
2018 ANNUAL COMPLIANCE REPORT OF THE HABITAT CONSERVATION PLAN FOR THE WESTERN SNOWY PLOVER



Photo: Tate Pyle

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ABBREVIATIONS AND ACRONYMS

APHIS	Animal and Plant Health Inspection Service, U.S. Department of Agriculture
BLM	Bureau of Land Management, U.S. Department of Interior
ESA	Endangered Species Act
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
Ocean Shore	Ocean Shore State Recreation Area
ODFW	Oregon Department of Fish and Game
OPRD	Oregon Parks and Recreation Department
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statute
OSP	Oregon State Police
RMA	Recreation Management Area
SMP	Site Management Plan
SNA	State Natural Area
SPMA	Snowy Plover Management Area
USACE	Army Corps of Engineers
USFS	United States Forest Service, U.S. Department of Agriculture
USFWS	United States Fish and Wildlife Service`

RECOMMENDATIONS FOR 2019

Based on findings and observations from 2018 as summarized in this report, OPRD recommends the following actions for 2019.

Habitat Restoration

- Restoration of 24+ acres at Nehalem by flattening the top of existing dunes and creating gently sloped pathways down to the beach for chicks to navigate (late winter 2019).
- Restoration of at least 5 acres of habitat at the tip of South Sand Lake Spit (Sitka Sedge SNA) by trenching and burying beach grass hummocks (spray early winter, sand movement: late winter 2019).
- Assess feasibility of prescribed burning at Bandon SPMA followed by imazapyr treatments if dune grading while protecting cultural resources is cost prohibitive.

Monitoring

- Monitor nests at Clatsop, Nehalem, and Sitka Sedge weekly, and set up nest cameras to capture cause of failure.
- Investigate the cyclical drop and rise in reproductive success at Bandon to look for patterns or management actions that could improve recovery efforts.
- Develop a volunteer procedures manual.
- Add OPRD staff, including beach rangers and natural resource specialists, to the recovery permit as sub-permittees.
- In cooperation with Oregon State University and Oceans Unmanned, explore Unmanned Aerial Vehicles (UAVs) equipped with infrared cameras and aerial cameras for feasibility of detecting western snowy plovers on unmanaged beaches. OPRD will confer with USFWS and ODFW prior to issuing any scopes of work.
- Continue partnership with Audubon Society of Portland to recruit and train volunteers for monitoring on the north coast, similar to programs in California and the Gulf Coast.

Site Management Planning

- Continue to work with USFWS and USACE to figure out best mechanism that allows OPRD to employ recreation restrictions and habitat restoration under their current lease agreement or an updated agreement at Fort Stevens State Park (Clatsop Spit).
- Continue to work with USFWS, ODFW, and USACE to coordinate habitat restoration efforts with South Jetty repair at Fort Stevens State Park (Clatsop Spit).
- Draft a site management plan for Sitka Sedge State Natural Area (South Sand Lake Spit).
- Draft a site management plan for Cape Lookout State Park (Netarts Spit).

Predator Management

- Develop methods for installing wildlife cameras at north coast sites that deters camera theft
- Investigate deterring foxes at Bandon via habitat manipulation.

Enforcement

- Continue to work on improving data collection and entry so that information is more easily shared and accessed; this will allow faster response to emerging issues. OPRD has piloted a data entry system on tablets distributed to beach rangers and will continue to evaluate this as an adaptive management tool in 2019.
- Continue to conduct outreach to Oregon Coast Trail (OCT) backpacking groups and social media to improve information backpackers have access to regarding recreation restrictions prior to arriving at the beach.

Outreach

- Finalize docent programs at Nehalem and Sitka Sedge

- Design and produce interpretive panels for north coast sites.
- Develop an iLearn training program for coastal park staff to help ensure all new staff receives appropriate training.
- Improve OCT-related signage, especially in the Bandon/New River area in collaboration with BLM.

Table 1. Implementation Schedule Summary

Action	Comments	Timing
Volunteer positions for detect/non-detect surveys	Position descriptions and outreach posted	2019
North Coast Site Management Plans	Work with USFWS about the status of review for Clatsop Spit plan (submitted in 2017), finalize draft Sitka plan now that the exchange with Necanicum Spit has occurred, and begin site management planning for Netarts.	2019
Communications Strategy	OCT outreach, general beach brochures, interpretive programs, etc.	2019
OPRD internal training	Provide Recovery Permit training for OPRD staff and volunteers with Audubon Society of Portland. Training will focus on OPRD detection survey staff and volunteers, but others are welcome to attend.	2019 – March –April
Recreation restrictions at Clatsop, Nehalem, South Sand Lake, and Bandon SPMAs.	Active management areas will be marked with recreation restrictions.	2019 – March 15
Detect/non-detect surveys for 2019	Conduct surveys at Clatsop Spit, South Sand Lake Spit, and Netarts Spit twice monthly. Coordinate May surveys with USFWS breeding surveys.	2019– March –July
Habitat restoration at Nehalem Spit and South Sand Lake	Restore additional nesting habitat at these sites	2019
Interpretive Programs	Conduct interpretive programs focusing on western snowy plover and their habitat at Bullards Beach, Honeyman, Nehalem Bay, Sunset Bay, Fort Stevens, Cape Lookout, and Harris Beach State Parks.	Ongoing

BACKGROUND

Oregon Parks and Recreation Department (OPRD) is responsible for management of the Ocean Shore State Recreation Area (Ocean Shore) which encompasses all the sandy portions of the Ocean shoreline along the Oregon coast that extend between the mouth of the Columbia River South Jetty and the California/Oregon border on the south. The Ocean Shore includes the land lying between extreme low tide to either the statutory vegetation line or established line of upland vegetation, whichever is furthest inland (Figure 2; ORS 390.605). Management of recreation, natural resources, and general operations may negatively affect snowy plover and their habitat and result in take of the species as defined under the Endangered Species Act (ESA, 16 U.S.C. 1311-1344, 87 Stat. 884). In December, 2010, the U.S. Fish and Wildlife Service (USFWS) issued an Incidental Take Permit (ITP) TE30687A-pursuant to Section 10(a)(1)(B) of the ESA to OPRD for western snowy plover (*Charadrius nivosus nivosus*). Activities covered by the ITP include recreation, beach, and natural resource management on the Ocean Shore. The ITP is conditional upon implementation of the Habitat Conservation Plan for the Western Snowy Plover (HCP, ICF International 2010). The HCP provides measures to minimize incidental take of western snowy plover (ICF International 2010).

OPRD is required to submit an annual report to USFWS documenting management actions over the previous year; snowy plover population data, snowy plover take occurrences, recreational use enforcement issues, and anticipated management efforts for the following year.

HCP GUIDING PRINCIPLES

The OPRD guiding principles (HCP 5.2) provide that OPRD will:

- Assist with and contribute to conservation and protection of the Pacific coast population of the snowy plover in Oregon;
- Manage for conservation and recovery of snowy plover and their habitat in a manner that balances this effort with human use of the Ocean Shore;
- Identify areas along the Ocean Shore where public use will be managed to reduce the likelihood of impacts to snowy plovers;
- Protect and restore habitat in critical locations at OPRD SPMAs;
- Work with the other resource agencies to manage for predators to minimize impacts on snowy plover breeding success and improve the survival of the snowy plover in occupied SPMAs and RMAs;
- Work to increase public support and understanding of snowy plover and habitat needs, in cooperation with partners;
- Work with other resource management agencies on habitat restoration, predator management, snowy plover population monitoring, snowy plover research, and public outreach, where appropriate to achieve cost efficiencies;
- Develop strategies that complement the habitat needs of other Ocean Shore wildlife (e.g., shorebirds, marine mammals, seabirds) in addition to snowy plover;
- Use future research as one of the criteria for guiding adaptive management principles to help in management of the snowy plover; and
- Seek assurances from USFWS about future human use of Oregon's beaches by completing an Habitat Recovery Plan (HCP) and submitting an Incidental Take Permit (ITP) application.
- Following issuance of the ITP, OPRD will comply with the permit conditions, including implementation of the HCP.

MANAGEMENT APPROACH (HCP 5.2.3)

OPRD's HCP conservation strategy focuses on implementing snowy plover management activities at up to five OPRD-owned or leased SPMAs, implementing recreational use restrictions at these SPMAs and up to 11 RMAs, and implementing beach management activities on the Ocean Shore

COVERED ACTIVITIES

Covered activities are those that may occur on the covered lands for which OPRD has management responsibility that have the potential to result in incidental take of snowy plovers, and are listed below. Additional information is in Section 3.3 of the HCP (ICF International 2010).

PUBLIC USE/RECREATION MANAGEMENT

- Camping
- Dog Exercising
- Pedestrian Traffic
- Picnicking
- Near Shore Activities/Surf Sports
- Driving
- Horseback Riding
- Beach Fires
- Beachcombing
- Driftwood Collection and Removal
- Kite Flying
- Other Dry Sand Activities

BEACH MANAGEMENT

- Marine Mammal Strandings and Removal
- Public Safety
- External Law Enforcement
- Internal Law Enforcement
- Boat Strandings and Other Salvage Operations

NATURAL RESOURCE MANAGEMENT

- OPRD Snowy Plover Management Actions
- Habitat Restoration

COVERED LANDS

Covered Lands means the lands upon which the ITP authorizes incidental take of western snowy plover and the lands to which the HCP's conservation and mitigation measures apply. These lands are described in Section 2.5 of the HCP (ICF International 2010) and include the sandy portions of the Ocean Shore along the Oregon coast that extend between the mouth of the Columbia River South Jetty and the California/Oregon border on the south. The Ocean Shore includes the land lying between extreme low tide to either the statutory vegetation line or established line of upland vegetation, whichever is furthest inland (Figure 1, ORS 390.605). The Ocean Shore is managed by OPRD for public recreational use, along with scenic, historic, natural and cultural purposes. Lands under federal ownership are excluded.

CONSERVATION MEASURE AREAS

Conservation measures will be implemented on designated Snowy Plover Management Areas (SPMAs) and Recreation Management Areas (RMAs). The five SPMAs listed in the HCP are within lands that are owned or leased by OPRD as part of a State Park Unit and are either occupied by plovers or targeted for future plover management. These areas include Clatsop Spit, also called Columbia River South Jetty (Fort Stevens State Park); South Sand Lake Spit (Sitka Sedge State Natural Area); Nehalem Spit (Nehalem Bay State Park); Netarts Spit (Cape Lookout State Park), and Bandon (Bandon State Natural Area). The 9 RMAs are portions of the Ocean Shore adjacent to plover sites that are owned by entities other than OPRD. Additional information can be found in Section 5.2.2 of the HCP (ICF International 2010).

