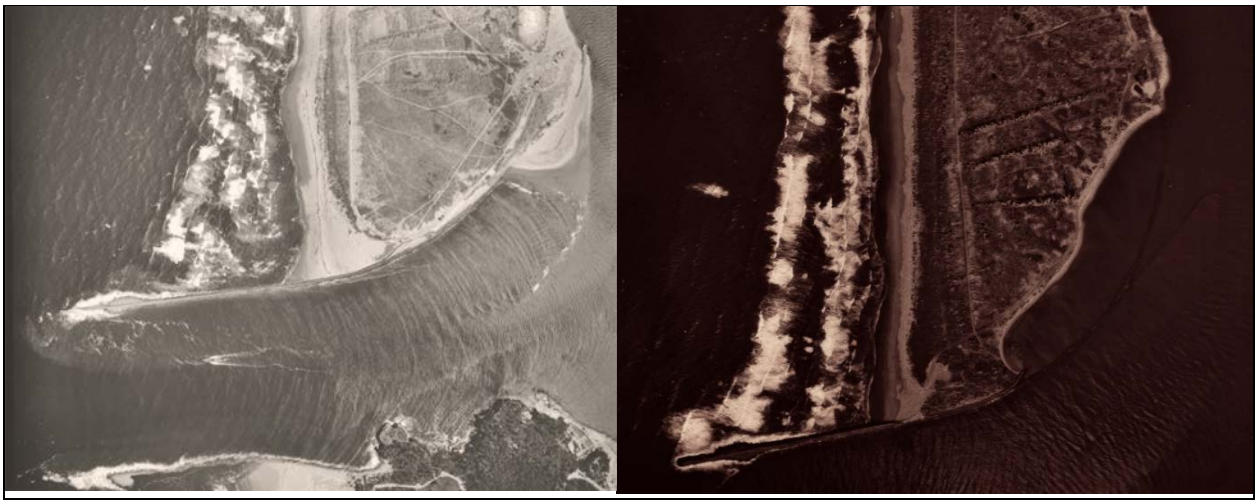

Figure 2-3. Shoreline Change Along the CBNS: Vegetation Line 1939 and 1971

The construction of the north jetty with the establishment of European beachgrass created vegetated sand hills on the southern extent (and elsewhere) on the CBNS. Today, the narrow band of vegetated sand transitions down to an estuarine environment to the east. The spread of non-native European beachgrass has degraded WSP habitat. The denser European beachgrass makes it more difficult for younger WSPs to walk through, displaces nests, and provides cover for predators (USFWS 1995) (Figure 2-4).

Both the BLM and the USACE have completed multiple projects since the 1990s (e.g., dredged material placement, removal of non-native grass, dune sculpturing) to reduce and control European beachgrass within the HRAs. The last known deposit of clean dredged materials within USACE property was in the 1980s. Currently, the HRAs are managed regularly to maintain WSP habitat.

Figure 2-4. 2015 CBNS Foredune with European Beachgrass

Figure 2-5. 2014 Foredune on USACE-administered CBNS Lands

3 WESTERN SNOWY PLOVER, STATUS AND LIFE HISTORY, HABITAT AND POPULATION

3.1 COOS BAY NORTH SPIT HABITAT CONDITIONS

Prior to the 1890s, the WSP had suitable habitats to support viable populations of resident and migratory nesting colonies along the CBNS. With the introduction of the jetties and European beachgrass, WSP habitat was detrimentally affected.

Dense European beachgrass at the CBNS along the foredune and on either side of the Foredune Road likely slows and/or prevents brood movement between the HRAs and the beach. Quite a bit of vegetation can be observed on either side of Foredune Road. The USACE requires this road for north jetty access to provide ongoing stabilization of the CBNS. Consequently, road perimeter beachgrass, which acts to protect the road from wind erosion, cannot be entirely removed. One benefit of the road is that the natural barrier created by Foredune Road and its surrounding vegetation which limits public vision of the plover habitat and vehicle access, which can disturb WSP habitat. One reason for steeper foredunes is that European beachgrass is better at collecting sand (Wiedemann and Pickart 1996). Steeper foredunes can prevent overwash and scour that naturally maintains the less vegetated, and preferred WSP habitat along the beach foredune. Persistent stands of European beachgrass north of the South Spoil area may be deterring WSPs from nesting in the north section of the USACE 1994 HRA.

Since the listing of WSP in 1993, intensive efforts by the different CBNS land management agencies have tried to address the declining WSP populations. Through habitat restoration, maintenance, public access restrictions (e.g., the use of signage, ropes, fences, and seasonal restrictions for recreational activities), public outreach, predator control, and other management, the population has increased. Management of the CBNS HRAs, including those HRAs managed by the USACE, involves disking and/or plowing about two times a year to remove European beachgrass and provide open expanses of sand, preferred for nesting. Management also involves periodic placement of oyster shells (shell hash) to improve nesting and wintering habitat. The Animal and Plant Health Inspection Service (APHIS) conducts predator management annually during the spring and summer as part of an integrated regional predation management program. Human trash removal, avian predator perch management, the burial of dead birds and mammals are also important components of predation management implemented by the different land management agencies.

3.2 STATUS AND LIFE HISTORY

The ESA-listed Pacific Coast population of the WSP nest adjacent to tidal waters of the Pacific Ocean above the high tide line, and includes all nesting birds on the mainland coast, peninsulas, offshore islands, adjacent bays, estuaries, and coastal rivers. They breed in coastal areas in California, Oregon, and Washington, and typically forage for small invertebrates in wet or dry beach-sand, tide-cast kelp, or within low foredune vegetation (Page et al. 1995). The Pacific Coast population of the WSP consists of both short-distance migrants and year-round residents. Wintering birds roost in small flocks in small depressions in the sand, or in the lee of kelp, other debris, or dunes (USFWS 2007). During the migratory and non-breeding periods, WSPs are found on many of the beaches used for nesting as well as on beaches where they do not nest, in

man-made salt ponds, and on estuarine sand and mud flats (USFWS 1995, 2001). WSPs have been recorded to both nest and winter on the CBNS on the beach and inland HRAs.

The breeding/nesting season in the United States begins in March and extends through September, although courtship activities can begin earlier and vary by state (USFWS 2007). Clutches, which most commonly consist of three eggs, are laid in shallow scrapes or depressions in the sand (Page et al. 2009). The eggs' small size and cryptic markings help to camouflage them on the sand. WSP chicks are precocial, leaving the nest within hours after hatching to search for food (Boyd 1972, Colwell et al. 2007, Page et al. 2009). Adult WSPs do not feed their chicks but lead them to suitable feeding areas (Page et al. 2009). Fledging requires 28 to 33 days (Page et al. 2009). During this time, broods and the attending male may move away from the nesting territory; movement of up to 9.7 kilometers (km) (6 miles) from the natal area has been reported (Castelein et al. 2001). Plovers usually return to the same breeding sites every year. Wintering birds often roost in small flocks. Roosting birds usually sit in small depressions in the sand, or in the lee of kelp, other debris or dunes (USFWS 2007).

Reproductive success of WSPs varies, most likely due to differences in beach management, recreational pressure, predation pressure, and localized natural events such as high tides coinciding with heavy surf. Productivity has improved following the implementation of integrated predator management across Oregon nesting sites (Lauten et al. 2014a, 2014b).

Loss of nesting habitat from development, human activities on beaches, the encroachment of European beachgrass into nesting areas, and an increase in predation have all led to the decline of the species over the past century.

3.3 POPULATION AND MONITORING

3.3.1 West Coast

The Oregon Biodiversity Information Center (ORBIC) monitors WSP at multiple sites along the Oregon coast. ORBIC monitors WSP distribution and abundance (i.e., breeding and winter surveys, productivity monitoring). Window surveys provide an index of population size and minimum number of birds, but not complete population counts. Productivity monitoring includes locating nests and tracking the outcomes, banding young and tracking chicks until they fledge, and tracking adult and juvenile return rates.

Numbers and breeding locations declined on the Pacific Coast over the past century (71 FR 20607). Between 1977 and 1980, there were about 2,300 breeding WSPs along the coasts of Washington, Oregon, and California (Page et. al., 1991). This number declined to about 1,900 from 1988 to 1989. In 2006, the estimated maximum population was slightly under 2,500 adult birds spread out between the Washington (70), Oregon (177 to 179) and California coasts, and San Francisco Bay (2,231) (USFWS 2007). Since intensive recovery efforts and monitoring began in 1993, the Oregon population has increased (Table 3-1).

The recovery criteria for the WSP is an average of 3,000 breeding adults per year for 10 years distributed among 6 recovery units (USFWS 2007). Oregon and Washington are one recovery unit and, combined, must support 250 breeding WSPs. In 2014, 429 adults were observed, 41

adults in Washington (Pearson et al. 2015) and 388 adults in Oregon (Lauten et. al. 2014a) (Table 3-1).

Table 3-1. Oregon Coast Population Estimates by ORBIC (2010 to 2014)

Year	No. Present	Percent (%) Change from Previous Year
2010	232	+17%
2011	247	+6%
2012	289	+17%
2013	304	+5%
2014	338	+11%

3.3.2 Coos Bay North Spit

Plovers nest and winter on the CBNS. The ORBIC monitors all of the HRAs and South Beach. Currently, the CBNS supports the highest level of nesting activity among the Oregon Coast WSP sites (Lauten et al. 2014b). Overall population numbers have been on the rise for a number of years (Table 3-2) even with some metric declines within specific years.

The 2014 overwinter return rate at the CBNS, based on returning banded adult WSPs, was 80 percent (%), well above the 1994-2014 mean of 66%, considerably higher than the 65% for 2013 and the highest recorded adult return rate for Oregon (Lauten et al. 2014a). The high adult overwinter contributed to the increase in the Oregon WSP population size in 2014.

Table 3-2. WSP Productivity at the CBNS (ORBIC 2015)

Year		Adults Confirmed Nested[1]	Productivity Index[2]			Fledged Chicks per Male		
	For Entire CBNS		CBNS	USACE[3]	BLM[4]	CBNS	USACE[3]	BLM[4]
2010		39	13%	52%	5%	1.18	1.71	0.50
2011		59	33%	38%	53%	1.69	1.67	2.00
2012		78	29%	83%	47%	1.14	2.5	1.40
2013		52	9%	32%	7%	0.96	1.57	0.67
2014		77	37%	43%	33%	2.05	1.78	1.40
2014 5-Yr Avg.		**61**	**24%**	**50%**	**29%**	**1.40**	**1.85**	**1.19**

1 Likely a conservative estimate. Data represents only those birds that ORBIC monitors and were confirmed nesters. Some nesting attempts are not detected and do not get recorded.
2 Productivity Index: Number of fledglings/number of eggs laid.
3 Includes South Beach areas directly adjacent to USACE land.
4 Includes South Beach areas directly adjacent to BLM land.

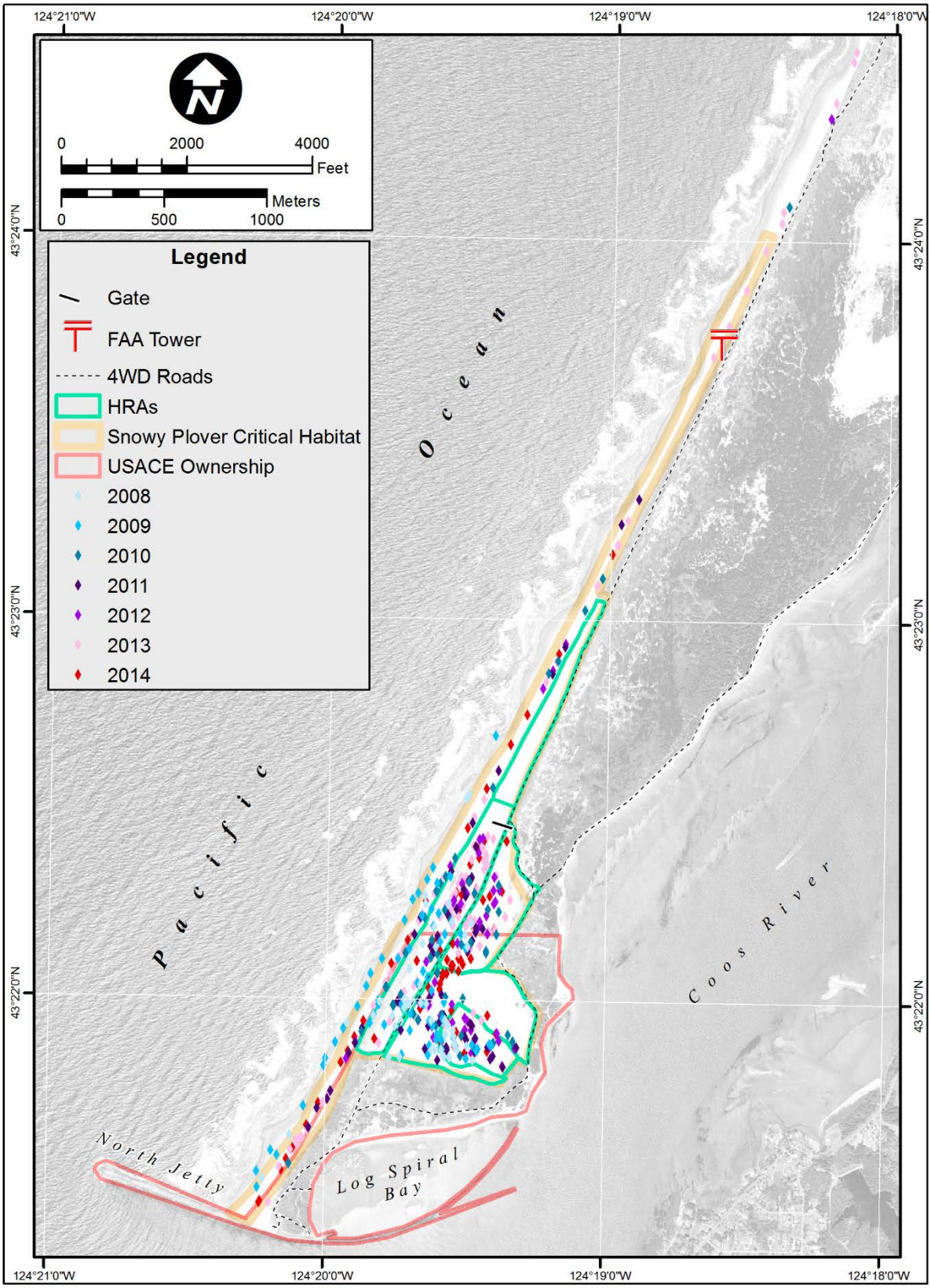

Figure 3-1. Nest Distribution at the CBNS for 2009 through 2014 (Lauten et al. 2014a)