CURRENT RECREATION RESTRICTIONS

Full enforcement of the HCP began March 15, 2013. Unoccupied restrictions at Clatsop Spit, Necanicum Spit, and Nehalem Spit began March 15, 2014. On April 8, 2015 nesting was confirmed at Nehalem and the site is now managed as occupied. On April 7, 2016 western snowy plover nesting was confirmed at South Sand Lake RMA (Sitka Sedge State Natural Area) and the site is now occupied. In 2018 South Sand Lake was formally approved for exchange with Necanicum Spit and is now being managed as an SPMA. Necanicum Spit is no longer considered an SPMA. On May 24 2018, western snowy plover nesting was confirmed at Clatsop Spit SPMA and it is now being managed as occupied. On June 6, 2018 western snowy plover nesting was confirmed at Bayocean Spit RMA and it is now being managed as an RMA by USACE (United States Army Corps of Engineers). Figure 1 shows the current management status of the sites listed in the HCP.

OCCUPIED SPMAS AND RMAS

From March 15 – September 15

- All recreational activities are prohibited on the dry sand;
- Vehicles prohibited on the dry and wet sand (except in limited circumstances and under permit from OPRD, and for administrative use);
- Non-motorized vehicle use prohibited on the dry and wet sand;
- Dogs prohibited;
- Kites prohibited, including model airplanes.

UNOCCUPIED SPMAS AND RMAS

From March 15 – July 15

- Dogs must be on-leash;
- Vehicles prohibited on the dry and wet sand (except in limited circumstances and under permit from OPRD, and for administrative use);

REMAINDER OF OCEAN SHORE

- If a snowy plover nest is discovered outside of an SPMA or RMA, the nest will be roped off in a 50-meter radius and recreational use will be prohibited within the roped area. Roping may be removed once the nest hatches.
- Dogs are required to be on-leash or under control at all beaches not designated as plover management areas.

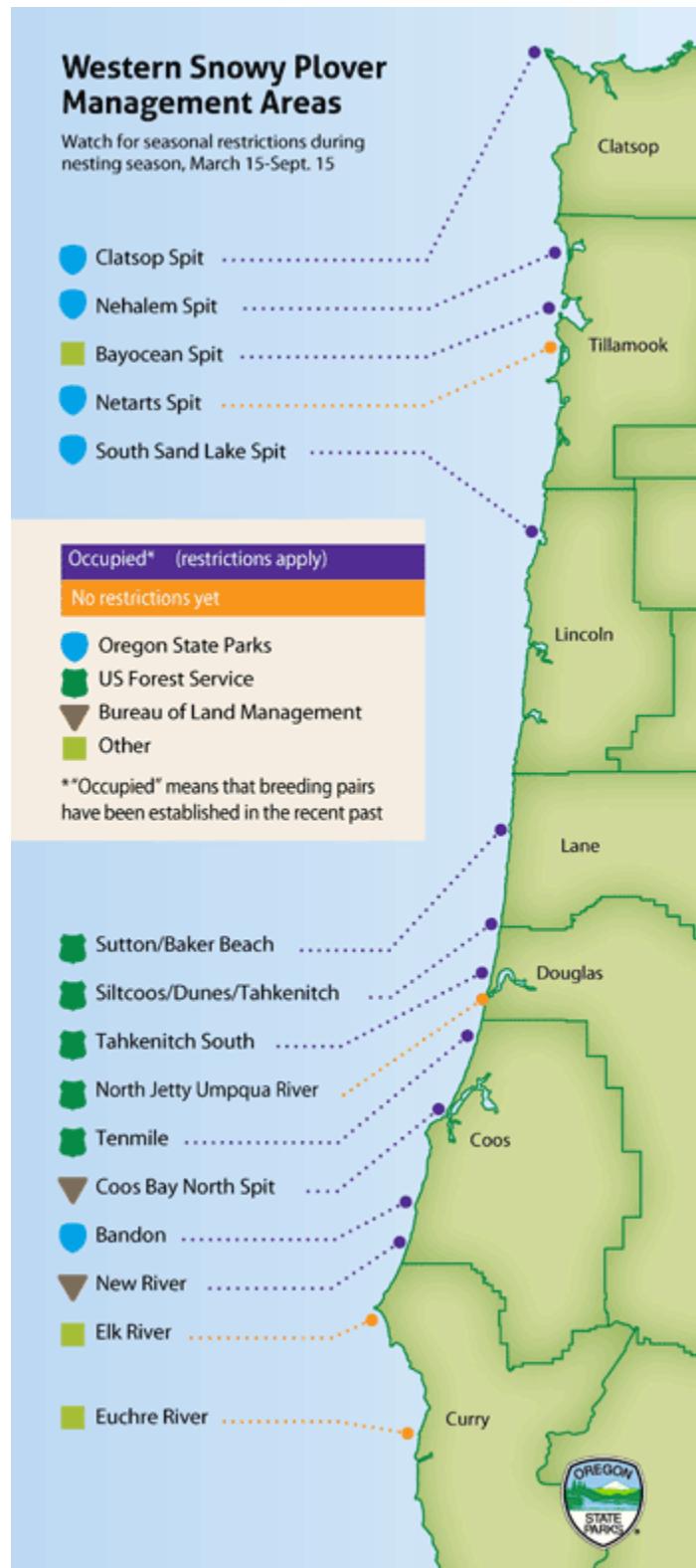
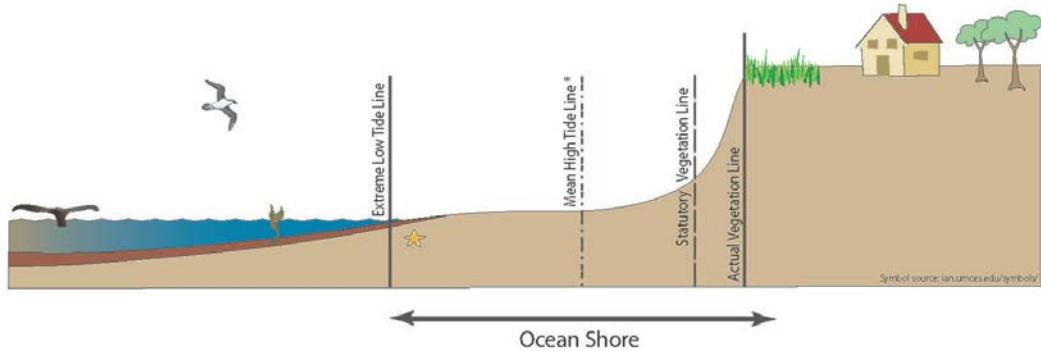
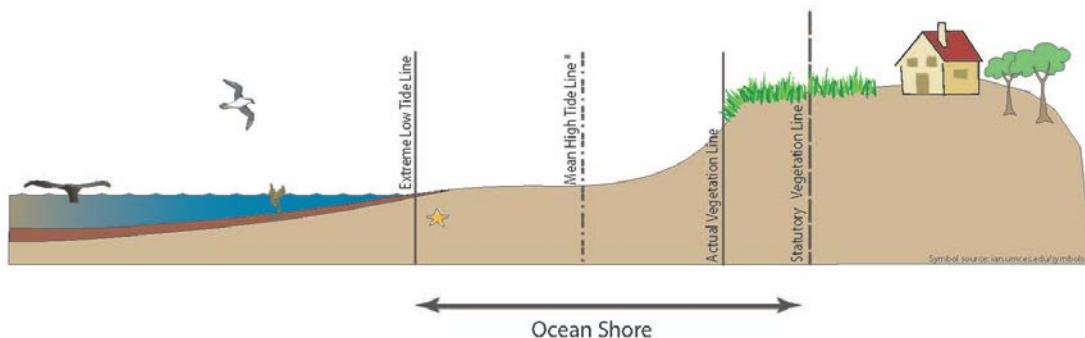


Figure 1. Plover Designated Management Areas



Defined boundary of the Ocean Shore when the actual vegetation line is further landward than the statutory vegetation line.



Defined boundary of the Ocean Shore when the statutory vegetation line is further landward than the actual vegetation line.

*OPRD's permit jurisdiction on the Ocean Shore extends landward from the low tide line to the mean high tide line on Federal lands and from the low tide line to the statutory or actual vegetation line, whichever is most landward, on all other lands.

Figure 2. Boundary of the Ocean Shore both when the vegetation line (top) and statutory (bottom) vegetation line (SVL) is further landward

HCP COMPLIANCE ACTIONS

POPULATION MONITORING

The USFWS Western Snowy Plover Recovery Plan (2007) established population goals for the overall population range wide as well as goals for seven separate recovery units within the range of western snowy plovers. The Oregon population combined with Washington is part of Recovery Unit 1, and the HCP conservation measures are intended to help fulfill Recovery Unit 1 goals. The range-wide criteria for de-listing the population is an average of 3,000 breeding adults per year for 10 years, which has not been met. The goal for Recovery Unit 1 is to support 250 breeding plovers (USFWS 2007); intense management efforts in Recovery Unit 1 resulted in an overall increasing population trend and the recovery unit population goal has been met.

POPULATION MONITORING

1. Management Task: OPRD will provide funding in cooperation with several State and Federal agencies for the Oregon Biodiversity Information Center (ORBIC) to conduct breeding population monitoring at occupied sites. If the interagency cooperation fail, OPRD will ensure continued monitoring at OPRD-owned or leased SPMA's (HCP 5-10, 5-11, 5-13, 5-24).

In 2018, multiple survey efforts were used to track the coastal western snowy plover breeding population, including ORBIC, OPRD Staff, a new partnership with the Audubon Society of Portland, and public volunteers (see below). Pooling these data sources, the breeding population in Oregon was estimated at a minimum of 524 birds, and 417 breeding adults (79%) were documented nesting. Notably, nesting was documented in all coastal counties for the first time since Oregon plover monitoring began (Lauten et al. 2018).

OPRD maintained the interagency agreement with the Oregon Biodiversity Information Center (ORBIC) for monitoring western snowy plovers on the central and south coast, resulting in a contract of \$25,000 for one year of population monitoring at Bandon SPMA. Snowy plover monitoring was conducted through ORBIC as a joint task between Bureau of Land Management (BLM), U. S. Forest Service (USFS), USFWS, and OPRD. Distribution and abundance monitoring efforts included breeding season and winter window surveys as well as productivity monitoring. Productivity monitoring included locating nests and tracking the outcomes, banding young, and tracking fledgling survival. Survey methods are described in Castelein et al. 2000a, 2000b, 2001, 2002, and Lauten et al. 2003. This monitoring helps determine estimates of nest abundance, nest fate, fledging success, use of habitat restoration areas, adult populations through marked individuals, and efficacy of predator management methods. The joint monitoring report (Lauten et al. 2018) is available online.