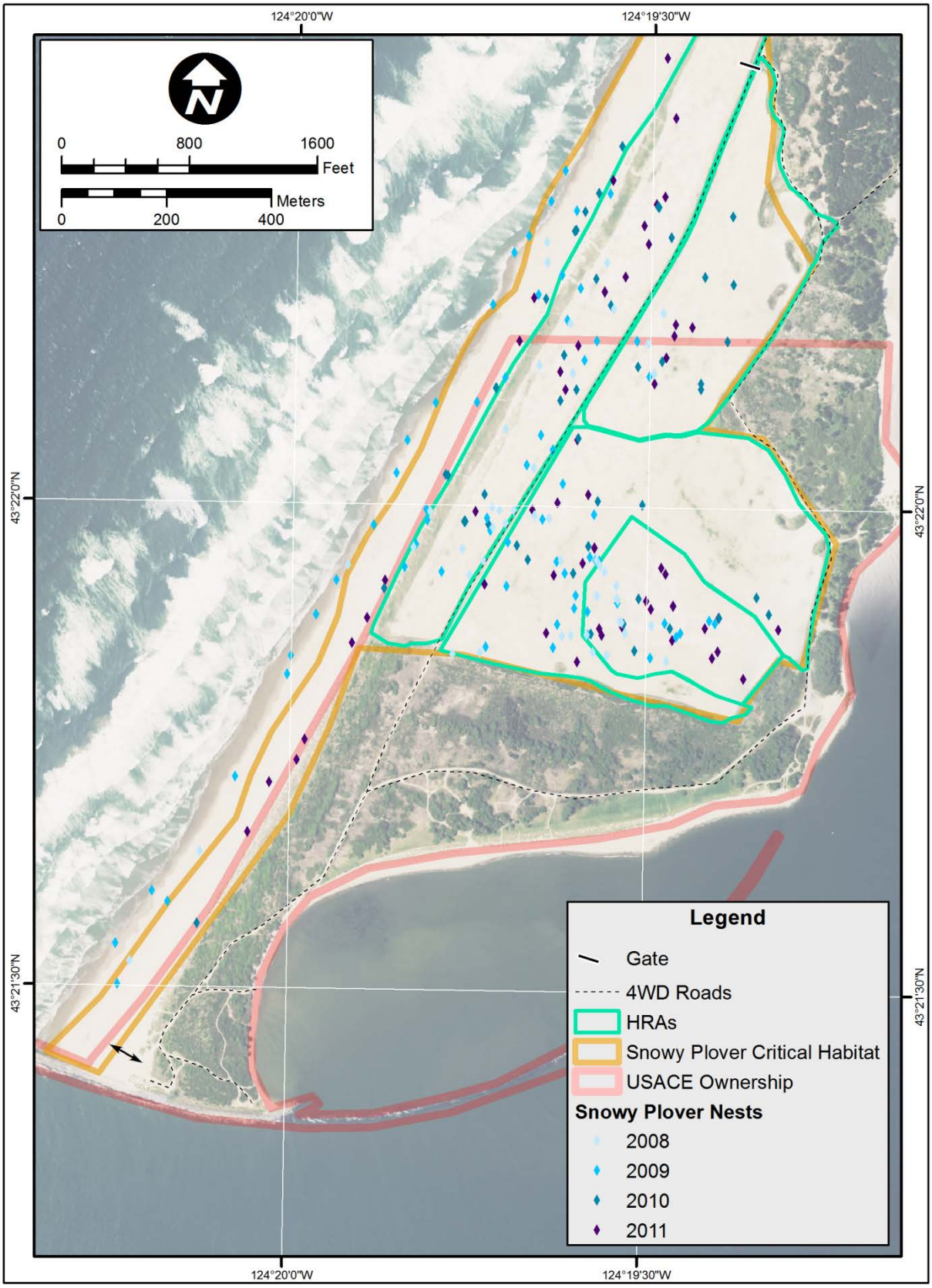

Figure 3-2. Nest Distribution on USACE Property for 2009 through 2011 (Lauten et al. 2014a)

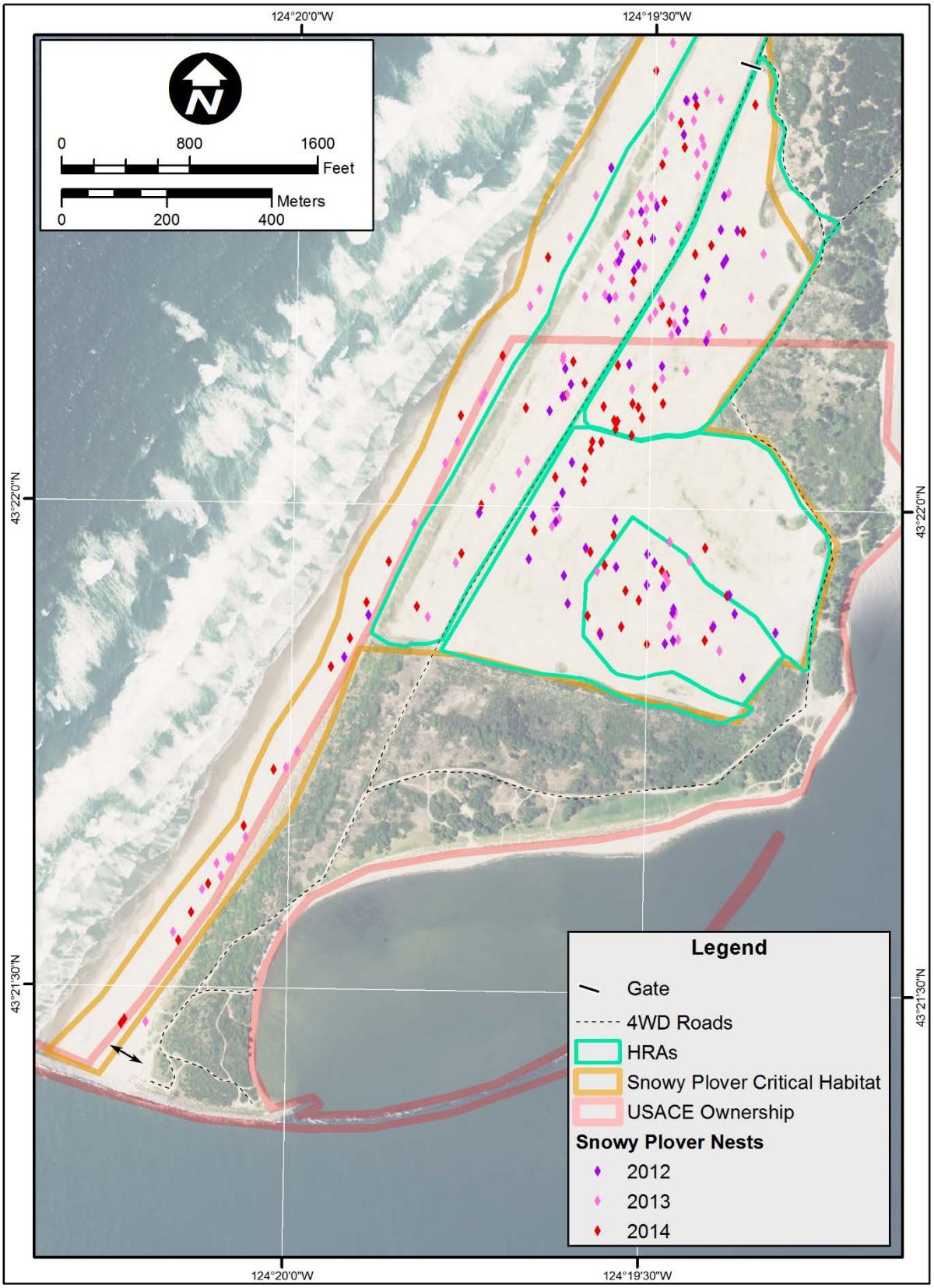

Figure 3-3. Nest Distribution on USACE Property for 2012 through 2014 (Lauten et al. 2014a)

4 MANAGEMENT ISSUES

Several management efforts affect WSP and their habitat on the CBNS. These include habitat management, public use, and disturbance, which includes recreation (e.g., use of motorcycles/all-terrain vehicles (ATVs)/Utility Vehicles (UTVs), etc.) and non-recreation activities (e.g., breakwater repair by USACE, fire and law enforcement activities, habitat maintenance activities, etc.), and predation. Activities with the greatest potential impact to WSPs are those that may disrupt foraging, roosting, or nesting behaviors and influence conservation at the CBNS. These issues, described below, provide the basis for the Conservation Measures proposed in Section 5.

4.1 HABITAT MANAGEMENT

The loss of dynamically shifting unvegetated sands, due to the construction of the jetties and introduction of European beachgrass, has limited WSPs on the CBNS to smaller areas of suitable habitat. A number of habitat management techniques counter this problem and improve WSP habitat on the CBNS:

- Removal of European beachgrass by mechanical means. European beachgrass can be removed from sand dunes by disking, plowing, and bulldozing. These activities benefit WSPs by increasing the availability of suitable nesting habitat.
- Shell hash placement to improve nesting habitat by providing substrate to areas of bare sand (BLM 2008), and possibly provide protection (Pearson et al. 2009).
- Gate and fence installation and repair to reduce disturbance by the public and vehicles.
- Hand removal of European beachgrass from mobility corridors (see section 5.1.3) to improve access to foraging habitat from the HRAs to the beach and back.
- Burning or herbicide use to remove European beachgrass improves nesting habitat.

Over the short-term, these above activities may alter WSP use of the HRAs due to disruptions and noise from workers and heavy machinery used to remove beachgrass. Heavy equipment operation, burning and herbicide use can injure individual birds and destroy native vegetation. These short-term adverse impacts are avoided or minimized to the extent possible by conducting the habitat management activities outside of the WSP nesting season. Wintering or migrating birds are unlikely to be harmed by the slow moving equipment or disturbed from normal feeding behavior.

4.2 PUBLIC USE AND DISTURBANCE

Human disturbance, intentional or unintentional, can disrupt WSP feeding and nesting activities. Both recreational (described below) and non-recreational activities occur at the CBNS on and adjacent to USACE-managed lands along with public outreach efforts.

4.2.1 Recreation

Participating in ocean-beach-related activities is one of the top 10 outdoor recreational activities for Oregonians and out of state visitors (Shelby and Tokarczyk 2002). According to a recent survey described in the Oregon Statewide Comprehensive Outdoor Recreation Plan (SCORP), top outdoor activities for Oregonians include walking on local trails and paths (61%) and beach/ocean activities (53%) (OPRD 2013). The CBNS provides high-demand recreational

opportunities such as running, walking, picnicking, camping (most occurs along the bay side of the CBNS), bird watching, nature observations, sightseeing, and ocean beach activities (e.g., clamming). Other activities include surf sports, dune sports, and exercise involving dogs (Shelby and Tokarczyk 2002).

Visitors recorded by BLM staff in 2013 observed the following compared to 2012 (Kirkland and Bloch 2014):

- A slight decline in total recreational visitors;
- A substantial increase in motorcycles and off-highway vehicle (OHV) use (there has been a steady trend of increasing use from ATV/UTV users on the CBNS the last over 5 years);
- An increase in vandalism, with damage to four brown carsonite signs, two information signs, and three wood cut signs during the nesting season; and,
- A decrease in horse use by about 12%. There were again no violations by equestrian users in the HRAs, dry sand, or behind the symbolic rope fence. The BLM attributes the lack of violations over the past several years to recent public outreach efforts.

Unmanaged recreational activities have the potential to degrade WSP habitat and decrease breeding and nesting success. Human activities near WSP may disturb the birds depending upon their proximity to nesting and roosting areas, frequency of occurrence, and type of use. For example, people on foot, horseback, or in vehicles that approach too close to WSP nesting areas or the wrack line may flush adults from nests or disturb feeding or roosting WSPs, or crush nests. When threatened, WSPs crouch low in depressions to evade perceived predators. This behavior makes it difficult for humans to see WSPs when running, driving, or moving across an area, potentially exposing WSPs to injury or death by crushing. If WSPs are threatened while nesting, they will flush from the nest leaving eggs or chicks exposed to crushing, weather elements, and predators. Prolonged absences of tending adults may increase the exposure or access of eggs and chicks to other predators, lethal levels of thermal stress, nest burial by wind-blown sand, permanent separation of chicks from the rest of their brood or tending adult, or result in other adverse effects that ultimately reduce reproductive success. Some WSPs may not ever return to the nest.

Wintering WSPs have been observed moving in response to disturbances that were up to 40 meters away (Lafferty 2001), while breeding WSPs have reacted to disturbances that were as far away as 200 meters (Page et al. 1977, Robinson 2008, Muir and Colwell 2010). Dogs have a disproportionate effect on plovers compared to other sources of recreational disturbance; plovers react sooner, at greater distances, and for longer periods of time (Page et al. 1977, Yalden and Yalden 1990, Fahy and Woodhouse 1995, Lafferty 2001a and 2001b, Lord et al. 2001, Baudains and Lloyd 2007, Weston and Elgar 2007, Faillace 2010).

Effects to both adults and broods include less time spent feeding and increased energy expenditures that may result in reduced fitness and delayed ability to fledge. Overall effects could also result in greater predation and separation of broods from adults. Incidents of direct mortality via the crushing of eggs or birds may result from any of these types of use but are most

likely higher with motorized use and horse use because WSPs are harder to detect and avoid than when on foot.

Dogs may disturb adults when off-leash and cause the adult to flee the nest. Page et al. (1977) found that WSPs were more likely to flush from pedestrians accompanied by dogs than from pedestrians alone. Several studies have reported higher nest failure rates and mortality rates of chicks on beaches where dogs were relatively prevalent compared to beaches with few dogs (Flemming et al. 1988, Dowling and Weston 1999, Ruhlen et al. 2003, Baudauins and Lloyd 2007). Snowy plovers respond to dogs as predators and use avoidance behaviors (e.g., flushing) and distraction displays to avoid predation and conceal the location of nests and broods.

Recreational activity occurs throughout the CBNS and at a few informal dispersed camp/picnic sites along Coos Bay. On USACE-administered lands, the South Spoil area and 1994 HRA are permanently closed to the public, while the remaining HRAs are open to entry seasonally (69 FR 19220). All of the HRAs at CBNS are closed to public access from March 15 through September 15 to minimize the potential of human disturbance to nesting WSPs (69 FR 19220).

The area between the HRAs and the north jetty is a popular recreation site for fishing, surfing, picnicking, and OHV use. People are also known to camp and picnic at informal, dispersed campsites along the bay front. These users may leave trash and/or food scraps behind which can attract WSP predators. Recreational activities may also disrupt nesting WSP near the north jetty where they have been known to occur outside of HRAs.

Visitor compliance with the seasonal closures is an ongoing management issue. In 2013, BLM Rangers issued nine citations and 35 warnings for violations on BLM lands at the CBNS (Kirkland and Bloch 2014). BLM Rangers cannot issue citations on USACE lands. BLM Rangers working in close proximity of USACE lands may provide a deterrent to illegal activities. There was another citation, or written warning, issued by the Coos County Sherriff's office for a violation in the WSP management area. Illegal motorized vehicle use within the HRAs during the nesting season can harass individual WSPs and nesting pairs, cause nest failure, or even crush nests and eggs. While part of the main Foredune Road is closed to public access during the nesting season, vehicle violations still occur.

4.2.2 Non-recreational/Administrative Use

Other non-recreational activities carried out to protect and maintain the CBNS that could also result in incidental adverse impacts to WSPs and their habitat (ICF International 2010) include the following:

- The USACE monitors the north jetty annually to track conditions and determine when jetty repairs are necessary. A jetty repair action, whether planned or an emergency action, requires access, staging, and stockpiling of equipment and materials on land adjacent to the north jetty.
- While maintaining the CBNS and north jetty is an important mission for the USACE, these activities could require immediate equipment and material access, staging and stockpiling to repair any emergency breaches at the north jetty. The USACE continues to

conduct long-term jetty monitoring and plans for jetty repairs, which are permitted following environmental assessment. Emergency repairs can be completed as required (the last one in 2008). Currently the USACE is planning for further maintenance repairs of the north jetty to be conducted sometime within the next two to five years to minimize the risk of breaches at the north jetty.

- Public safety and disturbance management actions, including public outreach and law enforcement, are carried out at the CBNS by a number of agencies. This includes the U.S. Coast Guard (helicopters or vessels), or local police and fire vehicles to address public safety or law enforcement needs in the area. Law enforcement activities by OPRD staff and the Coos County Sheriff's Department involve investigating crimes and enforcement of rules on the beach and within the HRAs, near the north jetty, or on the ocean beach (the jurisdiction of OPRD). BLM staff provides the public with site use and restriction information each year.
- Activities related to public safety can involve vehicles having unrestricted access to the CBNS, including the HRAs and beach. By their nature, these activities are difficult to predict. Impacts on WSPs are similar to those described for pedestrian use and driving.
- Marine mammals, boats, and other items can wash up on beaches (the jurisdiction of OPRD). This requires access for removal of items or burial (of marine mammals).
- The removal of these items usually requires some type of vehicle or equipment brought on to the beach. This process can disturb wintering or nesting WSPs, separate broods from adults, and can result in the crushing of eggs or chicks. The burial of mammals can disturb an area of sandy beach and may disrupt foraging. However, removal or burial of mammals may be preferable to leaving carcasses out where they can attract WSP predators, possibly exposing WSPs to increased levels of predation. Removal of hazardous materials and boats can benefit WSPs by reducing their potential exposure to these materials.