Clatsop Spit, Nehalem Spit, Sitka Sedge, and Netarts Spit were monitored by North Coast Plover Patrol, a new partnership between OPRD and the Audubon Society of Portland, funded by the Taureen-Filgas Foundation. OPRD wildlife biologist Vanessa Blackstone, Audubon Society of Portland Coastal Field Coordinator and Biologist Amelia O'Connor, and public volunteers surveyed and monitored western snowy plover activities under OPRD Recovery Permit TE-39372B (Table 2). Nest monitoring was conducted by Vanessa Blackstone and Jeff Allen; volunteers conducted surveys from the wet sand in order to provide more frequent check-ins at each site.

In addition, adult western snowy plovers outside of designated plover management areas were observed and reported by members of the public and state park staff.

Table 2. North Coast Surveys and Nest Monitoring

Survey Type	Location	Date	Observers	Total plovers observed	Survey Time
Detection Survey	Clatsop Spit	3/18/2018	Dane Osis	0	1
Detection Survey	Clatsop Spit	Missed	None	0	0
Detection Survey	Clatsop Spit	4/19/2018	Pat Johns, Pat Corkill	0	1.5
Detection Survey	Clatsop Spit	5/5/2018	Margaret Minnick, Pat Johns, Eileen Schill	0	2
Detection Survey	Clatsop Spit	5/16/2018	Margaret Minnick	0	2
Breeding Window Survey	Clatsop Spit	5/24/2018	Dane Osis, Michael Patterson	1	Unk
Detection Survey	Clatsop Spit	5/27/2018	Eileen Schill	0	3
Nest Monitoring	Clatsop Spit	5/31/2018	Vanessa Blackstone	0	1
Nest Monitoring	Clatsop Spit	6/7/2018	Vanessa Blackstone	1	3
Detection Survey	Clatsop Spit	6/29/2018	Margaret Minnick	0	2
Detection Survey	Clatsop Spit	7/2/2018	Pat Corkill, Pat Johns	0	1.5
Detection Survey	Clatsop Spit	7/14/2018	Vanessa Blackstone	0	2
Detection Survey	Clatsop Spit	7/18/2018	Vanessa Blackstone, Dane Osis	2	4
Detection Survey	Clatsop Spit	8/14/2018	Pat Johns, Pat Corkill	5	2
Detection Survey	Gearhart ¹	4/2/2018	Pat Johns, Pat Corkill	0	0.75
Detection Survey	Gearhart	5/7/2018	Pat Johns, Pat Corkill	0	1.5
Detection Survey	Gearhart	5/10/2018	Jordan Epstein, Kim Brown	0	1.75
Detection Survey	Nehalem Spit	3/20/2018	Vanessa Blackstone and Amelia O'Connor	0	3
Detection Survey	Nehalem Spit	4/9/2018	Mollie Peters, Susan Weston	4	5
Detection Survey	Nehalem Spit	4/20/2018	Amelia O'Connor, Vanessa Blackstone	0	4
Detection Survey	Nehalem Spit	4/26/2018	Amelia O'Connor, Jeremy Sappington, Phyllis Thompson	0	4
Detection Survey	Nehalem Spit	5/4/2018	Amelia O'Connor	6	5
Detection Survey	Nehalem Spit	5/18/2018	Jeff Allen	0	3.5
Detection Survey	Nehalem Spit	5/29/2018	Susan Weston & Mollie Peters	0	3
Detection Survey	Nehalem Spit	6/19/2018	Mollie Peters	0	4
Detection Survey	Nehalem Spit	6/20/2018	Phyllis Thompson	0	2.5
Detection Survey	Nehalem Spit	7/1/2018	Mollie Peters	0	4
Detection Survey	Nehalem Spit	8/8/2018	Phyllis Thompson	0	5

Detection Survey	Nehalem Spit	8/23/2018	Phyllis Thompson	0	2.5
Detection Survey	Nehalem Spit	8/25/2018	Mollie Peters, Susan Weston	1	5
Detection Survey	Netarts Spit	3/29/2018	Celeste Lebo, Vanessa Blackstone	0	1
Detection Survey	Netarts Spit	4/15/2018	Celeste Lebo	0	1.75
Detection Survey	Netarts Spit	4/26/2018	Celeste Lebo, Greg Lueth, Shelley Reeder-Lueth	0	2
Detection Survey	Netarts Spit	5/4/2018	Celeste Lebo	0	2
Detection Survey	Netarts Spit	5/11/2018	Shelley Reeder-Lueth and Greg Lueth	0	3
Detection Survey	Netarts Spit	5/26/2018	Celeste Lebo	0	2
Detection Survey	Netarts Spit	6/1/2018	Greg and Shelley Lueth	0	2
Detection Survey	Netarts Spit	6/7/2018	Greg and Shelley Lueth	0	2
Detection Survey	Netarts Spit	6/22/2018	Greg and Shelley Lueth	0	2
Detection Survey	Netarts Spit	7/6/2018	Shelley Reeder-Lueth & Greg Lueth	0	2.5
Detection Survey	Netarts Spit	7/13/2018	Celeste Lebo	0	2.5
Detection Survey	Sitka Sedge	3/29/2018	Amelia O'Connor and Jeff Allen	6	3
Detection Survey	Sitka Sedge	4/9/2018	Lynda Steiner, Amelia O'Connor	6	4
Detection Survey	Sitka Sedge	4/19/2018	Lynda Steiner	5	3.75
Detection Survey	Sitka Sedge	4/23/2018	Lynda Steiner	3	3.5
Detection Survey	Sitka Sedge	5/2/2018	Jeff Allen	2	2.5
Nest Monitoring	Sitka Sedge	5/7/2018	Lynda Steiner	2	3
Nest Monitoring	Sitka Sedge	5/16/2018	Amelia O'Connor, Araceli Morales, Halle Renn, Megan Deane Mckenna	2	3
Detection Survey	Sitka Sedge	5/22/2018	Lynda Steiner, Araceli Morales	2	2.75
Nest Monitoring	Sitka Sedge	5/29/2018	Lynda Steiner	0	4
Detection Survey	Sitka Sedge	6/11/2018	Araceli Morales	2	2.75
Detection Survey	Sitka Sedge	6/13/2018	Allan Jio	0	3
Detection Survey	Sitka Sedge	6/15/2018	Jeff Allen and Araceli Morales-Santos	2	2.5
Detection Survey	Sitka Sedge	6/22/2018	Halle Renn	3	3
Detection Survey	Sitka Sedge	7/11/2018	Allan Jio	0	2
Detection Survey	Sitka Sedge	7/28/2018	Jeff Allen	5	2.5
Nest Monitoring	Sitka Sedge	8/23/2018	Amelia O'Connor	10	2.5
Detection Survey	Sitka Sedge	9/19/2018	Jeff Allen	21	2
Detection Survey	Bayocean Spit	6/6/2018	Vanessa Blackstone, Paul Schmidt	1	2

¹ Gearhart was surveyed early in the breeding period while finalizing its status as an unmanaged site.

NEST SUCCESS, PRODUCTIVITY AND FLEDGLING SUCCESS

Nest success is defined as the number of successful nests divided by total number of nests (apparent nest success; from Lauten et al. 2003). Pooling known nests across the entire coast, 506 were found and 246 hatched (Lauten et al., 2018; OPRD unpublished data) yielding an overall nest success of 49% across the Oregon coast.

In addition to nest success, the number of young that survive is another important component of snowy plover productivity and imperative to the recovery of the species. Reproductive success, the number of young fledged per adult male, is based on males because they provide post-hatching parental care, and females lay clutches for multiple males (Warriner et al. 1986). 1.0 fledgling/male is the target goal in the Recovery Plan (USFWS 2007). However, in locations where the plover population is dense, tracking males across different sites is challenging and can skew the ability of fledglings/male to accurately portray reproductive success when the number of males cannot be accurately estimated (see Lauten et al. 2017). On the south coast, 2018 had a minimum of 316 fledglings, fledging success at 49%, and 1.3 chicks fledged per resident male (Lauten et al., 2018). Note these numbers do not include the north and central coast numbers.

Lauten et al. (2017) and Colwell et al. (2018) propose utilizing a breeding coefficient calculated from the number of fledglings produced per eggs laid, and state that this value incorporates breeding effort via the number of eggs laid (e.g. a site that has 9 eggs laid took less effort than a site with 355 eggs laid). Since this value had not been used before 2017, it does not yet help with trends over time. Lauten et al. (2017, 2018) propose that a breeding coefficient over 0.20 is relatively successful while under 0.15 are generally not productive for the amount of effort expended. Many of the sites had numbers that indicate successful breeding, although Bandon SPMA just slightly missed the mark with a 0.19 breeding coefficient.

CLATSOP

This year marks the first documented western snowy plover nest at Clastop Spit since 1984. While nest success was 0%, the return of breeding plovers to the site is a fabulous step to reuniting the Oregon and Washington plover populations. The nest itself likely failed within a week of the discovery of a deceased human approximately 100 feet from the nest's location. Without a known initiation date and no evidence of the cause of failure, it is not possible to state the nest's fate. No adults, chick, or juveniles were observed for three weeks after the body was observed. No attempts to re-nest were discovered despite multiple searches. The adults were seen on site in late July without any juveniles or fledglings.

NEHALEM

Nehalem Spit nest success was 0%. While multiple adults and nest scrapes were observed within and north of the SPMA, only one nest was confirmed. This nest was north of the SPMA in between two day use beach access points, with high levels of recreation. The nest was found with one egg, and was likely abandoned.

No chicks or fledglings were documented at Nehalem in 2018. A member of the public reported a snowy plover chick far to the north of the SPMA on the beach fronting Manzanita, but it could not be relocated by OPRD staff or experienced birders. A pair of adult birds utilized this area throughout the breeding period.

SITKA SEDGE

Sitka Sedge nest success was 100% with a relatively small sample size of 4 nests, all of which successfully hatched. The breeding population at Sitka Sedge is growing, with three separate pairs present throughout the season and additional adults early in the season.

At least seven young fledged at Sitka Sedge, making 2018 the second year in a row with successful fledging.

BANDON

Bandon SPMA has a diverse array of predators, which contributes to fairly low productivity, and yet in spite of this 2018 was a very successful year in nearly every metric. Nest success across the entire SPMA was 37%, which is near the average of 41%. Bandon Beach, the stretch of beach north of New River (Figure 5), was 44% while nest success at New River (beach south of New River to the southern edge of Bandon SPMA) was 30%. This difference is

interesting as Bandon Beach experiences higher recreation disturbance than New River. As usual, some nests were located just north of the SPMA (four in 2018), with rope buffers erected to protect them. Bandon's nest success in 2018 was lower than 2017, yet Bandon had the highest productivity of fledglings since monitoring began.

Bandon fledged at least 42 fledglings, with 1.31 fledglings/male. Of special note is that this is not only above 1.0 fledgling/male listed in the Recovery Plan (USFWS 2007), but it is also above the pooled South Coast average of 1.17. With Bandon performing at the top of the South Coast sites, this location is becoming increasingly important to the South Coast population's productivity.

Table 3. Nest distribution in SPMAs

SPMA	Habitat Area	Acreage (2018)	2018 Nests	Habitat Notes	2018 Treatments
Bandon	China Creek Overwash	3.6	0	Receives overwash	None
Bandon	Bandon Beach HRA ¹	13	17		None
Bandon	Cutout 4 and HRA	11	4	Eroding into New River	None
Bandon	Bandon New River ²	100	43	Receives overwash	None
Bandon	Bandon Beach	13	11		None
Clatsop	Jetty	25	1		None
Sitka Sedge	Overwash	33	4	Receives overwash	None
Sitka Sedge	HRA	-	-		None
Nehalem	Beachfront	17	0		None
Nehalem	Jetty HRA	5	0		None
Total		220.6	81		

¹ Bandon Beach HRA contains Cutouts 1, 2, and 3 from previous habitat restoration actions;

² Generated from aerial imagery

Table 4. Productivity of snowy plovers at Occupied SPMAs (1995-2018)

Year	Bandon		Sitka		Nehalem		Clatsop	
	Fledgling Success Rate ¹	Breeding Coefficient ²	Fledgling Success Rate	Breeding Coefficient	Fledgling Success Rate	Breeding Coefficient	Fledgling Success Rate	Breeding Coefficient
2018	53%	0.19	58%	0.58	0	0	0	NA
2017	33%	0.16	100%	1.0	100%	0.07	NA	NA
2016	20%	0.05	0	0	0	0	NA	NA
2015	49%	0.14	NA ⁴	NA	0	0	NA	NA
2014	49%	0.16	NA	NA	NA	NA	NA	NA
2013	39%	0.10	NA	NA	NA	NA	NA	NA
2012	40%	0.08	NA	NA	NA	NA	NA	NA
2011	49%	0.23	NA	NA	NA	NA	NA	NA

Year	Bandon		Sitka		Nehalem		Clatsop	
2010	17%	0.07	NA	NA	NA	NA	NA	NA
2009	35%	0.07	NA	NA	NA	NA	NA	NA
2008	38%	0.04	NA	NA	NA	NA	NA	NA

¹ Fledgling success: number of fledged chicks/total number of hatched eggs

² Breeding coefficient: Fledglings produced/total number of laid eggs

³ NC: Not calculated

⁴ NA: Not applicable, site was not occupied by breeding plovers

Source: Lauten et al., 2018.

NESTS OUTSIDE OF DESIGNATED PLOVER MANAGEMENT AREAS

Through public and staff reporting, OPRD installs protective signage and fencing around nests discovered outside of designated plover management areas. The nests found in 2018, outlined in Table 5, are not monitored intensely by OPRD. Data is gathered by OPRD staff during the course of their normal duties or from public volunteers.

Table 5. Summary of Nesting Outside of Plover Management Areas

Beach	Number of Nests	Total Hatched	Number of Fledglings	Associated Color-banded Plovers
Agate Beach	1	1	1	
Bailey Beach	1	0	0	
Bayshore	1	0	0	
Collins Creek	2	0	0	Y/G:W, O/V:W
Driftwood Beach	1	0	0	
South Beach	4	1	3	S:V
Yaquina Point	1	Unknown	Unknown	V/B/V:K
Total	11	2	3	

WINDOW SURVEYS

2. Management Task: OPRD will provide staff to assist with conducting wintering survey windows at occupied sites and at new SPMAs as they become occupied (HCP 5-13, 5-23).

The USFWS coordinates the winter and breeding window surveys and manages the protocol based on guidelines in the Recovery Plan (USFWS 2007), with assistance from qualified volunteers from other agencies, including OPRD. Winter and breeding window surveys are intended only to provide a range-wide index of the plover population over time; these surveys provide a minimum estimate of plovers at current, historic, and potential breeding sites, not a complete count (Elliot-Smith and Haig 2007).

Since 1991, both winter and breeding window survey results show an increase in detections of snowy plovers (Figure 3). The 2018 breeding window survey results estimated 310 breeding adults, an increase from 2017 but not the peak of 375 in 2016 (Lauten et al. 2018). There was also an increase in the observed number of nesting plover (382 up from 363, Figure 4).

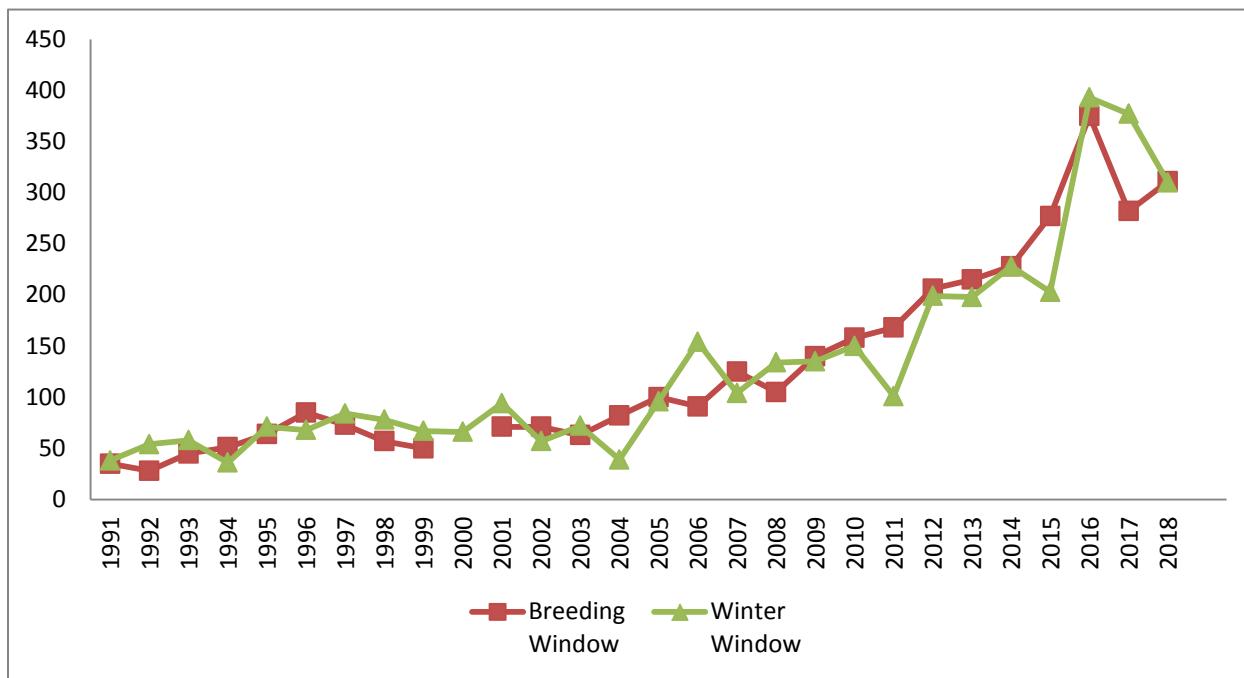


Figure 3. Western snowy plover breeding window survey results (1993-2018)

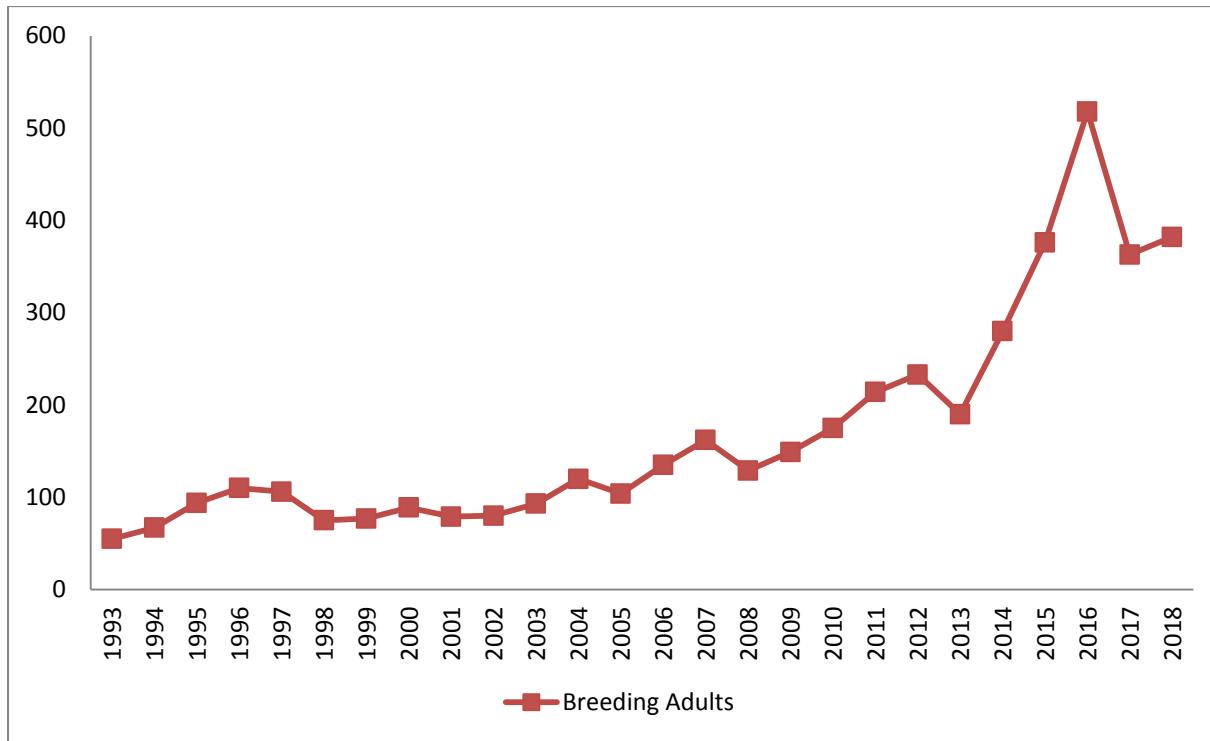


Figure 4. Oregon coast western snowy plover breeding population estimates (1993-2018) from Lauten et al. 2018

DETECT/NONDETECT SURVEYS

OPRD staff and volunteers conducted detect/nondetect surveys SPMAs from March through July (Table 2). In addition, USFWS surveys across the Oregon coast in May. Snowy plovers were observed at four SPMAS: Clatsop Spit, Nehalem Spit, Sitka Sedge, and Bandon. No breeding behaviors or nests were observed at Netarts Spit.