4.2.3 Public Outreach and Disturbance Management

The Coos Bay District BLM conducts public outreach throughout the WSP nesting season. When funding becomes available, BLM hires seasonal temporary employees or interns for onsite public outreach. While this effort is focused on BLM-administered lands, the outreach effort benefits the USACE as well, by informing the public of the areas restrictions with a year-round in-person presence before the busier summer season when public use increases on the CBNS.

The Coos County Sheriff's Department conducts law enforcement as they patrol the CBNS. The BLM and OPRD also carry out law enforcement activities on lands under their jurisdiction adjacent to USACE-administered lands. The BLM contracts with the Coos County Sheriff's Department to assist with law enforcement efforts. Both the Sheriff's Department and Oregon State Police have authority to issue state law citations on USACE-administered lands. With respect to federal law, USFWS law enforcement can enforce ESA violations, although federal presence at the CBNS is much more limited than state or local presence.

Enforcement on the CBNS is difficult due to the remoteness of the location and need for durable, reliable transportation over rough terrain. The USACE does not manage the area as a

recreational facility and the jetties are not authorized for public use. However, the area does receive public use and recreation, especially near the north jetty.

Similar to impacts described for recreational activities, public outreach and enforcement activities, which involve foot and vehicular traffic, can disturb WSPs depending on their proximity to nesting and roosting areas, frequency of occurrence, and type of use.

4.3 PREDATION

Predator management is a management measure listed in the 2007 Recovery Plan (USFWS 2007). Predator management is critical to enhancing reproductive success (USFWS 2007). To reduce predation rates of eggs, chicks, and adults on the Oregon Coast, a cooperative effort has been established between the U.S. Department of Agriculture (DOA) APHIS, USFS, Siuslaw National Forest, the U.S. Department of Interior, Fish and Wildlife Service, and BLM Coos Bay District. This group has implemented an integrated predator damage management program for WSP nesting areas along the Oregon coast. The ODFW and OPRD are cooperating agencies and contribute to the effort. The integrated program was reviewed for compliance with NEPA and ESA requirements (USDA, USFWS, and BLM 2002; USFWS 2001).

A Predator Management Action Plan is reviewed and revised every year by a WSP Predator Management Subcommittee to provide guidance on actions that will likely be implemented at sites where predation management is anticipated to occur (Burrell et al. 2014). The most effective, selective, and humane tools available are used to deter or remove the species that threaten nesting, breeding, or foraging WSPs (USFWS et al. 2002).

Predation reduction activities carried out by APHIS at Coos Bay is directed toward priority predator species and individuals that exhibit focused attention towards nests, chicks, and adults. Predator management activities have included removing vegetation that provides predators with cover or hunting perches, erecting predator exclosures around nests, and dispersing and removing of mammalian and avian predators. APHIS also conducts litter removal as litter has the potential to attract predators.

Predators identified preying on or suspected of preying on WSPs along the Oregon Coast include the follow species: American crow (*Corvus brachyrhychos*); common raven (*C. corax*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), black rat (*Rattus rattus*), feral cat (*Felix catus*), coyotes (*Canis latrans*), mink (*Mustela vison*), short- and long-tailed weasel (*Mustela* spp.), Virginia opossum (*Didelphis virginiana*), gray fox (*Urocyon cinereoargenteus*), Norway rats (*Rattus norvegicus*), deer mice (*Permyscus maniculatus*), spotted skunk (*Spilogale putorius*), gulls (*Larus* spp.), northern harrier, peregrine falcon (*Falco peregrinus*), merlin (*Falco columbarius*), and American kestrel (*Falco sparverius*) (USDA, USFWS, and BLM 2002).

5 CONSERVATION MEASURES

The purpose of this SMP is to identify proposed activities that provide the appropriate level of management of WSPs and their habitat on lands administered by the USACE. CBNS lands were acquired for supporting the USACE navigational mission, and they continue to serve that primary purpose. As funds are available, the USACE supports conservation of WSP and their habitat by implementing these proven and appropriate land management actions, without sacrificing the USACE' navigation mission and mandate to maintain the north jetty.

Existing and proposed USACE conservation measures on USACE-administered lands include the following:

- Habitat management (restore and/or maintain suitable habitat)
- Human disturbance management (reduce human disturbance caused by public and administrative use activities). This can include public outreach, fencing, signage, law enforcement and compliance.
- Predator management (reduce WSP predation)
- Population and productivity monitoring

During SMP implementation, conditions may change that require adaptive actions not specifically described in this plan to be undertaken. As required as part of ESA consultation, the USACE will comply with any annual reporting requirements as part of the Biological Opinion (BiOp) for the SMP. The USACE will review this SMP every year at the time the annual compliance report is prepared. Any necessary adjustments based on information from annual reports and meetings will be coordinated with appropriate state and federal agencies and implemented on an as-needed basis.

This SMP identifies some activities, which are a priority to partner agencies, but the USACE has not historically implemented. Their inclusion in this SMP is an acknowledgement of the importance of WSP conservation and management to the USACE, but may require additional funding and/or approvals to undertake in the future. Fluctuations in funding can limit how much work can be completed annually on and around the USACE-managed HRAs. These management activities at the CBNS, mostly to support on-site actions, are anticipated to promote continued success of the WSP population at the CBNS. While availability of annual USACE funding is uncertain, review of annual ORBIC monitoring reports and close communication with other CBNS partners, and members of the WSP Working Group3, ensures that appropriate management activities continue.

5.1 HABITAT MANAGEMENT

Objective: The objective of this measure is to maintain the existing habitat to promote the existing and currently growing WSP population at the CBNS.

[3] The WSP Working Group includes agency representatives for one of six WSP recovery unit areas along the West Coast. This interagency team includes representatives from the Bureau of Land Management, U.S. Fish and Wildlife Service, Oregon Parks and Recreation, Oregon Department of Fish and Wildlife, U.S. Forest Service, U.S. Army Corps of Engineers, U.S. Department of Agriculture Wildlife Services, and the Institute of Natural Resources.

The stabilization of the CBNS through the construction of the north jetty and the introduction of European beachgrass has provided reliable access from the Pacific Ocean to Coos Bay and established a steeper foredune environment. Previous restoration and habitat maintenance actions to improve habitat for WSPs have consisted of European beachgrass and raptor perch removal, dune leveling, plowing and disking, saltwater irrigation, and placement of shell hash. Not all driftwood is detrimental as it can attract invertebrates, providing food for WSPs (Page et al. 1995) and provide protection from wind and sand. However, driftwood buildup can also result in obstacles to WSPs and perches for WSP predators (ICF International 2010). Even beachgrass and fence posts can provide raptor perches and may require removal and/or management to reduce predation. Continued habitat restoration and maintenance on the USACE-administered portions of the HRAs at the CBNS will be completed using these proven management techniques. Annual review of habitat condition and maintenance needs are coordinated and communicated with the WSP Working team.

Restoration and maintenance work primarily involves disking and/or plowing using a tractor with attached implements, but may also include any of the following methods: placement of dredged material, the spreading of shell hash, herbicide application, hand pulling, prescribed burning, bulldozing, ripping, and salt-water irrigation to remove beachgrass and leveling of dune height to open WSP habitat. The USACE will continue to coordinate with appropriate state and federal agencies on habitat management actions and ensure that these activities on USACE-administered lands only occur outside of the WSP breeding/nesting season (March 15 through September 15).

5.1.1 Disking, Plowing, Bulldozing

Disking and plowing are efficient and effective methods for reducing European beachgrass to a level tolerated by WSPs (Figure 5-1). These activities will continue on USACE-administered HRAs and the South Spoil area. The USACE will continue to disk and/or plow the HRAs twice a year on either side of the nesting season (spring and fall), which is based on WSP nesting distribution trends and the ability of European beachgrass to re-colonize previously treated areas. Since 2010, plowing and/or disking on USACE property was completed in 2011, 2012, and 2014; it was not completed in 2013 due to funding issues.

Bulldozing the HRA boundaries can also reduce vegetation that has altered the footprint of the sites. European beachgrass and American beachgrass (*Ammophila breviligulata*) can encroach into the HRAs, reducing their size. Bulldozing removes vegetation, but is not done to enlarge the existing HRAs beyond their original footprint. It is also an effective means of leveling or re-contouring areas that have built up when beachgrass captures wind-blown sand. In the past, bulldozing was carried out approximately every 5 to 10 years, but work could be done more frequently depending on the extent of beachgrass encroachment and habitat modification in any given year. The USACE will work with WSP Working Group representatives to visually assess beachgrass encroachment at the CBNS and determine the areas that need treatment annually. The USACE also has access to aerial photographs taken annually by the Oregon Coast National Wildlife Refuge Complex during breeding seabird colony surveys in early June. These photos could be used to better determine changes in encroachment over 5- to 10-year periods.

Figure 5-1. Typical Disking within HRAs (January 2015)

5.1.2 Shell Hash Placement

Quantities of a few hundred cubic yards of shell hash (depending on availability) have been placed within both the BLM and USACE-administered portions of the HRAs over the past years, following spring disking and plowing treatments (Figure 5-2). Shell hash is delivered by truck along Foredune Road to the different HRAs and a manure spreader is used to spread the shell hash.

Shell hash adds diversity to the contour and color patterns of the local surroundings. It may lessen beachgrass encroachment by inhibiting growth of the grass (BLM 2008), provide camouflage for eggs and chicks, and protection from wind and sand (Pearson et al. 2009). Coordination with appropriate WSP Working Group representatives will identify the optimal locations and be marked prior to placement. Shell hash is often stockpiled first, and then cleaned to remove rope, wire, and other debris in the fall; a tractor and a rear discharge manure spreader are used to haul and disperse the shell hash in the spring.

The USACE will continue to support this activity. Shell hash is difficult to obtain and cost prohibitive to obtain from local and non-local sources.

Figure 5-2. Typical Shell Hash Scattered within HRAs (January 2015)

5.1.3 Mobility Corridors

Clearing corridors into the berms along Foredune Road on the west end of the 1994 HRA and then through the foredune to the beach can improve the connectivity of the HRAs with the beach. This access is needed by the WSPs, especially the chicks (as they are unable to fly), which travel between the beach wrack line and the HRAs to breed, forage, and roost. There are 13 cuts/corridors in the foredune (seven on BLM land and six on USACE land) and 13 across Foredune Road (five on BLM land, eight on USACE land as of the 2014/2015 field season) (Figure 5-3), that are maintained annually during the non-breeding period, typically by hand (for beachgrass removal, Figure 5-4). Most of the corridors are about 9 feet wide. The corridors across Foredune Road are shorter, while those across the foredune itself can be up to 150 feet long, depending on grass width that year.

Across the foredune, the removal of the root system is avoided. Only hand pulling of the grass itself is conducted. Existing corridors do not appear to be jeopardizing the stability of the road or the CBNS, and the grass quickly repopulates the corridors within months. This reaffirms the importance of regular beachgrass removal to control vegetation within the corridors, which is especially important to maintain WSP access to the beach and minimize the ability of predators to use the grass as cover.

At Willapa Bay National Wildlife Refuge, there have been observations of increased predator activities within corridors (Elbert [USFWS] 2015, pers. comm. 2015). If corridors appear to be an attractant for predators at CBNS, that would be included annual reports and potentially subject to adaptive actions.

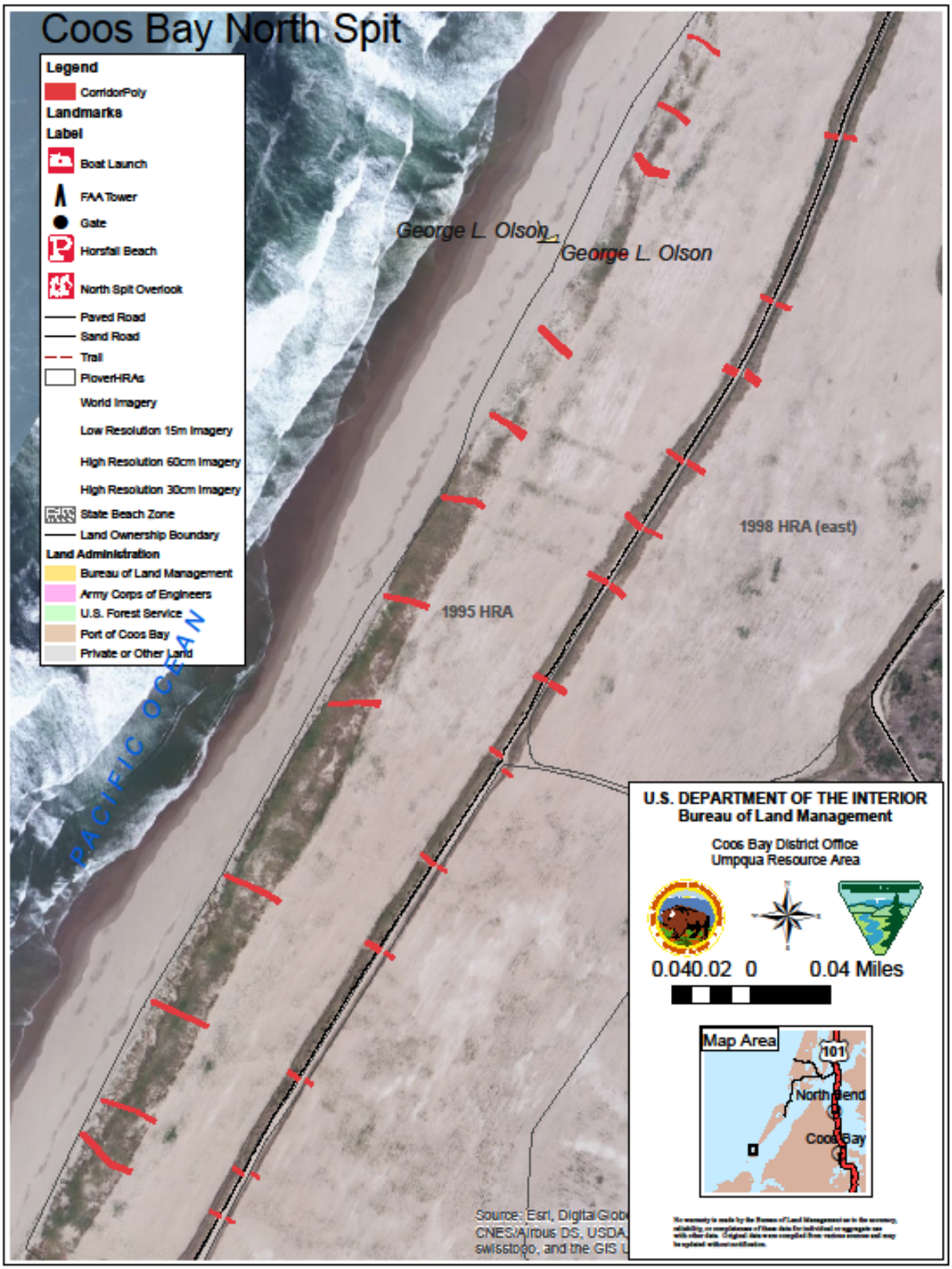

Figure 5-3. BLM Maintained WSP Corridors (Figure Source: BLM 2015)

Typical 6- to 8-foot wide corridor to the foredune

One of the wider corridors across Foredune Road (about 18 feet wide). Used for equipment access to the HRAs.

Figure 5-4. Typical Corridors Maintained for WSP Access to Beach

While WSP access to the beach, and improved beach habitat (with increase overwash), can be gained by removal of all of the beachgrass along the foredune and Foredune Road, this activity can jeopardize the stability of the CBNS. Additional corridors west of heavily used nesting areas in the HRAs may support further access for the WSPs and reduce predation rates, especially for the juvenile birds. The USACE may further investigate this idea through discussions with the USFWS, BLM and other partnering agencies. If a pilot test program were to be considered appropriate, the following could be discussed and studied:

- The potential for wider corridors (about 18 feet), especially across Foredune Road where juvenile WSPs often get lost, or are depredated, as they move to and from the beach, to provide improved access.
- Two new wide corridors at either end of the 1994 HRA. The installation and maintenance of two gates at these corridors may provide another barrier to the public and vehicles, while allowing WSPs to travel through/under the gate bars.
- New 6- to 8-foot-wide corridors across the foredune. If new corridors were to be installed, the USACE could install them on an angle to the beach.
- Weed whacking another few feet of the beachgrass on either side of selected corridors may help reduce predator cover and visual contact with the beach for the WSPs.

The USACE will continue to support the maintenance of the existing corridors, with the most cost effective and successful approach using volunteers and youth groups for hand removal of the grass. Northwest Youth Corps Crew is a volunteer group, which has been used in recent years, typically for about two to three weeks annually (J. Kirkland [BLM], pers. comm. 2015). The USACE will also work with the WSP working team to investigate new or modified corridors.

5.1.4 Fire/Burning

The BLM occasionally conducts prescribed burning to reduce European beachgrass and other non-native plant species on their lands at the CBNS. This activity also helps reduce predator

habitat along the HRA boundaries. The USACE will support this activity on USACE lands if deemed appropriate and recommended by CBNS land managers and USFWS. Pre-, during- and post-treatment BMPs will be developed and adhered to, as appropriate.

Prescribed burning will occur outside of the HRAs and outside of the breeding/nesting season on USACE-administered lands as part of vegetation removal activities. No more than up to 25 acres in any one year will be treated. In treating an area, an excavator and chainsaw crew and/or bulldozing equipment could be used to pull and cut vegetation.

The prescribed burn will use hand ignition torches to burn materials. Burning will continue to the point where materials are consumed or the area cleared. After burning is complete, any residuals (e.g. wood) will be scattered, buried, or used as vehicle deterrents for the HRAs.

5.1.5 Herbicides

Herbicides are not currently used to manage non-native vegetation at the CBNS. They may, however, be used in the future within or outside the HRAs. Herbicide will be applied to patches of European beachgrass within the USACE-administered HRAs with the objective of re-clearing areas suitable for WSP nesting activities. Application will be as follows:

- Application will follow approved industry herbicide guidelines, shared with CBNS land managers and may require ESA consultation with USFWS and NMFS prior to use. For example, BLM follows their Programmatic EIS Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007) and a Pesticide Use Proposal (PUP) prepared by the Coos Bay District and approved by the BLM's state office (PUP #2007-OR-120-1). These documents contain directions for herbicide use, including requirements to prepare environmental clearances for sensitive species prior to chemical applications and to conduct post-project monitoring to ascertain the achievement of project objectives.
- USACE employees, representatives, or contractors will adhere to specific label requirements pertaining to the preparation, application, and disposal of all chemicals.
- Herbicide implementation will involve spot-treatments which may include application via an ATV. Broadcast spraying will be avoided.
- Treatment will occur outside the breeding/nesting season (most likely in late September or October) and will be closely monitored. This restriction only applies to areas inside the HRAs.
- Proposed herbicide use near any wetlands on the CBNS will only implement those herbicides approved for use near these types of habitat. Treatment will not occur over surface water.
- Re-treatment could occur one to two years after the initial treatment depending upon vegetative response.

The USACE will coordinate with BLM and other CBNS managers and use the most appropriate herbicide available. For example, on the CBNS, the BLM has used the herbicide Accord, a glyphosate, applied with a backpack sprayer or a spot gun at a concentration of 4% along with the adjuvants Competitor or Syl-Tac (vegetable oil based surfactants) at 0.5% and 0.25%,

respectively, and 0.25% Bivert/Inplace (used to control chemical drift). Hi-Light blue dye at 0.25% with water added to the mix can help to mark treated areas. Treatments of up to 8% Accord in subsequent years are used depending on flashback growth observed after the initial application. Additional, pre-, during- and post-treatment BMPs will be developed and adhered to, as appropriate.

5.1.6 Gate and Fence Installation and Maintenance

Gate and fence installation and maintenance around portions of the HRAs is conducted on an as-needed basis. Fencing protects the HRAs from public access and use and is an especially valuable deterrent for vehicular access (Figure 5-5). Considerations include the cost to replace fencing and gates, the fact that sand on the CBNS can build up around the lower portions of the gates, and the vandalism that can occur (shooting around/at gates and fences) (J. Kirkland [BLM], pers. comm. 2015). The USACE will work to continue this effort when and if deemed necessary, through coordination with the WSP Working Group.

Figure 5-5. Typical Fencing at One of the HRAs along the Re-route Road

5.1.7 Habitat Nourishment/Material Placement

One of the most successful nesting areas on USACE land is the South Spoil area (Figure 2-1 and Figure 3-2). This could be because dredge material was placed in this area in the 1980s (Wilson-Jacobs and Dorsey 1985). The placement of a few feet of sand onto European beachgrass could

have led to less beachgrass growth in the area. One of the areas that has not yet been used by the WSPs for nesting is within the 1994 HRA just north of the South Spoil area. The placement of an appropriate quantity and type of sand material from nearby USACE dredging activities may help to eliminate beachgrass and improve the use of the area by WSP for nesting.

Dredge material placement has not occurred in decades and none is proposed at this time. However, the USACE will continue to investigate this option in communication and coordination with its HRA-managing partners (BLM and USFWS). No alternatives are currently under consideration. If dredged material placement were to be proposed to nourish an area within USACE-administered lands, separate environmental review and permitting will be completed. The USACE will coordinate with the WSP Working Group on any proposed future dredge material placement activity, and any eventual placement activity on USACE-administered lands will occur outside of the WSP breeding/nesting season (September 16 through March 14).

5.2 PUBLIC USE AND OTHER AGENCY ACTIVITIES

Objective: The objective of this measure is to promote and increase overall public visitor understanding and compliance with the laws at CBNS.
Many of the CBNS lands are managed by agencies that support recreational uses of the CBNS. However, the USACE mission does not include use of its land at CBNS for recreation. Nonetheless, the management actions by adjacent property owners/managers, such as the BLM and OPRD, can (and do) effectively support minimizing the impacts from public use on USACE lands simply due to the fact that public users must first pass through BLM and OPRD lands to access USACE lands. Individuals seeking to access USACE lands may encounter OPRD or BLM staffs that can provide information on WSP conservation needs, management concerns, and means to minimize impacts from the public use at the CBNS. The USACE will continue to support these activities on USACE-administered lands at the CBNS. These methods are discussed in more detail below.

5.2.1 Seasonal and Area Restrictions, Access, and Public Use

The USACE will continue to adhere to public access restrictions at the CBNS as described in FR 69 19220 (April 12, 2004):

- Public access to the HRAs is closed during the WSP breeding/nesting season, March 15 through September 15. Vehicles are prohibited in the HRAs year-round, except for the Foredune Road.
- During the remaining portions of the year (September 16 through March 14), the HRAs are open to non-vehicular recreational use, except for 1994 HRA and South Spoils area, which remain closed to public access year-round.
- Public access to the dry sand (above the mean high tide line to the foredune) on South Beach, between the FAA tower and a point about 200 yards north of the north jetty, is closed during the WSP breeding/nesting season, March 15 through September 15. This area and closure period is clearly marked.
- During the remaining portions of the year (September 16 through March 14), South Beach is open for recreational use, including street-legal motorized vehicles.

Access to the CBNS is as follows:

- Foredune Road, South Dike Road, and Bayside Road are open year-round to ATVs and street-legal vehicles excluding the 0.9-mile section of Foredune Road that bisects the HRAs during the breeding/nesting season (March 15 through September 15). Reroute Road also remains open year-round.
- Access to the wet sand portion of South Beach is by either South Dike Road, a sand road off the paved Trans-Pacific Lane, or from Foredune Road, a sand road that runs along the foredune on the interior of the Spit.

5.2.2 WSP Management Area Boundary Signs

Well-placed seasonal signs (Figure 5-6) inform users of areas closed to public access to help educate users from entering WSP habitat. These signs are placed at access points leading into the WSP areas and/or beach (Figure 5-7), such as when visitors enter BLM land or at some of the beach access points (Figure 1-1).

Signs at entrance to BLM land (left) and first public beach access point (right)

Sign at foredune in front of beach corridor

I-Beam sign at north end of South Beach	Sign on beach

Figure 5-6. Present Day Signs at the CBNS

Typically, these signs are placed in conjunction with symbolic fencing areas, although they are used in other areas around the perimeter of the HRAs as well. The USACE assists with appropriate state and federal agency coordination for sign deployment and maintenance. If signs are damaged or vandalized, or if new information is to be posted, the USACE will coordinate and work to repair or replace them. Two permanent steel I-beam signs placed by BLM but owned by OPRD are located at either end of South Beach (Figure 1-1, Figure 5-7). They have been designed to withstand the changing sand elevations of South Beach. Carsonite signs are placed along the CBNS roads seasonally; brown signs for the non-nesting season and red signs during nesting (Figure 5-6).

5.2.3 Symbolic Fencing

Symbolic fencing (consisting of one or two strands of light-weight string or cable tied between posts to delineate areas that should not be entered)is not intended as a permanent barrier; instead, it is used as a tool to inform visitors of important boundaries otherwise unseen. The fencing allows for unimpeded sand and WSP movement to and from nesting and foraging areas, while directing users away from WSP nesting habitat.

Historically, symbolic fencing is placed along South Beach (Figure 5-7), above the high tide line, to delineate the WSP closure area (the wet sand line is the actual closure line) from mid-May to September. Placement involves a crew of two to four people with two vehicles and materials (T-posts and rope). T-posts are driven into the beach at a spacing of about one every 50 to 75 feet. The fencing end caps (boundary perpendicular to the Ocean Shore) are installed at either edge of South Beach just prior to March 15. The remainder of the area, along the length of the beach from the north and south end caps, is roped and signed prior to Memorial Day weekend. This step-approach is necessary due to the seasonal high tides in March (the water is still too high to practically install the remaining ropes and signs using this methodology). These ropes and signs are subsequently moved farther oceanward later in the season as the sand builds (tides are lower), in an attempt to close off as much of the restricted “dry sand” portion of the beach as possible. Only the wet sand is open for limited public access during the WSP breeding/nesting season. All of the fencing is removed after 15 September.

An additional approach to fencing may be used as follows to provide additional flexibility. Using a 4-person crew and tractor/auger combination staff install signage at the 8-foot tide line. These 20-foot signs are buried 10 feet into the sand. Since the signs are installed at the 8-foot tide line, they are overwashed early in the season during storm events and high spring tides, but remain in place. As the season progresses, they do not need to be moved to protect dry sand and plover nesting habitat. They are only removed at the end of the season. This strategy greatly reduces the amount of staff and time spent installing symbolic fencing over the course of the breeding season.

Figure 5-7. Symbolic Fencing (2014) Defines Beach Nesting Areas (the brown sign is no longer used)

5.2.4 Interpretive Signage

Interpretive signs and kiosks (Figure 5-8) located throughout the CBNS help to inform the public as to why the WSP areas are closed to public access and to potentially reduce the likelihood of encroachment into WSP habitat. Signs and maps include information on current WSP conservation efforts, the success of conservation efforts, and on how to reduce impact to WSP habitats. The signs provide alternative areas for public use that are otherwise restricted within or adjacent to WSP areas, and outline the importance of observing these restrictions.

Present-day signage is posted at the entrances to sand roads, trails, and public beach access points. The information on these signs is updated when necessary. The USACE will continue to coordinate with the WSP Working Group to determine if additional interpretive signage could and should be placed on USACE property.

Figure 5-8. Interpretive Signage Installed by BLM

5.2.5 Public Outreach and Education

The Coos Bay District BLM conducts public outreach throughout the WSP breeding season, which likely benefits the USACE as well, by informing the public of the area restrictions with in-person presence before the public arrives on USACE lands (before the busy summer season).

The USACE maintains an active link on their internet site (http://www.nwp.usace.army.mil/Locations/OregonCoast/CoosBay.aspx) stating that there are no recreational facilities associated with the Coos Bay jetties; however, the CBNS continues to be a popular area for public use.

The USACE recognizes the importance of having additional temporary (i.e., seasonal) employees at the CBNS. BLM has observed and recorded the importance of recreation compliance on BLM-managed land and noted the importance of monitors establishing positive relationships with the recreating public (Kirkland and Bloch 2014). The USACE will identify opportunities to support temporary/seasonal personnel out at the CBNS.

5.2.6 Disturbance Management

The USACE does not have law enforcement or park ranger staff in the Coos Bay area. The Coos Bay District BLM contracts with the Coos County Sheriff's Department to assist the BLM in law enforcement efforts on BLM-administered lands, adjacent to USACE-administered lands.

The USACE will support an increased effort in disturbance management on USACE-administered lands by funding and/or hiring an entity/representative to further support existing disturbance management activities on the CBNS. This effort will be in the form of supporting increased public outreach (providing on-site USACE-staff) or law enforcement staff (contracting with law enforcement official approved by USFWS on the CBNS). USFWS may assist USACE in developing a law enforcement plan.

5.3 PREDATOR MANAGEMENT

Objective: Prevent routine predation from target species and individuals that exhibit focused attention towards WSP as determined by the Predator Management Subcommittee.
Reduction of predation rates on WSP eggs, chicks, and adults is an important objective for WSP conservation. Predator Management Environmental Assessments (EAs) have described in detail the different methods that can be used for this effort (USFWS, BLM, and USFS 2002 and 2004).

The USACE will only engage in predator management activities as detailed in *Predator Management to Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover, Oregon* (USFWS, BLM, and USFS 2002) *and Reanalysis of Raven Removal for the Environmental Assessment Predator Management to Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover, Oregon* (USFWS, BLM, and USFS 2004). Predator management activities will include physical exclusion, wildlife management, frightening devices, pyrotechnics, propane exploders, scarecrows, flagging, bioacoustics, chemical repellents, and aversion agents. Examples of non-lethal and lethal management tools are provided in Tables 5-1 and 5-2 (these tools can change annually); however, these tools are updated annually in the predator management action plan.

As part of the WSP Working Group (agency representatives for one of the six WSP recovery unit areas along the West Coast), and Predator Management Subcommittee, the USACE will review predator management actions annually. The USACE will rely on recommendations of the Predator Management Subcommittee for future guidance and direction.

Table 5-1. Non-lethal Methods of Predator Management (Table Source: USFWS, BLM, USFS 2002)

Control Method	Fox (red/gray)	Raccoon	Skunk (striped /spotted)	Oposs-um	Feral Cat	Mink/ Weasel	Coyote	Mice/ Rats	Ravens[5] / Crows	Gulls	Raptors
Electric wired perches									X	X	X
Plover nest exclosures	X	X	X	X	X	X	X	X	X	X	X
Education re: feral cat management					X						
Trash mgmt./clean-up	X	X	X	X	X	X	X	X	X	X	X
Methiocarb (egg bait)[1]									X	X	
Hazing -pyrotechnics, exploders									X	X	X
Distress alarm calls							X	X	X	X	X
Patrolling, visual or auditory effigies									X	X	X
Live trap and Relocation[2]	X	X	X	X	X	X	X	X	X	X	X

Table 5-2. Lethal Methods of Predator Management (Table Source: USFWS, BLM, USFS 2002)

Control Method	Fox (red/gray)	Raccoon	Skunk (striped /spotted)	Oposs-um	Feral cat	Mink/ Weasel	Coyote	Mice/ Rats	Ravens[5]/ Crows	Gulls	Raptors
Leg-hold traps	X	X	X	X	X	X	X		X	X	X
Snap traps								X			
Cage traps (and euthanasia)	X	X	X	X	X	X					
Neck/body snares	X	X	X	X	X		X				
Foot snares	X	X									X
Destroy nests or eggs, or egg oiling									X	X	
DRC-1339 (avicide)									X	X	
Zinc phosphide								X			
Shooting	X	X	X	X	X	X	X	X	X	X	X[4]

1. These are conditioning agents that make birds sick resulting in their avoidance of areas with treated baits.
2. Feral cats may be live trapped and transported to nearby animal shelters for adoption or euthanasia. Relocation of other species must be approved by ODFW. ODFW does not generally favor relocation because it does not consider relocation to be humane, and because of concerns with parasites/disease. Relocation of raptors is a viable option that will be considered as a non-lethal option. Raptors may be live trapped with leg-hold traps or foot snares.
3. Non-lethal damage management measures will always be attempted on raptors found to be a threat to WSPs. Lethal methods will only be used on raptors when or if non-lethal methods are used and found to be ineffective, and they will not be used on special status raptors such as the peregrine falcon.
4. Lethal control of raptors will not be used until non-lethal methods have been used and found to be ineffective in removing the threat to WSPs.
5. Ravens protected under the Migratory Bird Treaty Act. Can only be taken by USFWS permit. Estimated that up to 300 ravens could be removed annually to protect WSPs (USFWS, BLM, USFS 2004).