3. Management Task: *OPRD will perform detection/non-detection monitoring activities at unoccupied SPMAs for nesting snowy plover at the beginning of nesting season (March) through July 15. These will occur twice monthly (HCP 5-10, 5-11, 5-13, 5-24).*

OPRD possesses a USFWS Recovery Permit (Level 3), held by the wildlife biologist, Vanessa Blackstone. OPRD trained volunteers and staff on April 14 and April 21, 2018 to conduct detect/non-detect surveys and to ensure unoccupied sites were surveyed according to HCP and Recovery Permit guidelines. Training followed the 4-hour classroom style training developed by USFWS, BLM, OPRD and ORBIC in 2013 and expanded with additional photographs, props, and experiences gained since then.

SPMA OCCUPANCY

OPRD currently manages four SPMAs on the Oregon coast (Figure 1). One SPMA is not currently managed (Netarts Spit). Three OPRD-managed occupied sites supported breeding in 2018 and successfully fledged chicks: South Sand Lake, Nehalem, and Bandon. Clatsop Spit also had attempted nesting in 2018. A summary of the earliest record, most recent record, and current status of each SPMA is provided in Table 6 and nest distributions in SPMAs is shown in Table 3.

Table 6. SPMA plover record summary

SPMA	Earliest Record	Most Recent Breeding Attempt	Most Recent Breeding Season Record	Most Recent Wintering Record	Occupied
Bandon	1972	2018	2018	2018	Yes
Clatsop Spit	1965	2018	2018	2018	Yes
Nehalem Spit	1920	2018	2018	2018	Yes
Netarts Spit	1912	1982	2018	1978	No
Sitka Sedge	1978	2018	2018	2018	Yes

TAKE OCCURRENCES

Some incidental take in the form of harassment of adults (plovers exhibiting avoidance behaviors) is likely as part of Ocean Shore management. These include: population monitoring, predator management, compliance monitoring and enforcement, and beach management activities. There is also likelihood of plover harassment from beach visitors' lack of compliance with recreation restrictions. No known cases of direct take occurred in 2018.

MANAGEMENT ACTIVITIES

4. Management Task: *The Ocean Shores Manager will be designated as the agency's HCP Coordinator and will provide program implementation oversight, development of management guidelines, and development of site management plans (HCP 7-2). Overall program coordination will be carried out by the Ocean Shores Management Division (7-3).*

OPRD has restructured since the HCP was signed and there is no longer an “Ocean Shores Manager” position. Tasks in the HCP have been delegated to the Parks Stewardship Section Manager, Ocean Shores Specialist, Wildlife Biologist, and Coastal Region Manager. In addition, an Ocean Shores Team meets quarterly to address issues related to management of the Ocean Shore, including plover management and HCP coordination. The Ocean Shores Team includes beach rangers, district managers, the Coastal Region Manager; ocean shores specialists, wildlife biologist, and Stewardship manager.

5. Management Task: *Day to day activities will be carried out by field staff, assisted by OPRD’s Resource Management and Planning Division, Public Services Division, and Recreation Management Division (HCP 7-2). Coastal Regional Managers will have responsibility for day-to-day management activity implementation as identified in the site management plans (HCP 7-3). See “Roles and Responsibilities” table HCP 7-4.*

OPRD has restructured since the HCP was signed. The divisions mentioned above have become the Stewardship Section, Planning + Design Section, Properties Unit, Safety and Risk Unit, and Communications Division.

6. Management Task: *The HCP Coordinator will prepare management guidelines for use by OPRD within 2 years of issuance of the ITP (HCP 7-4).*

Management guidelines have been presented to park staff via in-person training, presentations, and email correspondence.

7. Management Task: *All beach management activities that will occur in an occupied or unoccupied SPMA/RMA will be done in a way to avoid take, and will consult with USFWS on these activities, unless there is an emergency (HCP 5-36).*

Beach management actions during the breeding period are limited to wet sand access only; beach rangers consult with ORBIC monitors on current locations of plover nests and broods when dry sand access is required to address hazards or fence adjustments.

SITE MANAGEMENT PLANS

8. Management Task: *Produce site management plans within one year of the ITP issuance for Bandon State Natural Area (SNA), and within two years of the ITP issuance for Columbia River South Jetty, Necanicum Spit, and Nehalem Spit (HCP 1-9, 5-6). Site management plans define the area of restricted recreation within the SPMA (1-9).*

Site management plans for Bandon and Nehalem have been completed. Draft site management plans for Clatsop Spit and Necanicum Spit are still undergoing development and review. OPRD began enforcing recreation restrictions at the three sites based on the draft site management plans March 15, 2014. Clatsop Spit requires additional coordination and consultation with USACE (ongoing). In 2014, OPRD acquired Sitka Sedge State Natural Area, which abuts South Sand Lake RMA, and in 2016, 2017, and 2018 managed the site following an interim site management plan in response to plover occupancy. This plan addresses seasonal recreation restrictions to facilitate visitor management. Development of the final site management plan will involve consultation with DSL to coordinate recreation and habitat management actions along the estuary. In addition, OPRD is now managing South Sand Lake RMA as Sitka Sedge SPMA in lieu of unoccupied Necanicum Spit after reviewing data collected since management at both sites began. OPRD will develop a full site management plan for South Sand Lake SPMA in 2019. OPRD will also begin developing a site management plan for Netarts Spit now that Nehalem SPMA is occupied.

9. Management Task: *Annually OPRD and USFWS will review what adjustments should be made to site management plans to improve potential for plover occupancy at unoccupied SPMAs (HCP 5-31).*

OPRD is still working with USFWS and partner agencies in the development of site management plans for two actively managed sites and one unoccupied site (see above). Discussion regarding Bandon, Sitka, Nehalem, and Clatsop spit management occurred with ODFW and USFWS in coordination with the Western Snowy Plover Working Team on October 17 and 18, 2018. Thus far, changes in management in response to on-the-ground conditions have remained within the parameters of the site management plans.

10. Management Task: *If plovers successfully nest for 2 out of 3 years on OPRD owned or leased lands outside of an SPMA then OPRD will consult with USFWS to possibly add the site to the list of SPMAs based on a set of conditions, including dropping another unoccupied SPMA in exchange for the new site since OPRD is not required to manage more than five SPMAs (HCP 5-30).*

This scenario has not yet occurred; OPRD is monitoring both South Beach State Park and Driftwood Beach, where successful nesting has occurred.

11. Management Task: *OPRD will manage Netarts Spit if one of the following conditions exist: 1) there are fewer than three unoccupied SPMAs or RMAs being managed for occupancy (5-33) or 2) if none of the initial three SPMAs are occupied after 5 years from the active management start date, and no RMAs are being managed for occupancy, then OPRD will begin active management for occupancy at Netarts Spit (HCP 5-31, 5-33, 5-37).*

Nehalem became occupied in 2015 and OPRD finalized the site management plan in 2017. OPRD will begin drafting a plan for Netarts Spit once a site management plan for the newly designated Sitka Sedge SPMA is complete.

12. Management Task: *OPRD will review and comment on RMA site management plans. If an RMA becomes owned by OPRD, the snowy plover management measures described above will be implemented at that site (5-34).*

OPRD acquired South Sand Lake RMA as part of Sitka Sedge State Natural Area. Master planning for the park occurred in 2016 and a draft plan is available. Conservation measures in agreement with the HCP are included in the draft master plan, and OPRD has developed an interim Site Management Plan since plovers have occupied the site. OPRD and USFWS exchanged South Sand Lake RMA in lieu of Necanicum Spit, a previously unoccupied SPMA in 2018.

PLOVERS OUTSIDE PLOVER AREAS

13. Management Task: *OPRD will protect any discovered nests on the Ocean Shore on non-federally owned lands that are not within an SPMA/RMA by placing a 50-meter radius buffer that allows access to the wet sand to protect the nest from human disturbance, and an exclosure may be used, if necessary, to minimize predation. The fencing will consist of ropes affixed to light weight poles with signs posted at intervals around the buffer (HCP 5-10, 5-19, 5-27, 5-35).*

A total of 11 nests were discovered outside of designated plover areas (see Management Task 1). In addition, five nests were located just outside of SPMAs: four north of Bandon and one north of Nehalem. ORBIC monitors and OPRD beach rangers utilized symbolic fencing to protect these nests.

HABITAT MANAGEMENT

BANDON SPMA

14. Management Task: *Provide and maintain a minimum of 50 acres of quality habitat available for nesting and wintering western snowy plovers at Bandon SNA (HCP 1-9, 5-11, 5-19, 5-33).*

Prior to issuance of the HCP, OPRD had restored approximately 50 acres of habitat near the mouth of Twomile Creek (Figure 5). The mouth of New River has moved north and joined Twomile Creek, dividing the original HRA into north and south sections. New River allows overwash to maintain some habitat generate additional suitable habitat south of the river; the amount of habitat changes every year with the shifting of New River northward. As the river continues to move north, beach grass encroachment moves north into restored areas and requires maintenance. There is currently one habitat restoration area (HRA) area, and two areas of naturally restored habitat (China Creek Overwash and Bandon New River). In 2015, dune grading connected three cutouts to combine them into one HRA. Portions of the previous HRA have been lost to New River's movement. From aerial photography data taken in 2018, there are approximately 140 acres of nesting habitat at Bandon. In addition, China Creek has shifted north, resulting in approximately 7 acres of habitat north of the SPMA boundary and it is actively used by nesting plovers.

OPRD is still addressing cultural considerations, and work was not cleared in time for work to move forward in 2018. Throughout 2017 and 2018, OPRD archaeologists have been working with the Siletz and Coquille tribes to address the known cultural sites in the vicinity and develop an appropriate testing and monitoring plan that will allow habitat restoration while protecting any cultural resources buried beneath the sand. In 2019, OPRD's coastal archaeologist and wildlife biologist are continuing development of a long-term habitat restoration plan for Bandon SPMA to streamline cultural resource consultations. The plan will identify different Areas of Potential Effect (APE) based on the landform and likelihood of cultural resources, and address inadvertent discoveries, monitoring, or testing efforts needed for each APE in cooperation with the tribes and the State Historical Preservation Office. This long-view plan will ensure that the Tribes are aware and acquainted with the work OPRD is planning well in advance, and will give OPRD more flexibility in selecting areas for restoration based on available funding.