5.4 POPULATION MONITORING AND METRICS

Objective: The objective of this measure is to monitor the WSP population at CBNS.
WSP monitoring at the CBNS will continue by ORBIC with cooperation by the WSP Working Group. This includes breeding surveys, winter surveys, and nest productivity monitoring. However, a sampling protocol is being developed and may be used in the future. ORBIC monitors South Beach, between the north jetty and the FAA towers, along with the four HRAs and the South Spoil area.

The proposed monitoring methods and techniques are described in the 2014 BiOp for ESA Section 10(a)(1)(A) permits and Section 6 funding associated with WSP monitoring activities (Section 1, Description of the Proposed Action; USFWS 2014). These methods and techniques are included for reference in Appendix B of this SMP (Lauten et al. 2014b). The USACE will review the ORBIC monitoring reports annually in coordination with other partnering agencies.

6 REPORTING AND COMMUNICATION

Annual reporting by the USACE is anticipated to include a description of the WSP management activities taken during the calendar year and the results of WSP monitoring by ORBIC. Annual reports will evaluate the effectiveness of management activities in (1) reducing potential loss of nests, nesting plovers, or impacts on foraging and resting plovers and broods that result from human disturbance or predation, and (2) maintaining snowy plover productivity at nesting areas.

Immediate reporting will occur in cases of disturbed nests or individual mortality. If a dead, injured, or sick endangered or threatened species is located, including crushed or vandalized nests, initial notification will be made to:

USFWS, Division of Law Enforcement
9025 S.W. Hillman Court, Suite 3134
Wilsonville, Oregon 97070
Phone: (503) 682-6171

Subsequent notification will also be made to:

USFWS Newport Field Office
2127 S.E. Marine Science Drive
Newport, Oregon 97365
Phone: (541) 867-4558

Following those two initial reports, the WSP Working Group will also receive notification. Current WSP Working Group contacts are listed in Table 6-1. These will no doubt change over time and require updating.

Table 6-1. Key Contacts for WSP at the CBNS as of 2015

Agency	Individual*	Phone*	Email*
USACE, Portland	Katharine Groth *Project Manager for USACE property on the Coos Bay North Spit*	(541) 269-2556	Katharine.C.Groth@usace.army.mil
USACE, Portland	Patricia Clinton *Environmental Resources Specialist*	(541) 461-2868	Patricia.L.Clinton@usace.army.mil
BLM, Coos Bay	Jennifer Kirkland *Wildlife Biologist*	(541) 751-4389	jkirkland@blm.gov
BLM, Coos Bay	Carol Aron *Wildlife Biologist*	(541) 751-4376	caron@blm.gov
USFWS, Newport	Daniel Elbert *Fish and Wildlife Biologist Endangered Species*	(541) 867-4558	daniel_elbert@fws.gov
USFWS, Newport	Laura Todd *Field Supervisor*	(541) 867-4550	laura_todd@fws.gov
OPRD	Calum Stevenson *Ocean Shore Natural Resource Specialist*	(541) 888-9324	Calum.Stevenson@oregon.gov
OPRD	Vanessa Blackstone *Wildlife Biologist*	(503) 383-5012	vanessa.blackstone@oregon.gov
ODFW	Stuart Love *Wildlife Biologist*	(541) 888-5515	stuart.l.love@state.or.us

* Contact Agencies will remain the same, individuals and contact information may change.

7 REFERENCES

Arneson, R. J. 1976. Seasonal Variations in Tidal Dynamics, Water Quality, and Sediments in the Coos Bay Estuary (Master's Thesis). Retrieved from OSU Scholars Archive.

Baudains, T. P. and Lloyd, P. 2007. Habituation and habitat changes can moderate the impacts of human disturbance on shorebird breeding performance. Animal Conservation 10:400-407.

Beckham, S. D. 2000. Coos Bay North Spit: Historical Investigations of federal activities in coastal Oregon. Unpublished report submitted to Coos Bay District Office, Bureau of Land Management. North Bend, OR

Boyd, R. L. 1972. Breeding biology of the Snowy Plover at Cheyenne Bottoms Waterfowl Management Area, Barton County, Kansas. Master's Thesis. Emporia State University. Emporia, KS.

Burrell, M., Perdue, Z., and Bell, M. 2014. Integrated Predator Damage Management Report for the Western Snowy Plover (*Charadrius nivosus nivosus*) 2014 Breeding Season at Baker/Sutton, Siltcoos, Overlook, Tahkenitch, Tenmile, Coos Bay North Spit, Bandon State Natural Area, and New River Area of Critical Environmental Concern.

Case, G. B. 1983. The History of the Port of Coos Bay, 1852 – 1952. Thesis Presented to Graduate School of Pan American University, Edinburg, TX.

Castelein, K. A., Lauten, D. J., Pixley, S. R., Renan, L. N., Stern, M. A., and Grinnell, C. 2002. The distribution and reproductive success of the Western Snowy Plover along the Oregon Coast - 2002. Unpublished report for the Oregon Department of Fish and Wildlife – Nongame Program, Portland, the Coos Bay District Bureau of Land Management, Coos Bay, and the Dunes Recreational Area, Reedsport.

Castelein, K. A., Lauten, D. J., Renan, L. N., Pixley, S. R., and Stern, M. A. 2001. The distribution and reproductive success of the Western Snowy Plover along the Oregon Coast - 2001. Unpublished report for the Oregon Department of Fish and Wildlife – Nongame Program, Portland, the Coos Bay District Bureau of Land Management, Coos Bay, and the Dunes Recreational Area, Reedsport.

Colwell, M. A., Hurley, S. J., Hall, T. N., and Dinsmore, S. J. 2007. "Age-related survival and behavior of Snowy Plover chicks." Condor 109: 638-647.

Dowling, B. and M.A. Weston. 1999. Managing a breeding population of the hooded plover *Thinornis rubricollis* in a high-use recreational environment. Bird Conservation International 9: 253-270.

Elbert, D. 2015. U.S. Fish and Wildlife Service. Personal communication between Fish and Wildlife Biologist (Newport Field Office) Dan Elbert and Patricia Clinton, U.S. Army Corps of Engineers, Portland, OR District.

Fahy, K. A., Woodhouse, C.D., 1995. 1995 Snowy Plover Linear Restriction Monitoring Project: Vandenberg Air Force Base. Report prepared for Natural Resources, Vandenberg Air Force Base (Project No. 0S005097).

Faillace, C. A. 2010. Breeding snowy plovers (*Charadrius alexandrinus*) exhibit variable response to human disturbance on two islands in southwest Florida. M. Sc. Thesis, Rutgers, the State University of New Jersey, New Brunswick, NJ.

Flemming, S. P., Chiasson, R. D., Smith, P. C., Austin-Smith, P. J., and Bancroft, R. P. 1988. Piping plover status in Nova Scotia related to its reproductive and behavioral response to human disturbance. Journal of Field Ornithology 59:321-330.

Hays, J. R. and Moritz, H. R. 2003. Evolution of Sediment Issues at Coos Bay, Oregon. US Army Corps of Engineers, Portland District.

Hickey, B. and Banas, N. S. 2003. Oceanography of the U.S. Pacific Northwest coastal ocean and estuaries with application to coastal ecology. Estuaries 26 (4), 1010–1031.

Hickner, J. 2013. Email correspondence between Juna Hickner, Department of Land Conservation and Development, and Greg Smith, U.S. Army Corps of Engineers, Portland District. February 28.

ICF International (ICF). 2010. Habitat Conservation Plan for the Western Snowy Plover. August. (ICF 06537.06.) Portland, OR. Prepared for Oregon Parks and Recreation Department.

Kirkland, J. 2015. U.S. Bureau of Land Management (BLM), Coos Bay, OR District. Personal Communication between BLM Biologist Jennifer Kirkland and Margaret Schwertner, Moffatt & Nichol. January 7.

Kirkland, J. and Bloch, T. 2014. 2013 Annual Report of Plover Management on the Coos Bay North Spit. Including Visitor Use Management and Education, Law Enforcement, Habitat Maintenance/Restoration Activities to protect the Western Snowy Plover on the North Spit of Coos Bay.

Lafferty, K. D. 2001a. Disturbance to wintering western snowy plovers. Biological Conservation 101:315-325.

Lafferty, K.D., 2001b. Birds at a Southern California beach: seasonality, habitat use and disturbance by human activity. Biodiversity and Conservation 10, 1–14.

Lauten, D. J., Castelein, K. A., Farrar, J. D., Kotaich, A. A., and Gaines, E. P. 2014a. The Distribution and Reproductive Success of the Western Snowy Plover Along the Oregon Coast – 2014. Unpublished report for the Coos Bay District Bureau of Land Management, the Siuslaw National Forest, the U.S. Fish and Wildlife Service, and the Oregon Department of Fish and Wildlife. The Oregon Biodiversity Information Center (ORBIC). Institute for Natural Resources. Portland State University/INR. December.

Lauten, D. J., Castelein, K. A., Farrar, J. D., Breyer, M. F., and Gaines, E. P. 2014b. The Distribution and Reproductive Success of the Western Snowy Plover Along the Oregon Coast – 2013. Unpublished report for the Coos Bay District Bureau of Land Management, the Siuslaw National Forest, the U.S. Fish and Wildlife Service, and the Oregon Department of Fish and Wildlife. The Oregon Biodiversity Information Center (ORBIC). Institute for Natural Resources. Portland State University/INR. March 28.

Lauten, D. J., Castelein, K. A., Seckinger, E., and Gaines, E. P. 2006a. The Distribution and Reproductive Success of the Western Snowy Plover Along the Oregon Coast – 2005. Unpublished report for the Oregon Department of Fish and Wildlife – Nongame Program, Portland, the Coos Bay District Bureau of Land Management, Coos Bay, and the Dunes Recreational Area, Reedsport.

Lauten, D. J., Castelein, K. A., Weston, S., Eucken, K., and Gaines, E. P. 2006b. The Distribution and Reproductive Success of the Western Snowy Plover Along the Oregon Coast – 2006. Unpublished report for the Oregon Department of Fish and Wildlife – Nongame Program, Portland, the Coos Bay District Bureau of Land Management, Coos Bay, and the Dunes Recreational Area, Reedsport.

Lord A., Waas J. R. and Innes J. 1997. Effects of human activity on the behaviour of Northern New Zealand dotterel *Charadrius obscurus aquilonius* chicks. Biol. Conserv. 82: 15–20.

Muir, J. J., and M. A. Colwell. 2010. Snowy plovers select open habitats for courtship scrapes and nests. Condor. 112: 507-510.

Oregon Biodiversity Information Center (ORBIC). 2015. Raw Nesting and Productivity Data for Coos Bay North Spit, Coos County, Oregon. Received from Eleanor Gaines of ORBIC on June 10, 2015.

Oregon Parks and Recreation Department (OPRD). 2013. Ensuring Oregon's Outdoor Legacy – 2013-2017 Statewide Comprehensive Outdoor Recreation Plan (SCORP). July.

Page, G. W., Warriner, J. S., Warriner, J. C., and Halbeisen, R. M. 1977. Status of the snowy plover on the northern California coast. Part I: Reproductive timing and success. California Department of Fish and Game Nongame Wildlife Investigations, Sacramento, CA.

Page, G. W., Stenzel, L. E., Shuford, W. D., and Bruce, C. R. 1991. Distribution and abundance of the snowy plover on its western North American breeding grounds. J. Field Ornithol. 62: 245-255.

Page, G. W., Warriner, J. S., Warriner, J. C., and Paton, P. W. C. 1995. Snowy Plover (*Charadrius alexandrinus*) in The Birds of North America, No. 154 (A. Poole and F. Gill, eds.).

The Academy of Natural Sciences, Philadelphia, PA and the American Ornithologists' Union, Washington, D.C. 24 pp.

Page, G. W., Stenzel, L. E., Page, G. W., Warriner, J. S., Warriner, J. C., and Paton, P. W. 2009. Snowy Plover (*Charadrius alexandrinus*), in The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds .cornell.edu/bna/species/154

Pearson, S. F., Sundstrom, C., Hoenes, B., and Ritchie, W. 2015. Washington State Snowy Plover Population Monitoring, Research, and Management: 2014 Nesting Season Research Progress Report. Washington Department of Fish and Wildlife, Wildlife Science Division, Olympia.

Pearson, S. F., Sundstrom, C., Ritchie, W., and Gunther, K. 2009. Washington State Snowy Plover Population Monitoring, Research, and Management. 2009 Nesting Season Research Progress Report. Washington Department of Fish and Wildlife, Wildlife Science Division, Olympia, Washington.

Pickart, A. J. 1997. Control of European beachgrass (Ammophila arenaria) on the west coast of the United States. Proceedings, 1997, California Exotic Plant Council Annual Meeting, Concord, CA. 13 pp.

Robinson, C. W. 2008. Western snowy plover use of managed salt ponds at Eden Landing, Hayward, CA. M.S. Thesis, San Jose State University. 71pp.

Ruhlen, T. D., Abbott, S., Stenzel, L. E., and Page, G. W. 2003. Evidence that human disturbance reduces Snowy Plover chick survival. J. Field Ornithol. 74: 300–304.

Shelby, B. and Tokarczyk, J. 2002. Oregon Shore Recreational Use Study. Prepared for the Oregon Parks and Recreation Department. 130 pp.

U.S. Army Corps of Engineers (USACE). 2012. Coos Bay Jetties Preliminary Major Maintenance Report. Prepared for U.S. Army USACE of Engineers, Portland District by Moffatt & Nichol. July.

———. 2008. Coos Bay North Jetty Interim repair Final Environmental Assessment. U.S. Army Corps of Engineers, Portland District. July.

U.S. Bureau of Land Management (BLM). 2015. Coos Bay North Spit Western Snowy Plover Mobility Corridor Map. Umpqua Field Office, Coos Bay District.

———. 2008. Documentation of NEPA Adequacy Worksheet. 2009 North Spit shell hash placement/Western snowy plover nesting habitat improvement. Document Tracking No. DOI-BLM-OR-C030-2009-0009-DNA. Document dated March 2008; Signature dated June 2009.

———. 2007. Final Programmatic Environmental Impact Statement Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States. June 29.

U.S. Department of Agriculture (USDA) Siuslaw National Forest, U.S. Department of the Interior (USDI) Fish and Wildlife Service (USFWS) - Region 1, and USDI Bureau of Land Management (BLM) - Coos Bay District. 2002. Predator Damage Management to Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover. Prepared by USDA, APHIS, Wildlife Services Program and the Siuslaw National Forest, USDI, Fish and Wildlife Service and Bureau of Land Management, and in cooperation with the Oregon Department of Fish and Wildlife, and Oregon Parks and Recreation Department. Portland, Oregon.

U.S. Fish and Wildlife Service (USFWS). 2014. Snowy Plover Predator Management. Available at http://www.fws.gov/oregonfwo/FieldOffices/Newport/WesternSnowyPlover/PredatorManagement.ap on October 29.

———. 2007. Recovery Plan for the Pacific Coast Population of the Western Snowy Plover (Charadrius alexandrinus nivosus). In 2 volumes. Sacramento, California. xiv + 751 pages.

———. 2001. Western Snowy Plover (Charadrius alexandrinus nivosus) Pacific Coast Population Draft Recovery Plan. Portland, Oregon.

———. 1998. Western snowy plover (Charadrius alexandrinus nivosus) Pacific coast population draft recovery plan. Region 1, USFWS, Portland, Oregon.

———. 1995. Endangered and threatened wildlife and plants; proposed designation of critical habitat for the Pacific Coast population of the Western Snowy Plover. Federal Register, Department of the Interior, 50 CFR Part 17:11763-11809.

U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM), and U.S. Forest Service. 2004. Reanalysis of Raven Removal Environmental Assessment for Predator Management to Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover, Oregon.

———. 2002. Environmental Assessment, Predator Damage Management to Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover, Oregon

Vander Heyden, M. 2007. Biological Assessment of the Bureau of Land Management's North Spit Plan as it may affect the Threatened Western Snowy Plover and its Critical Habitat. Bureau of Land Management, Coos Bay District.

Weston MA, Elgar MA. Responses of incubating hooded plovers (*Thinornis rubricollis*) to disturbance. J. Coast. Res. 2007;23: 569–576.

Wiedemann, A. M., and Pickart, A. 1996. The Anitnophila problem on the northwest coast of North America. Landscape and Urban Planning. 34: 287-299.

Wilson, R. A. 1980. Snowy Plover Nesting Ecology on the Oregon Coast. MSc. Thesis. Oregon State University, Corvalis, OR. 41 pp.

Wilson-Jacobs, R, G. L. Dorsey. 1985. Snowy plover use of Coos Bay North Spit, Oregon. Murrelet. 66: 75-81.

Yalden, P. E. and D. W. Yalden. 1990. Recreational disturbance of breeding Golden Plovers *Pluvialis apricarius*. Biological Conservation 51: 243–262.

Zarnetske, P. L., Seabloom, P. L., and Hacker, S. D. 2010. Non-target effects of invasive species management: beachgrass, birds, and bulldozers in coastal dunes. Ecosphere. 1(5): 1-20.

Appendix A

Interagency MOU 11-MU-11061200-001
Memorandum of Understanding between Fish and Wildlife Service, Oregon Parks and Recreation Department, Oregon Department of Fish and Wildlife, Bureau of Land Management (Coos Bay District), Forest Service (Siuslaw National Forest) and U.S. Army Corps of Engineers

MEMORANDUM OF UNDERSTANDING
BETWEEN
FISH AND WILDLIFE SERVICE
OREGON PARKS AND RECREATION DEPARTMENT
OREGON DEPARTMENT OF FISH AND WILDLIFE
BUREAU OF LAND MANAGEMENT, COOS BAY DISTRICT
FOREST SERVICE, SIUSLAW NATIONAL FOREST
AND
U.S. ARMY CORPS OF ENGINEERS

This MEMORANDUM OF UNDERSTANDING (MOU) is hereby made and entered into by and between the Fish And Wildlife Service (FWS), Oregon Parks and Recreation Department (OPRD), Oregon Department of Fish and Wildlife (ODFW); Coos Bay District Bureau of Land Management (BLM), and United States Department of Agriculture Forest Service, Siuslaw National Forest, (USFS) and U.S. Army Corps of Engineers (Corps) collectively referred to as "parties."

A. PURPOSE:

The purpose of this MOU is to provide a framework for cooperation and achievement of mutual goals among the participating State and Federal agencies regarding conservation of the Western Snowy Plover (WSP). The goals of the participants in this MOU are to:

1. To collectively support each party's accomplishment of their individual Endangered Species Act responsibilities and objectives, including:
   a. Coordinate the implementation of OPRD's HCP;
   b. Provide a framework for the BLM, USFS, and Corps to meet their section 7(a)(1) and 7(a)(2) responsibilities; and
   c. Ensure coordination between all parties to promote recovery of the western snowy plover.

2. To ensure coordination between the parties in the implementation of each of the terms of the OPRD Habitat Conservation Plan for the Western Snowy Plover (HCP).

B. STATEMENT OF MUTUAL BENEFIT AND INTERESTS:

The parties are committed to conserving western snowy plovers and their habitat on the Oregon Coast while providing coastal recreational opportunities which help to improve the quality of life and healthy interaction with the natural environment. Plovers occur and are dependent on a healthy coastal ecosystem. The Parties are the primary stewards for plovers and plover habitat on Oregon's beaches and are committed to cooperative management of the natural and recreational resource.

Plover habitat is divided by ownership and management responsibility, and their daily activities require plovers to move among land ownerships multiple times during a day. The dynamics of tides, storm surges, wind, sand movement and dune stabilization combined with a dynamic metes

and bounds landline (mean high tide), makes identification of management boundaries are difficult to determine on the ocean shore.

Federal agencies have been individually managing plover nesting areas and nesting and wintering habitat for decades. Each agency is individually responsible for ensuring compliance with section 7 of the Endangered Species Act of 1973, as amended (ESA) and have worked together to accomplish conservation goals for the plover.

OPRD is responsible for management of Oregon's Ocean Shore, including management of recreation. In addition, OPRD owns several locations that support or have the potential to support plovers. In order to ensure compliance with section 10 of the ESA, they have developed a HCP to obtain an incidental take permit for take associated with activities that impact plovers and occur on lands under their jurisdiction. The covered lands in this HCP are adjacent to lands managed by BLM, USFS, and Corps, and the covered activities and conservation measures will have an effect on the management of these adjacent lands.

FWS is the agency primarily responsible for administering and ensuring compliance with a variety of the ESA requirements. In addition, FWS plans and monitors the status and recovery of the plover across its range.

ODFW is responsible for providing accurate technical information and expertise to Oregon agencies and has a responsibility for cooperation under section 6 of the ESA. As the primary wildlife management agency in the State of Oregon, their commitment and cooperation in the conservation of imperiled state resources is essential. ODFW also has responsibilities arising under the Oregon Endangered Species Act, under which the snowy plover is listed as threatened.

Successful protection and recovery of snowy plovers requires a unified and consistent approach to management by all agencies with responsibility for western snowy plover conservation. To encourage public participation and compliance with protection measures, coordination between all parties is vital to implement effective and consistent resource management. This memorandum of understanding provides a framework for the needed coordination and will benefit each of the parties by clearly establishing roles and responsibilities, and helping them achieve these mutual interests.

C. DEFINITIONS

The following terms as used in this MOU will have the meanings set forth below:

1. Terms defined in ESA. Terms used in this MOU and specifically defined in the ESA, or in regulations adopted by the Service under the ESA, have the same meaning as in the ESA and those implementing regulations, unless this MOU expressly provides otherwise.

2. "HCP" means the Habitat Conservation Plan for Western Snowy Plovers prepared by OPRD.

3. "Listed species" means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is listed as endangered or threatened under the ESA.

4. "Parties" collectively mean the OPRD, ODFW, FWS, BLM, USFS, and Corps.

5. "Permit" means the incidental take permit issued by the Service to OPRD pursuant to Section 10(a)(1)(B) of the ESA for take incidental to the covered activities on Oregon's ocean shore, as it may be amended from time to time.

6. "Recreation Management Area (RMA)" all sites identified, in the HCP, as plover sites that are owned by entities other than OPRD. OPRD manages recreation on the Ocean Shore in these areas.

7. "Site Management Plans" will address the general management, recreation use, and plover management, as described for RMAs in section 5.3.1 of the HCP. Site management plans will consist of land management plans or other similar documents, provided they contain the information described in Attachment 1.

8. "Snowy Plover Management Areas (SPMA)" consist of the five sites that are owned or leased by OPRD and are either occupied by plovers or targeted for future plover management.

D. ALL PARTIES SHALL

1. Cooperatively manage RMAs and/or SPMAs in a manner that is consistent with the HCP, as described in individual site management plans.

2. Seek and share information in the development of site management plans and share completed documents.

3. Meet annually, within 45 days of the close of the plover nesting season, to coordinate activities regarding plovers with the parties to this MOU.

E. FISH AND WILDLIFE SERVICE SHALL:

1. Fulfill the obligations described in the HCP and its implementing agreement.

2. Cooperate with parties to provide technical assistance regarding plover conservation as needed.

3. Work with USFS and BLM to formalize the "Streamlined Consultation Procedures for Section 7 of the Endangered Species Act" (Attachment 2) for future plover consultations by December 2011.

4. Coordinate annual surveys of wintering and nesting plovers.

F. OREGON PARKS AND RECREATION DEPARTMENT SHALL:

1. Fully and faithfully perform all obligations assigned to it under this MOU, the permit, and the HCP.

2. Provide copies of their annual report, required as a condition of the HCP, to all parties.

G. OREGON DEPARTMENT OF FISH AND WILDLIFE SHALL:

1. Fulfill the obligations described in the HCP and its implementing agreement.

2. Cooperate with parties to provide technical assistance regarding plover conservation as needed.

3. To the extent allowed by the Oregon Public Records Law, provide relevant data, information, reports, or publications regarding plover biology and conservation when available.

4. Provide relevant data, information, reports, or publications regarding plover conservation when available.

H. BLM SHALL:

1. Be responsible for all regulatory compliance on Federal lands administered by BLM.

2. Prepare site management plans for all BLM-managed, occupied RMAs, consistent with the HCP.

3. Work with USFS and FWS to formalize the "Streamlined Consultation Procedures for Section 7 of the Endangered Species Act" (Attachment 2) for future plover consultations by December 2011.

I. USFS SHALL:

1. Be responsible for all regulatory compliance on Federal lands administered by USFS.

2. Will prepare site management plans for all USFS-managed, occupied RMAs, consistent with the HCP.

3. Work with BLM and FWS to formalize the "Streamlined Consultation Procedures for Section 7 of the Endangered Species Act" (Attachment 2) for future plover consultations by December 2011.

J. CORPS OF ENGINEERS SHALL:

1. Be responsible for all regulatory compliance on Federal lands administered by the Corps.

2. Prepare, subject to the availability of funds, site management plans for all Corps-managed, occupied RMAs, consistent with the HCP.

3. Pursue involvement in the USFS/BLM/FWS team established to formalize the "Streamlined Consultation Procedures for Section 7 of the Endangered Species Act" (Attachment 2) for future plover consultations by December 2011.

K. IT IS MUTUALLY UNDERSTOOD AND AGREED BY AND BETWEEN THE PARTIES THAT:

1. FREEDOM OF INFORMATION ACT (FOIA). Any information furnished to the Federal agencies under this instrument is subject to the Freedom of Information Act (5 U.S.C. 552).

2. OREGON PUBLIC RECORDS LAW. Any information furnished to the State agencies under this instrument is subject to the Oregon Public Records Law (ORS 192) unless inapplicable in a matter of federal law.

3. PARTICIPATION IN SIMILAR ACTIVITIES. This instrument in no way restricts the parties to this MOU from participating in similar activities with other public or private agencies, organizations, and individuals.

4. COMMENCEMENT/EXPIRATION/TERMINATION. This MOU takes effect upon the signature of the USFS, BLM, Corps, FWS, ODFW and OPRD and shall remain in effect for 5 years from the date of execution. This MOU may be extended or amended upon written request of any party and the subsequent written concurrence of the other(s). Any party may terminate this MOU with a 60-day written notice to the other(s).

5. RESPONSIBILITIES OF PARTIES. Each party will handle their own activities and utilize their own resources, including the expenditure of their own funds, in pursuing these objectives. Each party will carry out its separate activities in a coordinated and mutually beneficial manner.

6. PRINCIPAL CONTACTS. The principal contacts for this instrument are:

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7. NON-LIABILITY. The parties to this agreement do not assume liability for any third party claims for damages arising out of this instrument.

8. ENDORSEMENT. Any one party's contributions made under this MOU do not by direct reference or implication convey any of the other party's endorsement of their products or activities.

9. NON-FUND OBLIGATING DOCUMENT. Nothing in this MOU shall obligate any party to obligate or transfer any funds. Specific work projects or activities that involve the transfer of funds, services, or property among the various agencies and offices of the parties will require execution of separate agreements and be contingent upon the availability of appropriated funds. Such activities must be independently authorized by appropriate statutory authority. This MOU does not provide such authority. Negotiation, execution, and administration of each such agreement must comply with all applicable statutes and regulations.

10. ESTABLISHMENT OF RESPONSIBILITY. This MOU is not intended to, and does not create, any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the United States, its agencies, its officers, or any person.

11. AUTHORIZED REPRESENTATIVES. By signature below, the cooperator certifies that the individuals listed in this document as representatives of the cooperator are authorized to act in their respective areas for matters related to this MOU.

THE PARTIES HERETO have executed this instrument. BY:

Date 12/17/10

Robyn Thorson
Regional Director
U.S. Fish and Wildlife Service
Portland, Oregon

Date 12/17/10

Ed Shepard
State Director
Bureau of Land Management
Portland, Oregon

Date 12/17/10

Tim Wood
Director
Oregon Parks and Recreation Department
Salem, Oregon

Date 12/17/10

Jeremiah C. Ingersoll
Forest Supervisor
U.S. Forest Service
Corvallis, Oregon

Date 12/17/10

Roy Elicker
Director
Oregon Department of Fish and Wildlife
Salem, Oregon

Date 17 DEC 2010

Colonel Steven R. Miles
District Engineer
Portland District Corps of Engineers
Portland, Oregon

Date 12/17/10

Suzanne Knapp
Acting Natural Resources Advisor
State of Oregon
Salem, Oregon

Site Management Plan Outline for Snowy Plover Management Areas

The Oregon Parks and Recreation Department (OPRD) will be preparing site management plans for each of the occupied and unoccupied snowy plover management areas (SPMAs) that OPRD owns and manages. These sites are:

- Columbia River South Jetty (Fort Stevens State Park),
- Necanicum Spit (Gearhart Ocean State Recreation Area),
- Nehalem Spit (Nehalem Bay State Park),
- Netarts Spit (Cape Lookout State Park), and
- Bandon (Bandon State Natural Area).

These plans will describe how the department will manage these sites both for recreational use and for snowy plover management. The site management plans will contain the following:

1. Legal Description and Map
    a. Township/Range/Section
    b. Topography map showing boundaries
    c. Aerial photo showing boundaries
2. Landownership and Management History
    a. Who currently owns the property
    b. Current land uses
    c. Historic land uses
3. Site Description (both historical and current)
    a. Beach morphology

b. Upland conditions

c. Plover habitat conditions

4. Regulations governing the site

a. Local, state, and federal laws and regulations that may affect implementation of the site management plan

5. Status of snowy plover at this site (historical and current)

a. Population

b. Nest success

6. Human Use

a. Recreation

b. Non-recreation uses

7. Management Issues

a. Human disturbance

i. Recreation

ii. Non-recreation

a. Habitat

b. Predation

8. Conservation Measures

a. Habitat restoration and maintenance

i. When and where habitat will be restored

ii. When and where maintenance will occur

b. Predator management

i. What predators are present

ii. What types of non-lethal and lethal methods will be used

c. Monitoring

i. Breeding season monitoring, where applicable

ii. Presence/Absence Monitoring - Frequency

9. Recreation Management Measures
    a. Symbolic fencing
    b. Access
        i. Identify recognized access points and related corridors to the wet sand
        ii. What access points will remain versus access points that may be re-routed to keep recreational users out of key habitat areas
    c. Signage
        i. Interpretive signs
        ii. Plover Management Area boundary signs
    d. Public outreach and education
        i. Types of outreach efforts that will be undertaken
    e. Enforcement
        i. Who will perform enforcement of restrictions
        ii. When will enforcement be performed (year-round, seasonally)
        iii. Whether any special permitting or contracting is required

For recreational management areas (RMAs) listed below that are not owned or leased by OPRD, site management plans will be prepared either by the Oregon Department of Fish and Wildlife or the responsible land management agency in consultation with the U.S. Fish and Wildlife Service.

- Bayocean Spit
- South Sand Lake Spit
- Sutton/Baker Beach
- Siltcoos Estuary/Dunes Overlook/Tahkenitch Estuary
- Tahkenitch South
- Umpqua River North Jetty
- Tenmile Estuary
- Coos Bay North Spit
- New River
- Elk River Spit
- Euchre Creek

United States Department of Agriculture Forest Service	United States Department of Commerce National Oceanic and Atmospheric Administration Fisheries	United States Department of Interior Bureau of Land Management	United States Department of Interior Fish and Wildlife Service

Reply to: 2670(FS)/6840(BLM) Date: May 27, 2003

FS/NOAA Fisheries/BLM/FWS-Memorandum

To: Forest Service Supervisors (Regions 1, 4, 6), USDI Fish & Wildlife Service Field Supervisors (Region 1), USDI Bureau of Land Management District/Field Managers (OR/WA, ID, and MT), and USDC National Oceanic and Atmospheric Administration Fisheries Project Managers (Northwest)

Subject: Implementing Streamlined Consultation Procedures for Section 7 of the Endangered Species Act (excluding California) – (ICS Memo #2)

As the Regional Executives representing the Forest Service (FS), the Bureau of Land Management (BLM), the Fish and Wildlife Service (FWS), and the National Oceanic and Atmospheric Administration (NOAA) Fisheries, we are re-issuing the *Streamlined Consultation Procedures for Section 7 of the Endangered Species Act - July 1999* (see the interagency ESA website listed below) for the geographic area encompassing the Northwest Forest Plan, PACFISH/INFISH (excluding California), and the range of the threatened bull trout, and related Biological Opinions. By doing so, we are reaffirming our commitment to these procedures as our basic approach to meeting our collective responsibilities under Section 7 of the Endangered Species Act (ESA). We continue to endorse the establishment of interagency Level 1 and Level 2 teams, a Regional Technical Team (RTT), Interagency Coordinators (IC's), and an Interagency Coordination Subgroup (ICS) as the foundation for implementing these procedures here in the Pacific Northwest.