SITKA SEDGE SPMA

Management Task: *Total amount of maximum habitat restoration at this site has not been determined. OPRD is restoring habitat according to the Master Plan. The HCP may be amended to include Sitka Sedge maximums into the document.*

Habitat at Sitka Sedge is mostly north of the SPMA boundary on sand accreting into the estuary, but also extends south down the beach in a narrow strip. Total habitat in the area is approximately 33 acres (Figure 6), an approximately 11 acre increase over 2017 due to natural oceanic processes. OPRD applied herbicide to 5 acres in January 2019 and will begin a small dune contouring project in February 2019 in advance of the breeding period to test techniques at this site. Complete restoration of the site may require working with DLCD, Tillamook County and FEMA to properly address FEMA dune height requirements and flood risk.

NETARTS SPIT

There are currently no habitat management goals at Netarts Spit; these will be developed during the site management plan process. Sand deposition and overwash has created approximately 20 acres of suitable habitat at the northernmost tip of the spit. The remainder of the spit has an abrupt edge where high water has eroded into the dune and there is no path for juvenile plovers to navigate up the cut bank.

NEHALEM SPIT SPMA

15. Management Task: *Restore up to 40 acres at Nehalem Spit. Habitat restoration at Nehalem Spit will be initiated within 2 years of completing the site management plan.*

OPRD completed a small pilot project at Nehalem in February, 2017. Habitat restoration is a high priority at Nehalem, where sand accretion rapidly eradicates the small areas of suitable nesting habitat. Winter storms in early 2018 have reduced habitat by piling dense rafts of driftwood across the site, including the pilot HRA. The Jetty HRA provided about 5 acres of nesting habitat early in the season, but by June the beachgrass had resprouted too thickly and uniformly for plover use (Figure 7). The beach was exceedingly narrow, so while 17 acres of nesting habitat was available, it was pinched closely between the toe of the dune slope where coyotes patrol and the wet sand. A handful of early season nest scrapes but no confirmed nesting indicates the site is attractive to plovers but not able to maintain them. OPRD plans to restore approximately 25 acres via dune grading in February 2019.

NECANICUM SPIT SPMA

16. Management Task: *Restore up to 40 acres at Necanicum Spit SPMA, if needed (limiting factors are predator management and enforcement of recreation restrictions). Habitat restoration at Necanicum Spit will be initiated within 2 years of completing the site management plan, if needed (HCP 1-9, 5-11, 5-12, 5-19, 5-33, 5-37).*

OPRD is no longer managing Necanicum Spit SPMA as a designated plover nesting area per an agreement with the USFWS to formally exchange the unoccupied site with occupied South Sand Lake RMA, a property recently acquired by OPRD (Sitka Sedge State Natural Area).

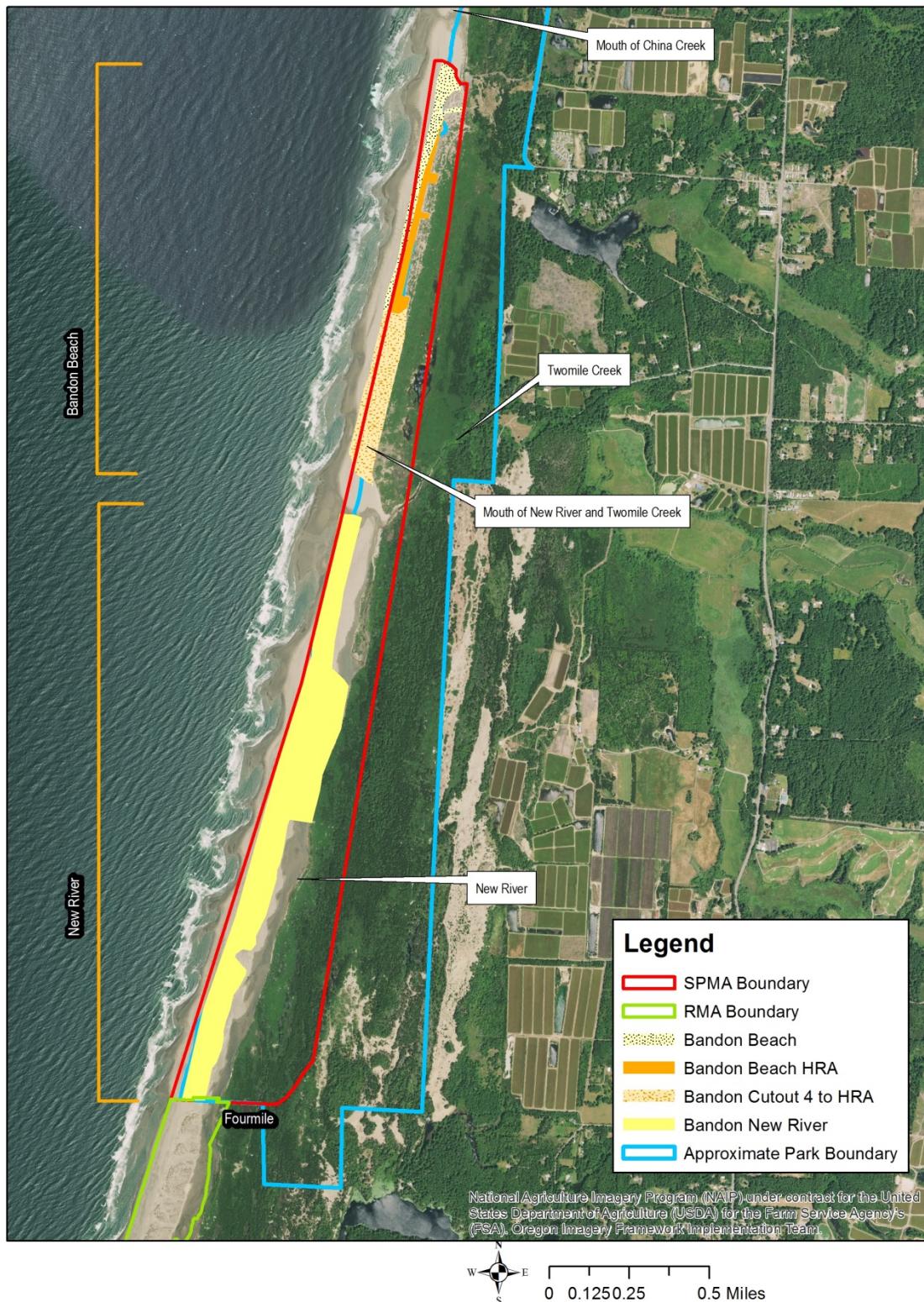


Figure 5. Bandon SPMA Habitat Areas



Figure 6. Sitka Sedge SPMA habitat area

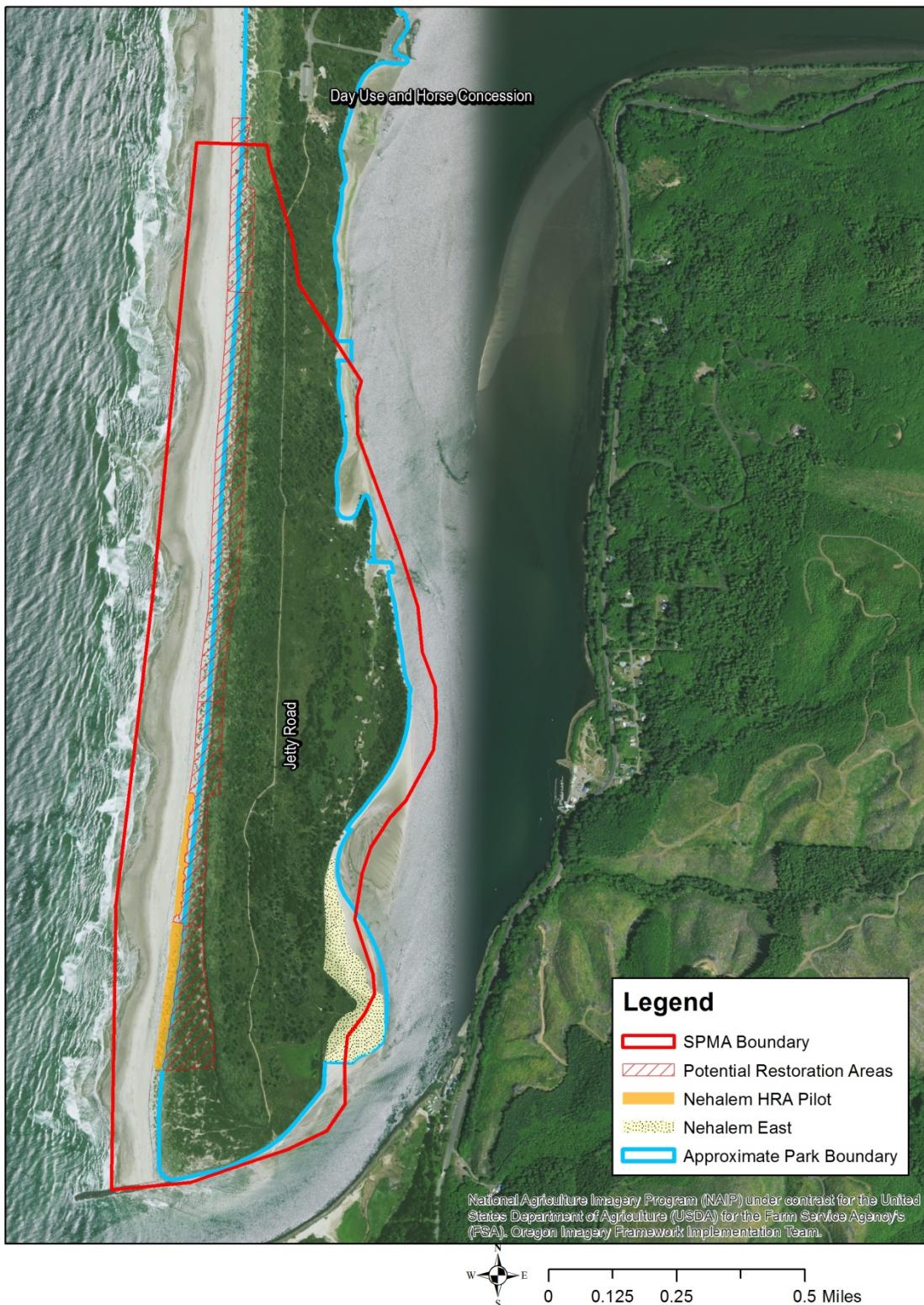


Figure 7. Nehalem SPMA habitat area

CLATSOP SPIT SPMA

17. Management Task: *Restore up to 40 acres at Columbia River South Jetty SPMA. Habitat restoration at Columbia River South Jetty will be initiated within 5 years of completing the site management plan (HCP 1-9, 5-11, 5-12, 5-19, 5-33, 5-37).*

No habitat has been restored at Clatsop Spit, and available habitat has increased dramatically from sand deposition, providing approximately 25 acres of habitat. A single pair of plovers nested unsuccessfully. Provided winter storms have not eroded away this new habitat, Clatsop will likely remain attractive to plovers without additional habitat work. OPRD cannot plan habitat restoration at this site until appropriate agreements with the USACE have been signed. Restoration will likely follow the Columbia River South Jetty rehabilitation project, as originally intended in the HCP. However, that Federal project has had significant associated delays outside the control of OPRD.

PREDATOR MANAGEMENT

Predator management is largely comprised of lethal removal of animals hunting in plover occupied sites and non-lethal methods to reduce predator density, including trash and carcass removal from occupied beaches. Currently, active predator management occurs at Bandon SPMA. OPRD is gathering data at Clatsop, Nehalem and Sitka Sedge in order to determine when predator management actions will become necessary. Thus far, common plover predators have been observed at each SPMA, but nest failure attributed specifically to predators has happened only at Bandon SPMA. OPRD will be deploying more cameras in order to capture cause of nest failure at SPMAs.

Predators are the main cause of nest failure across the Oregon coast (60%, Lauten et al. 2018), which is a consistent trend. Corvids regained their rank as the largest source of predation.

Monitoring and detection surveys at north coast sites, ORBIC monitoring reports, and APHIS Wildlife Services reports indicated presence of the following potential predators:

Predator	Clatsop Spit	Nehalem Spit	Netarts Spit	Sitka Sedge	Bandon
Northern Harrier	Present	Present		Present	Breeding
California gull		Present	Present	Present	Present
Western gull	Present	Present	Present	Present	Present
Coyote		Present			Present
Fox					Present
Crows	Present	Present	Present	Present	Present
Ravens	Present	Present	Present		Present
Opossum					Present
Skunk					Present
Great horned owl					Present
Peregrine falcon	Present	Present		Present	

BANDON

Bandon SPMA consistently has predation pressures, and this year many of the depredations were unable to be identified. Bandon has a diversity of potential predators on the site, making determination of depredation challenging (Lauten et al., 2018). Additional camera deployment would assist in determining which predators are having the largest impact on nesting and fledging success.

Total removals were higher in 2018 when compared to 2017. A total of 27 animals were lethally removed from Bandon State Natural Area including: 8 common raven, 9 American crows, 5 red fox, 2 striped skunk, 1 grey fox, 1 raccoon, and 1 great-horned owl. Sixteen nests were depredated by unknown predators, the largest predation category (an increase from 7 in 2017), followed by fox (7), corvids (3), raccoon, skunk, and western gull (1 each).

Mammalian predators are more common at Bandon than many other sites, and this year foxes remained present despite recurring lethal removals (Lauten et al., 2018). Given that new individuals fill the territory almost immediately, habitat manipulation may be more successful in protecting plovers from foxes. Based on tracks, a pair of great horned owls was believed to be affecting fledging success last year (Lauten et al., 2017). This year, one owl was removed and while a second owl was still active in the area no additional plover mortalities due to owls was observed (Lauten et al., 2018). Corvids are also ever-present.

SITKA

Thus far, no nests have failed due to predation.

NEHALEM

With multiple pairs and nest scrapes observed but only one egg located, nest failure at Nehalem was likely faster than monitors could locate new attempts. This is most likely due to lack of suitable habitat and recreation pressures. Coyotes, crows, and ravens have been documented on the site.

18. Management Task: *Provide financial assistance for predator management activities on OPRD SPMAs, including full funding for garbage removal at OPRD unoccupied SMPAs (HCP 5-11, 5-23). OPRD is required to comply with terms and conditions of the USFWS 2001 Biological Opinion and its amendments for predator management actions (5-22).*

OPRD continued lethal predator removal at Bandon SPMA via a joint contract with Animal Plant and Health Inspection Service (APHIS) Wildlife Services and agency members of the Snowy Plover Working Team (USACE, BLM, Oregon Department of Fish and Wildlife, OPRD, USFS, and USFWS). OPRD also maintained ten beach rangers that patrol the Ocean Shores and remove garbage, as well as assisted marine debris collection efforts by partners such as SOLVE and Surfrider Foundation.

19. Management Task: *Facilitate lethal control methods of predator management through cooperative agreement with Animal and Plant Health Inspection Service (APHIS) or similar organization (HCP 5-23).*

OPRD contributed \$25,000 in funding to the contract with Wildlife Services for the 2017-2019 biennium. Two wildlife biologists were utilized on the south coast. A summary of the predator management activities can be found in the Integrated Predator Damage Management Report (Bell et al., 2018). Predator management activities (lethal control) have been occurring at Bandon SNA since 2002; the remaining SPMAs do not currently have predator management actions.

ENFORCEMENT

20. Management Task: *OPRD will seek to modify the Oregon State Rule of Ocean Shore Management to provide an ongoing mechanism for recreational use restrictions (HCP 5-11, 5-16, 5-28, 5-35).*

OPRD completed Rulemaking for the Ocean Shore at the end of 2012. The new rules went into effect on February 1, 2013.

21. Management Task: OPRD will install symbolic fencing around nesting areas at the start of snowy plover nesting season at OPRD-owned nesting areas, and will provide signs for all SPMAs/RMAs regardless of ownership (HCP 5-11, 5-18, 5-33, 5-37, 5-38).

Symbolic fencing was initially installed March 15 at China Creek overwash to the mouth of New River. Staff attempted to place signs on the south side of New River, however, the access was blocked by high water. Staff continued to monitor the access and additional signage south of New River was installed once water levels allowed crossing of New River on April 4th. Additional signage was installed on April 22nd following a large storm that washed over the nesting area and a new I Beam sign was also installed that same day. Signage was installed at Sitka Sedge on March 14th and at Clatsop Spit and Nehalem Spit on March 15th. Updated occupied site signage was installed at Clatsop Spit on May 24, 2018.

OPRD will provide supervision, enforcement, and ropes and/or signage at RMAs not adjacent to Federal lands (HCP 5-11, 5-19, 5-38).

Currently there is one RMA not adjacent to Federal lands – Elk River. USFWS has been working with the private owners to restore the site, including development of a site management plan. There have been no requests for OPRD to assist with supervision, enforcement, fencing, or signage at Elk River. If requested, OPRD will work with the land owner to ensure these needs are met.

22. Management Task: OPRD will provide authorization to restrict recreation within the Ocean Shore at RMAs (HCP 5-18, 5-35). OPRD will implement these restrictions based on either an USFWS- approved site management plan. If an RMA is unoccupied OPRD will implement recreation restrictions at the request of the landowner and after consultation with ODFW and USFWS. If an RMA becomes occupied and no site management plan exists, OPRD will implement recreation restrictions within the covered lands until an agreement is reached between USFWS and the landowner, or a site management plan is developed (HCP 5-19, 5-35).

All occupied RMAs, except for Elk River have recreation restrictions in place. No landowners have requested OPRD restrict recreation at unoccupied RMAs.

23. Management Task: OPRD will implement recreation restrictions at occupied SPMAs/RMAs during the breeding period (March 15 – September 15) within the Covered Lands. These include prohibitions on vehicles, dogs, kites, and any activities in the dry sand (HCP 5-34, 5-37, 5-38).

Recreation restrictions were put into place as specified and according to site management plans.

24. Management Task: OPRD will implement recreation restrictions and enforcement activities at unoccupied SPMAs/RMAs during the breeding period (March 15 – September 15) within the Covered Lands. These include prohibitions on vehicles and dogs must be leashed (HCP 5-34, 5-37). Restrictions may be lifted after July 15 if no breeding found.

Recreation restrictions were put into place according to the draft site management plans.

25. Management Task: OPRD will conduct enforcement actions on managed RMA sites (HCP 5-38).

Beach Rangers patrolled RMAs and interacted with beach visitors to gain compliance with recreation restrictions (see task 28).

26. Management Task: Work with Oregon State Police (OSP) and local law enforcement offices to provide additional enforcement support. (HCP 5-11, 5-28). Provision of OSP senior troopers, as needed, for enforcement of State Park and Ocean Shore regulations, including restrictions protecting snowy plover (HCP 5-34).

OPRD has contracted with Coos County Sheriff in the past to provide western snowy plover specific enforcement. OPRD Ocean Shore Specialist, Calum Stevenson has provided training to Coos County Reserve Deputies. Patrols were halted due to increased risk to plover young on the beach. In 2015, after additional incidents related to driving on dry sand, the contract was not renewed and will not be until OPRD can ensure reduced risk of plover take from the patrols.

27. Management Task: OPRD will not create any new access points within SPMAs except where necessary to re-route an existing route away from plover nesting areas (HCP 5-29)

No new access points have been created.

28. Management Task: OPRD will provide funding for three full-time beach ranger positions that are currently in place to encourage compliance with beach restrictions (HCP 1-14 and 5-15) one each for the north, south, and central coast, and these duties will be conducted in both SPMAs and RMAs (HCP 1-9, 1-14, 1-22, 5-11, 5-15, 5-16, 5-19, 5-28, 5-37). Provision of beach rangers is for enforcement of State Park and Ocean Shore regulations, including restrictions protecting snowy plover (HCP 5-34).

In 2018, OPRD had four full-time beach ranger positions (north, mid, central, and south coast) for part of the year, with a change mid-year which lead to an increase in staff to 10 Beach and Oregon Coast Trail District Rangers, one for each management unit on the coast. This allows for more expedient response times to incidents (far less drive time since staff is located closer to areas of responsibility), however it does not necessarily mean that the Rangers are on the beach more since they have a broader scope of job duties, including the Oregon Coast Trail. In 2018 Beach Rangers performed over 290 of plover-specific patrol hours at Clatsop, Nehalem, Sitka Sedge, and Bandon SPMAs. In addition to the contacts that included a violation of plover area rules (see Table 7), Beach Rangers also performed over 486 informational contacts with beach visitors at SPMAs.

Additionally, OPRD Plover Hosts provided over 700 hours of on-site presence and plover information/outreach at Bandon and Nehalem. Plover patrol volunteer monitors provided over 125 hours of on-site site monitoring at north coast plover sites, which including tracking violations they observed while on site (and reporting to beach rangers to help improve compliance).

Beach Rangers also conducted patrols for over 134 hours at federally managed RMAs and other plover sites that required attention (e.g. signage, fencing management of active nests outside designated plover sites) in 2018. Beach rangers had over 400 public contacts at these non-SPMA sites during the 2018 season.

VIOLATION SUMMARY

Violations and compliance requests were extracted from beach ranger logs and volunteer docent reports and ORBIC monitors (for Bandon SPMA only) and the Plover Patrol Monitors (Clatsop, Sitka, and Nehalem) and are summarized in Table 7 for all sites. Docent and Plover Patrol reports are based on direct observations. Violations are reported by total number of individuals rather than events since determining an event based on tracking is not feasible. This can inflate the total number of violations. There is the possibility that some violations were double-counted since there is currently no reliable method for determining if beach rangers, ORBIC monitors, Plover Patrol monitors, and docents recorded the same violations. Violations in RMAs are addressed by the agency managing the dry sand, and are not reported here. Beach rangers are currently the only consistent enforcement presence across all SPMAs.

Dogs are typically the largest overall compliance issue across all occupied sites, and efforts to increase compliance with the dog community will continue to be explored. New signage was installed at Bandon, Sitka and Nehalem that has helped some based on input from the beach rangers. Reported dog violations decreased at Bandon SNA, while increasing at Nehalem and Sitka Sedge and overall across sites. However, a change in regulations at Clatsop accounts for some of that overall increase since the category of violation changed from "dog off-leash in an unoccupied SPMA to "dog present in occupied SPMA". In 2018, the biggest increase in violations at Bandon was "people in the dry sand" which differs from 2017 where the biggest increase was bicycles in the dry sand. OPRD worked on improving signage at China Creek for the 2018 season, including a new "no dogs" and "no bikes" sign as well as outreach conducted to local bike shops (in Bandon) renting fat bikes. Anecdotally from park and beach ranger staff, this is helping and bike violations only increased slightly at Bandon. Reported violations of dogs decreased at Bandon in 2018. OPRD will work on addressing people in the dry sand for the 2019 season across sites. Additionally, since violations for bicycles also increased at Nehalem, tactics similar to Bandon will be explored there (including outreach to local bike shops in Manzanita planned for early spring 2019). A notable change at Clatsop Spit is the decrease in the number of reported vehicle violations which accounts for the overall decrease. At Nehalem Spit, the increase in horse violations is due to several isolated events of large organized groups of

horses. Additional outreach with the equestrian community that visits and camps at Nehalem Bay State Park will be explored in 2019.

Total reported violations increased across all sites from 672 in all sites in 2017 to 963 in 2018 (Table 7). Several categories of violations increased, which may be explained by a variety of factors including increased presence/reporting (methodology change), new occupied north coast sites, and high coastal visitation (over 29 million visits to coastal state parks occurred in 2018, another near record breaking year, second only to 2017). In 2018, the source of violation data is taken from Beach Ranger logs (all sites), plover monitors (Bandon-ORBIC, Clatsop/Nehalem/Sitka-Plover Patrol), and plover hosts (Bandon and Nehalem). In 2017 this data was reported using Beach Ranger data only, which likely accounts for some of the increases across categories. For this year, increases will not be calculated given the change in methodology due to increased ability to track violations across a variety of sources using digital (internet-based) reporting forms used by Beach Rangers, hosts, and volunteers. Once the methodology has been standardized across sites for two years, it will be easier to report violation increases and this report will resume reporting violations/hour.

PUBLIC OUTREACH

29. Management Task: *Work with other State and Federal agencies in the development of outreach and educational materials (HCP 5-25).*

OPRD staff members are part of the Outreach Subcommittee for the Oregon Western Snowy Plover Working Team, including signage, press releases, social media and use of the internet. OPRD updated shorebird conservation area brochures for north coast sites, and refreshed and re-distributed the “dog-friendly beach” brochures for central and south coast sites. OPRD updated informational flyers for sites with nesting plovers outside designated sites (e.g., South Beach, Driftwood) with information about how visitors can help reduce impacts to plovers. On-site informational flyers, with maps, were also posted at Clatsop Spit, Sitka Sedge and Nehalem to orient visitors to the relatively new plover sites and provide basic information.

- Improve data collection and entry so that information is more easily shared and accessed; this will allow faster response to emerging issues. OPRD tested a mobile tablet data entry system during 2018 which improved reporting by beach rangers. OPRD will work on coordinating with other agencies using this enhanced data collection methodology in upcoming seasons.
- Continue to conduct outreach to Oregon Coast Trail backpacking groups and social media to improve information backpackers have access to regarding recreation restrictions prior to arriving at the beach. OPRD worked with the Oregon Coast Visitors Association on OCT map updates to include relevant plover information.

30. Management Task: *Provide training on HCP requirements to all OPRD coastal parks staff and volunteers (HCP 5-26).*

Volunteer docents for China Creek and south coast beach rangers received training related to the Bandon SPMA. North coast plover survey volunteers, beach rangers, and two additional staff received 4 hours of training on plover biology, survey technique, and legal status including the HCP. North Coast staff also received training from Ken Murphy and Dane Osis; both have been through multiple training events on the HCP and communicate frequently with the HCP Coordinator.

Table 7. Violations summary for SPMAs (2017-2018)

	Bandon		Clatsop Spit		Nehalem Spit		Sitka Sedge		Totals	
	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
Bicycle on plover beach	24	30	0	2	38	58	1	0	63	90
Dog off leash (unoccupied SPMA)	NA	NA	63	NA	NA	NA	NA	NA	63	NA
Dog present occupied SPMA	62	42	NA	51	125	200	25	40	212	333
Horses in dry sand on plover beach	2	0	NA	0	1	55	2	0	5	55
Kite on plover beach	2	4 ¹	2	6	10	2	0	1	14	13
Motorized vehicle on plover beach	0	2	68	26	0	1	0	8	68	37
People in dry sand on plover beach	33	116	NA	146	84	141	43	32	160	435
Totals	123	194	133	231	258	457	71	81	585	963

¹Includes one drone.

31. Management Task: Assist with implementation of interpretive programs at Bullards Beach, Honeyman, Nehalem Bay, and Sunset Bay State Parks. Additional programs will be at Fort Stevens, Cape Lookout, and Harris Beach State Parks (HCP 5-26).

Interpretive programs were provided at the parks listed in Table 8.

Table 8. Interpretive Programs in 2018

Location	Type	Focus	Number of Programs	Attendees/Contacts
Fort Stevens	Campfire Program	Survivors in the Sand	4	176
Fort Stevens	JR Ranger Program	Birds of a Feather	7	174
Fort Stevens	Roving Outreach	Plover specific	9	439
Fort Stevens	Roving Outreach	SPMA	NA	NA
Fort Stevens	Let's Go Birding	Birdwatching	NA	NA
Nehalem Bay	Roving Outreach	SPMA	NA	NA
Cape Lookout	Birding Hike	Shorebirds, including plovers	2	57
Cape Lookout	JR Ranger	Shorebirds, including plovers	2	16
Sand Lake	Outreach	Plover program for State Park Opening	1	100
Cape Kiwanda/Sand Lake	Roving Outreach	SPMA's	NA	1,000+
South Beach	Roving Outreach	WSP habitat/adaptation	NA	NA
South Beach	Evening/JR Programs	Western Snowy Plover	9	114
Sunset Bay	Evening Program	Western Snowy Plover	1	10
Bullards Beach	Evening/JR Ranger	Western Snowy Plover	11	234
Bandon/China Cr.	Roving Outreach	SPMA	NA	1,000+
Harris Beach MU	Roving Outreach	Ocean Shore outreach and rule enforcement	NA	NA
TOTAL			46	3320+

32. Management Task: Develop a snowy plover webpage that contains the HCP, the management action summary matrix, the list of SPMA/RMA beaches, maps of these areas, and the efforts OPRD is undertaking to help snowy plover recovery (HCP 5-26).

OPRD has developed and maintains an active webpage at <http://bit.ly/wsplover>. This page contains links to many pertinent documents related to the HCP and plover management. OPRD Stewardship staff also maintains a "blog" at oprdstewardship.wordpress.com that feature western snowy plover articles. OPRD continues to work on improving maps available online for beach users, including OCT hikers. Plover informational brochures are also included on relevant state park information pages on the OPRD website and seasonal "alerts" are also posted to remind potential visitors of seasonal restrictions.

33. Management Task: *Distribute copies of “Share the Beach” brochure to SPMA visitors (HCP 5-26). Prepare a snowy plover brochure describing OPRD efforts in plover conservation and recovery and how park visitors can help (HCP 5-26).*

The “Share the Beach” brochure developed by the Working Team is outdated, and OPRD has developed two brochures, one for South Coast and one for North Coast, illustrating areas of recreation restrictions and providing information on how visitors may recreate in the plover areas. These were updated and re-produced to include recent occupancy changes for North Coast sites (available online).

34. Management Task: *Develop information sign for SPMA State Park kiosks at beach access points that includes information on the presence of snowy plovers, applicable recreational use restrictions, and the importance of snowy plover protection measures (HCP 5-27).*

Maps and information were posted at Clatsop, Nehalem and Sitka Sedge (and distributed in the campground at Nehalem and Clatsop) after the sites were occupied with information about ways people can help protect the nesting birds and plover chicks at the sites. Interpretive signs that are pertinent to local issues are planned for the north coast sites and development of design is in process. Interpretive signs are present at Bandon SMPA but are in need of updating. OPRD does not have plans to update this sign in next year as the north coast signs will take precedence, however, the new north coast signs may be replicated for Bandon, as appropriate after design is finalized in Spring 2019.

35. Management Task: *OPRD will install recreational use restriction signs at SPMAs and RMA boundaries (HCP 5-27, 5-28).*

Installation of signs occurred at Bandon SPMA (see Management Task 2); compliance signs were installed at Clatsop Spit, Necanicum Spit (early in the season and then removed), Sitka Sedge and Nehalem Spit. Signage at RMAs adjacent to Federal lands was addressed by Federal agencies. OPRD assisted the ACOE with installation and acquisition of signage for the mid-season occupied RMA site at Bayocean Spit.

36. Management Task: *OPRD will work with USFWS to install signs at nesting locations outside of SPMAs and RMAs (HCP 5-27).*

For efficiency and to reduce disturbance to nesting plovers, ORBIC monitors installed ropes and signs around nests located outside of SPMAs and RMAs when nests were discovered at China Creek. OPRD staff provided support and materials. Additional light weight supplies (fiberglass posts, rope, signs