We are incorporating most of the documents referenced in this memorandum on the newly developed interagency ESA website: **www.or.blm.gov/esa/**. These documents form the basis of our interagency efforts to effectively implement and improve the streamlined consultation process.

We believe the streamlined approach to consultation plays a significant role in achieving our shared mission to "... ***enhance conservation of imperiled species while delivering appropriate goods and services provided by the lands and resources managed by the signatory agencies***" as described in our National *Memorandum of Agreement Regarding Endangered Species Act Section 7 Programmatic Consultation and Coordination – August 30, 2000* (see the interagency ESA website listed above).

Pursuant to our January 24, 2003, memo (attached) entitled, *Improving the Effectiveness of Endangered Species Act (ESA) Implementation (ICS Memo #1)*, an Interagency Coordination

Implementing Streamlined Consultation Procedures for Section 7 of the Endangered Species Act (ICS Memo #2) – May 27, 2003

Subgroup (ICS) was established to oversee further improvements to the streamlined consultation process. We have asked the ICS to be the focal point for oversight and timely resolution of streamlined consultation related issues with regard to implementing these important streamlined consultation procedures.

In addition to the ICS, the proactive support and personal involvement from BLM District and Field Managers, FS Forest Supervisors and District Rangers, FWS Project Leaders, and NOAA Fisheries Branch Chiefs is essential to successful implementation of these procedures. We direct you to take full advantage of streamlining opportunities to accomplish both our individual agency responsibilities and our shared mission as stated above.

BACKGROUND

In 1995, the Regional Executives agreed to adopt streamlined consultation procedures to implement Section 7 of the Endangered Species Act. Since then, these procedures have been used successfully for numerous programmatic and project-specific consultations. Based on our experiences in implementing these procedures, they were formally revised in 1997 and 1999 to further refine and clarify their application, and to improve their effectiveness. See the *Streamlined Consultation Procedures for Section 7 of the Endangered Species Act – July 27, 1999* posted on the interagency ESA website.

While the streamlined consultation procedures have been successful, there are opportunities for improvement. Some field units, in conjunction with their Level 1 and Level 2 teams, have expedited the process very successfully and are to be commended. However, others are still having difficulties and complications with on-the-ground application of some of the procedures. Based upon our experiences to date, the key to success is the development of effective and efficient Level 1 and 2 teams that are able to deal with issues and opportunities presented to the teams. It is also imperative that these teams know how and when to elevate issues to the "next level" without undue loss of time and/or damage to team dynamics.

Since the streamlined consultation procedures were issued, we have asked interagency teams to review and critique various aspects of the process. In April 2000, we established an interagency team to address technical and policy issues identified by field staff and to review the FWS and NOAA Fisheries *Matrices of Pathways and Indicators* documents (posted on the NOAA website at www.nwr.noaa.gov/1habcon/habweb/habpub.htm). The resulting recommendations of this team were included in the development of this memorandum. In 2001, we assigned three additional tasks to the RTT in Oregon and Washington to: 1) identify what was and was not working in the streamlining process; 2) complete a workload/staffing analysis; and 3) review completed Biological Assessments. A summary of the findings for these tasks has been documented in the action items contained in *Improving the Effectiveness of Endangered Species Act (ESA) Implementation (ICS Memo #1) – January 24, 2003* (attached) and in the *List of Common Execution Problems – ESA Section 7 Consultation Streamlining Process – July 26, 2002* (attached). Please take the time to become familiar with these documents.

REGIONAL EXECUTIVES' COMMITMENTS AND EXPECTATIONS

To help ensure the success of the streamlined consultation process, we have committed to meet at least three times each year to address policy and operational issues. We will focus on providing policy leadership and promoting performance accountability. Our success will rely on managers, as well as the Level 1 and 2 teams, to provide us with timely feedback and insight that helps identify issues and concerns.

Streamlined consultation procedures will continue to evolve, as we gain additional experience and understanding of these procedures. We fully expect field managers and supervisors to work diligently to quickly resolve any issues or concerns affecting Level 1 and 2 teams. In some locations genuine support from management staff has resulted in significant Section 7 consultation process efficiencies. This management support has also fostered interagency rapport and created working environments that have contributed to achievement of our shared vision. Thus, we expect agency managers to use their talents to ensure streamlining is successful in your geographic area. We need to build on our successes as well as consider other consultation innovations that help us further our shared mission.

Our expectations for field managers and supervisors, as well as ourselves, include:

Strong and Continuing Management Commitment

We all need to personally deliver a strong message of support for, commitment to, and confidence in the streamlined consultation process to Level 1 and Level 2 team members as well as other staff specialists.

Team Processes

We expect agency managers to monitor the function and progress of Level 1 and Level 2 teams, and to work closely with their interagency counterparts to address specific issues affecting the function and/or progress of these teams.

- Level 1 teams should assign a team lead in accordance with the streamlining consultation procedures (See Page II-B-1 Q&A #1: *July 27, 1999 Streamlined Consultation Procedures...*). Team leads (and team members) should have the following expertise: streamlining experience, good team building experience and skills, and good collaborative and facilitation skills. The team lead will be responsible for the development of Level 1 team meeting notes and for the distribution of those notes to other team members and the Level 2 team.

- Good documentation and facilitation of Level 1 team meetings has proven to result in efficiencies. Level 2 teams should ensure that appropriate administrative support (note taker and facilitator) is available to perform this function (See Page II-B-1 Q&A #1: July 27, *1999 Streamlined Consultation Procedures ...*). Level 1 and 2 teams are also encouraged to develop operating guidelines for their respective teams in order to foster

ownership from each participating agency. These operating guidelines should be reviewed and updated when changes occur in team membership, and should be periodically reviewed and shared with agency decision-makers.

- Level 2 teams should consider assigning a management liaison position to each Level 1 team. This can be a Level 2 team member or a line officer or supervisor. The role of the management liaison will be to work in concert with the team lead and to help facilitate, understanding and communication between the Level 1 and Level 2 teams. The management liaison is an observer of team dynamics and performance and is a resource to the team lead to help resolve Level 1 team issues (See Page II-A-1 Q&A #2 and Page II-B-2 Q&A #3: *July 27, 1999 Streamlined Consultation Procedures ...*).

- The Level 1 team lead and management liaison (where they exist) should alert the Level 2 team when prescribed timelines for development of Biological Assessments (BAs), Letters of Concurrence (LOC's), and Biological Opinions (BO's) are not being met for the following reasons: (1) consensus on effects or BA adequacy cannot be reached in a reasonable timeframe; (2) insufficient staffing or high turnover is delaying team progress and timelines; (3) teams are struggling with issues outside the scope of the proposed action or are redefining the proposed action analyzed in the National Environmental Policy Act (NEPA) document and described in the BA; (4) insufficient time has been allotted to produce a technically sound, legally defensible consultation document, within prescribed timelines; or (5) ineffective team dynamics and behaviors are resulting in unnecessary delays (See Page I-3 and 4, Page II-A-1 Q&A #2, and Page II-B-2 Q&A #3: *July 27, 1999 Streamlined Consultation Procedures ...*).

- The 30 and 60-day informal and formal consultation timeframes are considered deadlines, not guidance (See Page I-5 and Page II-C-1 Q&A #1: *July 27, 1999 Streamlined Consultation Procedures ...*)[1].

Preparing Status Reports and Annual Assessments of Consultation Efforts

Assessing progress and sharing performance information is critical to maintaining and improving the streamlined consultation process.

- As noted above, the Level 1 team lead and the management liaison (where they exist) are expected to provide an update to the Level 2 team on the status of Level 1 team performance three times a year to coincide with the Regional Executive meetings.

- Level 1 and 2 teams are expected to jointly complete an annual interagency assessment of their performance with support from the RTT, ICS, and others. Utilize Attachment 3 of the *July 27, 199 Streamlined Consultation Procedures* ... for annual reporting and evaluation, which will be submitted to Level 2 teams and the designated RTT contact by October 15th

[1] Due to staff limitations, the FWS in Montana is not able to implement the consultation direction outlined in the streamlining guidance. As a result, the Forests and BLM Districts in Montana will confer with the FWS in accordance with 50 CFR 402.10.

of each year. Level 2 teams will be responsible for completion of this evaluation (See Page II-B-2 Q&A #3: *July 27, 1999 Streamlined Consultation Procedures ...*).

Establishing a Strong NEPA Foundation

The FS and BLM should invite FWS and NOAA Fisheries biologists to participate in the early planning phases, especially for high priority projects, projects with short timelines, and those where controversy would be reasonably expected. Early and continued involvement by FWS and NOAA Fisheries personnel in the Planning (NEPA/Interdisciplinary Team) process will facilitate project development and understanding between ID teams, decision-makers, and the Level 1 teams (See Page I-2 and Page II-E-1 Q&A #1: *July 27, 1999 Streamlined Consultation Procedures ...*).

- Action agencies must ensure projects are fully described and their effects are identified and appropriately analyzed by Interdisciplinary Teams as part of the NEPA process. A standardized format should be considered where appropriate. It is essential that the project description and analysis of project effects be closely coordinated with FWS and NOAA Fisheries staff. The BA should be developed from the description of the proposed action and the effects analysis contained in the NEPA document where they have been closely coordinated with FWS and NOAA Fisheries Level 1 staff.

- The consulting agencies should be involved early in project planning to ensure that the NEPA analysis includes a clear rationale for the effects determination and that the BA documentation is adequate. This involvement should be based on project complexity and scope, potential project effects on listed species and designated critical habitat, and the need for input into project design and identification of effects.

- Level 1 teams should not be redesigning projects outside the scope of the original project proposal. Early involvement (as outlined above), can go a long way to preclude this conflict. It should be noted that Level 1 teams do have a role as a "recommending body" to suggest modifications to a preferred alternative, if and when they see opportunities to minimize impacts to listed species and their habitat, while staying within the purpose and need, and scope of the original project. However, it should also be noted that any final decisions with respect to modification of the preferred alternative is the role of the Interdisciplinary Team, under the direction of the responsible deciding official.

In summary, the *July 27, 1999 Streamlined Consultation Procedures ...* (Page II-E-1 Q&A #1, paragraph 4) indicate "...recommendations for modifications of the preferred alternative from the Level 1 team to the responsible official (such as the FS District Ranger or BLM Field Manager) should be limited to or restricted to correcting inconsistencies or identifying ways to minimize impacts to listed or proposed species and critical habitat considered in the consultation."

Consensus-based Consultation

The streamlined consultation process is a consensus-based activity that results in legally sufficient consultations which are completed in an expedited timeframe (See Page II-A-1 Q&A #1: *July 27, 1999 Streamlined Consultation Procedures* ...). However, consensus should not be allowed to become more important than the actual goal of a completed BA or consultation process. Successful implementation of streamlining depends on the interpersonal and professional skills of team members at all levels as well as a solid grounding in the streamlining procedures. We expect managers and supervisors to:

- Review existing team composition to ensure that team members demonstrate positive interpersonal skills and collaborative attitudes, to provide opportunities for these individuals to develop and refine these skills, and to rotate staff as necessary to bring fresh perspectives to teams;

- Reinforce the expectation for and commitment of each team member to a collaborative, balanced process that provides for both project review and implementation while meeting species and habitat conservation objectives;

- Communicate to Level 1 teams that consensus does not necessarily mean that each member will be completely satisfied with a document or determination, but it does mean that each team member can agree that the document or determination is sufficient to allow the consultation process to be completed (BA finalized and consultation document issued); and

- Support and participate in streamlining training sessions and workshops along with their team members.

The Elevation Process

The elevation process is another key component to the streamlined consultation procedures. Level 1 and 2 teams should not hesitate to utilize this process when issues cannot be resolved or answers to policy questions are unclear.

- Level 1 teams should immediately elevate consultation issues to their Level 2 teams for resolution when consensus cannot be reached within identified timelines. Level 2 teams should expeditiously address elevated issues (within two weeks, II-G-2), including technical as well as personnel and other team performance concerns (See Page I-3, Page II-A-1 Q&A #2, Page II-B-2 Q&A #3, and Page II-G-1 Q&A #1: *July 27, 1999 Streamlined Consultation Procedures* ...).

- We do not view elevations as a failure, but as an important signal that the streamlining process is working to resolve difficult issues (same citation as the bullet above).

Informal Process (See Page II-A-2 Q&A #4, and Page II-G-2 Q&A #2: *July 27, 1999 Streamlined Consultation Procedures* ...):

It is important to make use of the informal process to the extent practical before formally elevating issues. These resources have been under-utilized in the past. The streamlining process relies on Level 1 teams to informally interact and have dialogue with Level 2 teams, the RTT, IC's, and the ICS and to rely on these various entities for expertise, guidance, and advice.

- Level 1 and 2 teams should utilize the RTT, IC's, the ICS, Interagency Implementation Team (IIT), National Riparian Service Team, and other outside groups and experts to help resolve field implementation issues, technical questions, process problems, and policy issues or interpretation of existing streamlining guidance in a timely manner.

Formal Elevation (See Page II-A-2 Q&A #4 and Page II-G-2 Q&A #2: *July 27, 1999 Streamlined Consultation Procedures ...*):

Level 2 Teams should strive to reach resolution of elevated issues. If resolution cannot be reached use the following process:

- The Level 2 team or member should elevate the issue through a letter to the Regional Executives with a "cc" to the ICS chair describing the consultation issues to be resolved.

- The Regional Executives will assign responsibility to the ICS to work with the Level 2 Team, RTT, and others to address the elevated consultation issues. Issues elevated to the ICS should be in a form that accurately captures the issue(s), and actions taken by Level 2 to resolve the issue(s).

- The ICS will make recommendations for resolution of issues or further elevation to the Regional Executives. The Regional Executives will make an interagency decision. The ICS will communicate decisions and instructions to the involved Level 1and 2 teams on how to proceed. The outcome of elevated issues will be documented and distributed to appropriate BLM, FS, FWS and NOAA Fisheries staff (See Page II-G-2 of the Streamlined Consultation Procedures).

- If a consultation issue cannot be resolved at the Regional Executive level, it will be elevated to the National Dispute Resolution Panel.

In closing, both individually and collectively, we sincerely believe that the streamlined consultation procedures have greatly contributed to our ability to effectively carry out our agency responsibilities and our shared mission. We will continue to support you and your efforts to effectively implement and improve these procedures.

/s/ Jack G. Troyer

JACK G. TROYER
Regional Forester, Region 4
USDA Forest Service

/s/ Linda D. Goodman

LINDA D. GOODMAN
Regional Forester, Region 6
USDA Forest Service

Implementing Streamlined Consultation Procedures for Section 7 of the Endangered Species Act (ICS Memo #2) – May 27, 2003

/s/ Bradley E. Powell

BRADLEY E. POWELL
Regional Forester, Region 1
USDA Forest Service

/s/ D. Robert Lohn

D. ROBERT LOHN
Regional Administrator, Northwest
USDC National Oceanic and Atmospheric Administration Fisheries

/s/ Elaine M. Brong

ELAINE M. BRONG
State Director, OR/WA
USDI Bureau of Land Management

/s/ K. Lynn Bennett

K LYNN BENNETT
State Director, ID
USDI Bureau of Land Management

/s/ David J. Wesley
(for)
DAVID B. ALLEN
Regional Director, Region 1
USDI Fish and Wildlife Service

Attachments:

Improving the Effectiveness of Endangered Species Act (ESA) Implementation (ICS Memo #1) – dated January 24, 2003 (w/o attachment).

List of Common Execution Problems – ESA Section 7 Consultation Streamlining Process – July 26, 2002.

cc:
Interagency Coordination Subgroup
Regional Technical Team
Interagency Implementation Team
National Riparian Service Team
Judy Nelson, BLM, OR/WA
Mike Crouse, NOAA Fisheries – Portland
Rowan Gould, FWS, Region 1
Susan Giannettino, BLM, ID
Kathy McAllister, FS, Region 1

United States Department of Agriculture Forest Service	United States Department of Commerce National Marine Fisheries Service	United States Department of Interior Bureau of Land Management	United States Department of Interior Fish and Wildlife Service

Reply to: 2670(FS)/6840(BLM-OR931) Date: January 24, 2003

FS/NMFS/BLM/FWS-Memorandum

To: Bill LeVere, Forest Service (FS), Region 4
Russ Strach, National Marine Fisheries Service (NMFS) – Portland
Neal Middlebrook, Bureau of Land Management (BLM), OR/WA
Cal Joyner, Forest Service (FS), Region 6
Jon Foster, Bureau of Land Management (BLM), ID
Kemper McMaster, Fish & Wildlife Service (FWS) – Oregon

Subject: Improving the Effectiveness of Endangered Species Act (ESA) Implementation (ICS Memo #1)

At our August 20 meeting we agreed to several action items to improve the effectiveness of ESA implementation. These action items fall under four main areas: improving consultation efficiency and effectiveness; organizing for success; providing policy leadership; and promoting performance accountability.

The intent of this letter is to transmit the various action items, communicate our expectations, and to follow-up on the first task that we assigned to ourselves – establishment of an Interagency Coordinators Subgroup (ICS). The role of this committee (made up of a sub-group of the Interagency Coordinators – outlined in the July 27, 1999 Streamlined Consultation Procedures) is to work with the various Section 7 consultation teams and Regional Executives as outlined in the attachment (below).

Background

Section 7(a)2 of the ESA requires that federal agencies shall insure that any actions they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. The Federal Agencies in the Northwest (that area covered by the Northwest Forest Plan, PACFISH/INFISH, [excluding California], Bulltrout, and related Biological Opinions) have a common vision of this responsibility and how the processes can be integrated to more effectively accomplish this work. Significant progress in efficiency has been realized through interagency streamlining processes but the collective vision of the Federal Agencies is that significant improvements in timeliness and quality can be achieved through the implementation of the following action items (identified below).

Improving the Effectiveness of Endangered Species Act (ESA) Implementation (ICS Memo #1)
January 24, 2003

Interagency Coordinators Subgroup

The primary purpose of the Interagency Coordinators Subgroup (ICS) is to be a focal point for oversight and timely resolution of issues with regard to implementation of streamlined consultation procedures. The role of the ICS is to function as key policy advisors on the consultation procedures to the Regional Executives and Level 2 Teams. The ICS will be composed of the following individuals:

Bill LeVere, Chair	FS, Region 4
Russ Strach, Vice Chair	NMFS, Northwest
Neal Middlebrook	BLM, OR/WA
Cal Joyner	FS, Region 6
Jon Foster	BLM, ID
Kemper McMaster	FWS, Oregon

As part of its first order of business, the ICS should determine the length of time each person will serve as chair and vice-chair and who rotates into each position over time. The ICS will be expected to report out to the Regional Executives at our next meeting.

The ICS should consider the various action items identified by the Regional Executives as their charter/program of work for the upcoming year. The following tables display the individual action items:

Improving Consultation Efficiency and Effectiveness:

Action	Lead	Timeframe
Reissue Streamlined Consultation Procedures – updated to include guidance on common execution problems. Regional executives will jointly transmit.	Interagency Coordinators Subgroup (ICS).	02/21/03
Provide interagency refresher training in application of streamlined consultation procedures.	Regional Technical Team (RTT), with oversight by the ICS.	To be determined by the ICS.

Improving the Effectiveness of Endangered Species Act (ESA) Implementation (ICS Memo #1) January 24, 2003

Organizing for Success:

Action	Lead	Timeframe
NMFS to delegate signing authority for Letters of Concurrence to Level 2 representatives. NMFS will continue to pursue delegation of Biological Opinions commensurate with level of delegation by FWS.	NMFS to draft for signature by Bob Lohn, with oversight by the ICS.	To be determined by the ICS.
Prepare interagency policy direction encouraging utilization of action agency biologists to Draft Section 7 documents for review and signature of the responsible consulting agencies.	RTT to draft, with oversight by the ICS.	To be determined by the ICS.
Identify full suite of opportunities to assign one consulting agency lead responsibility for consultation in those geographic areas where there are both listed resident and anadromous fish (i.e., "one-stop consultation").	NMFS and FWS, with oversight by the ICS.	To be determined by the ICS.
Establish interagency web site to share outstanding examples of consultation documents and other pertinent information.	FS and BLM (with input from RTT), and oversight by the ICS.	To be determined by the ICS.

Providing Policy Leadership:

Action	Lead	Timeframe
Calendar three meetings per year for agency executives to address outstanding policy and operational issues.	Jack Troyer – working through his executive assistant to calendar a daylong meeting every four months.	Ongoing
Develop a comprehensive list of policy issues that includes those requiring regional or national resolution.	Interagency Coordinating Subgroup.	To be determined by the ICS.

Improving the Effectiveness of Endangered Species Act (ESA) Implementation (ICS Memo #1) January 24, 2003

Promoting Performance Accountability:

Action	Lead	Timeframe
Investigate the development of a framework for identifying and tracking the consultation workload.	RTT, with oversight by the ICS.	To be determined by the ICS.
Develop an agreement on how we are going to elevate and address performance accountability issues.	Regional Executives	Next scheduled executive meeting.
Identify interagency streamlining teams that operate effectively and recommend opportunities to acknowledge their success.	ICS	June 2003

If the ICS members have any questions or comments regarding the above, please direct your concerns through ICS Chair, Bill LeVere at (801)-625-5669 or wlevere@fs.fed.us.

/s/ Jack G. Troyer

JACK G. TROYER
Regional Forester, Region 4
USDA Forest Service

/s/ Linda D. Goodman

LINDA D. GOODMAN
Regional Forester, Region 6
USDA Forest Service

/s/ Bradley E. Powell

BRADLEY E. POWELL
Regional Forester, Region 1
USDA Forest Service

Michael R. Crouse
(for)
D. ROBERT LOHN
Regional Administrator, Northwest
USDC National Marine Fisheries Service

/s/ Elaine M. Brong

ELAINE M. BRONG
State Director, OR/WA
USDI Bureau of Land Management

/s/ K. Lynn Bennett

K LYNN BENNETT
State Director, ID
USDI Bureau of Land Management

/s/ Anne Badgley

ANNE BADGLEY
Regional Director, Region 1
USDI Fish and Wildlife Service
Attachment (1)

Improving the Effectiveness of Endangered Species Act (ESA) Implementation (ICS Memo #1)
January 24, 2003

cc:
Regional Technical Team (RTT) Members
Judy Nelson, BLM, OR/WA
Mike Crouse, NMFS – Portland
Rowan Gould, FWS, Region 1
Susan Giannettino, BLM, ID
Kathy McAllister, FS, Region 1
USDA Forest Service Forest Supervisors (Regions 1, 4, & 6)
USDC National Marine Fisheries Service Project Managers (Northwest Region, Habitat ARA and Branch Chiefs)
USDI Bureau of Land Management District/Field Managers (OR/WA & ID)
USDI Fish and Wildlife Service Field Supervisors (Region 1)

List of Common Execution Problems
ESA Section 7 Consultation/Streamlining
(July 26, 2002)

The following is a list summarizing common execution problems that were identified during the interagency review of ESA Section 7 Consultation/Streamlining in 2001/2002.

1. Time frames specified in the July 1999 Streamlining Procedures and the April 7, 2000, Interagency Memorandum are not consistently being followed and met. These time frames were agreed upon by the Region al Executives through their signature on the transmittal memos and need to be emphasized with Level I and 2 staff. These time frames include:
   a. "Notice" (letter or e-mail) within 2 weeks from the Fish and Wildlife Service/National Marine Fisheries Service (FWS/NMFA) acknowledging receipt of the BA (4/7/200 Interagency Memo.)
   b. Request time extensions within 2 weeks if either Service needs more time to complete consultation (4/7/2000 Interagency Memo.)
   c. Request any additional information needed within 2 weeks of receiving the BA (however, such request should be minimal due to the Level 1 team review and sign-off) (4/7/2000 Interagency Memo.)
   d. Action agencies will contact FWS/NMFS regarding the disposition of the BA if notice is not received within 2 weeks (4/7/2000 Interagency Memo.)
   e. The clock relative to consultation streamlining deadlines begins to run as of the date of the BA, as approved by the Level 1 team, is formally received by FWS/NMFS (as described above.)
   f. For formal consultation, FWS/NMFS will send a concurrence letter within 30 days of receipt of a completed BA (page I-5, 7/99 Procedures.)
   g. The regulatory agency will prepare a BA/Conference Opinion within 60 days of receipt of a complete BA (pages II-C-1, 7/99 Procedures.)
   h. The 30- and 60-day time frames are considered to be **deadlines**, not guidance (page II-C-1, 7/99 Procedures.)
   i. In very limited and specific situations (for example, complex actions such as those involving mining or water diversions,) a 60-day turnaround for the BO may be exceeded. Prior to submitting the BA, the Level I and 2 teams must identify the need and concur on the extension of the BO response time frame (page II-C, 7/99 Procedures.)

2. Efficiency in the function of Level 1 teams has been compromised:
   a. High turnover in staffing, which undermines team ability to reach consensus on determinations and agreement on BA adequacy, which delays the process for providing the Letter of Concurrence (LOC) or BO.
   b. Inadequate FWS/NMFS staffing for timely review and processing of LOCs and BOs, and participation early in project design and development.

3. Level 2 teams are not providing oversight and guidance to Level 1 teams, as described in the streamlining procedures, or conducting annual assessments of workload and priorities.

4. Implementation of the issue elevation process is not understood by Level 1 and 2 teams or, if used, does not follow the process as described or envisioned in the streamlining guidance.

5. The Interagency Coordinators need to play a greater role in streamlining consultation coordination and leadership, and engaging the Agency Executives in ongoing issues.

Appendix B

Monitoring Methods Section from: ***The Distribution and Reproductive Success of the Western Snowy Plover along the Oregon Coast – 2013. Prepared by David J. Lauten, Kathleen A. Castelein, J. Daniel Farrar, Melissa F. Breyer, and Eleanor P. Gaines of the Oregon Biodiversity Information Center. Snowy Plover Monitoring Methods. March 28, 2014.***

SNOWY PLOVER MONITORING METHODS

Nest Surveys

Monitoring began the first week in April and continued until all broods fledged, typically by mid- September. We used two teams of two biologists; one team covering Tenmile and sites north, and the other covering Coos Bay North Spit and sites south (Fig. 1). In some years this division has been modified to accommodate staff needs. All data collected in the field was recorded in field notebooks and later transferred onto computer. Surveys were completed on foot and from an all-terrain vehicle (ATV). Data recorded on nest surveys included:

- Site name
- Weather conditions
- Start time and stop time
- Direction of survey
- Number of plover seen, broken down by age and sex
- Band combinations observed
- Potential predators or tracks observed
- Violations/human disturbance observed

Weekly surveys were attempted, but were not always possible due to increasing workload associated with an increased plover population. Additional visits were made to check nests, band chicks, or monitor broods.

POPULATION ESTIMATION

We estimated the number of Snowy Plovers on the Oregon Coast by determining the number of individually color banded adult Snowy Plovers recorded during the breeding season, and then adding an estimated number of unbanded Snowy Plovers. We determined the number of unbanded Snowy Plovers observed within ten-day intervals during the breeding season, selected the highest count of unbanded birds and then subtracted the number of adults that were banded subsequently. We also determined the number of plovers known to have nested at the study sites, including marked birds and a conservative minimum estimate of the number of unbanded plovers.

NEST MONITORING

We located nests using methods described by Page et al. (1985) and Stern et al. (1990). We found nests by scoping for incubating plovers, and by watching for female plovers that appeared

to have been flushed off a nest. We also used tracks to identify potential nesting areas. We defined a nest as a nest bowl or scrape with eggs or tangible evidence of eggs in the bowl, i.e. eggshells. We predicted hatching dates by floating eggs (Westerskov 1950) and used a schedule, developed by G. Page based on a 29-day incubation period (Gary Page, pers comm). We attempted to monitor nests once a week at minimum. We checked nests more frequently as the expected date of hatching approached. We defined a successful nest as one that hatched at least one egg. A failed nest was one where we found buried or abandoned eggs, infertile eggs, depredated eggs, signs of depredation (e.g. mammalian or avian tracks or eggshell remains not typical of hatched eggs or nest cup disturbance) or eggs disappeared prior to the expected hatch date and were presumed to have been predated. In some instances we found nests with only one egg; often there was no indication of incubation or nest defense, and it was uncertain to what extent the nest was abandoned, or simply a "dropped" egg. Because it was difficult to make this determination, we considered all one egg clutches as nest attempts, and classified them as abandon d when there was no indication of incubation or nest defense. Data recorded at nest checks included:

- Nest number
- Number of eggs in nest
- Adult behavior
- Description of area immediately around nest
- Whether or not the nest is exclosed
- GPS location

BROOD MONITORING

We monitored broods during surveys and other fieldwork, and recorded brood activity or males exhibiting brood defense behavior at each site. "Broody" males will feign injury, run away quickly or erratically, fly around and/or vocalize in order to distract a potential threat to his chicks. Information recorded when broods were detected included:

- Number of adults and chicks
- Band combinations of adults/chicks seen
- Sex of adults
- Behavior of adults
- Brood location

BANDING

Adults were normally trapped for banding on the nest, during incubation, using a lily pad trap and noose carpets. Lilly pad traps are small circular traps made of hardware cloth with a blueberry net top.

The traps have a small door that the plover will enter. Noose carpets are 4" x 30" lengths of hardware cloth covered with small fishing line nooses. Plovers walk over the carpets and the nooses snag their legs. We limited attempts to capture adults to 20 minutes per trapping attempt. Chicks were captured for banding by hand, usually in the nest bowl. Banding was completed in teams of two to minimize time at the nest and disturbance to the plovers.

Appendix B

Coastal Zone Management Act (CZMA) email documentation dated February 28, 2013. To Gregory Smith (USACE) from Juna Hickner (Department of Land Conservation and Development)

From: Hickner, Juna
To: Smith, Gregory M NWP
Subject: RE: Consistency - snowy plover habitat maintenance at Coos Bay North Spit (UNCLASSIFIED)
Date: Thursday, February 28, 2013 7:25:00 PM

Hi Greg,

Thanks for the call, and the additional information. Based on the information you provided I agree that the activities will not affect any coastal use or resource outside of federal lands, and the Corps does not need to submit a consistency determination for this project.

Thanks,
Juna

From: Smith, Gregory M NWP [Gregory.M.Smith@usace.army.mil]
Sent: Monday, February 25, 2013 6:10 PM
To: Hickner, Juna
Subject: Consistency - snowy plover habitat maintenance at Coos Bay North Spit (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Hi Juna-

Thanks for talking with me about CZMA last week and discussing the on-going snowy plover habitat maintenance effort at Coos Bay North Spit. As we discussed, the activities occur exclusively on Federal lands at Coos Bay North Spit. Based on our discussion, it is my understanding that these lands are not part of the Coastal Zone. However, the DLCD must evaluate whether activities on these lands may affect lands within the defined Coastal Zone. I have attached a description of the on-going maintenance activities, which have been on-going since 1994 to maintain and restore western snowy plover nesting habitat.

Based on our discussion and after reviewing the on-going actions, I am confident the activities will have no effect to lands within the Coastal Zone. Please let me know if this is not correct and what steps are necessary to resolve.

Thanks,
Greg

Gregory M. Smith
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Portland District
P.O. Box 2946
Portland, OR 97208
Phone: 503.808.4783
Fax: 503. 808.4756
Email: Gregory.M.Smith@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE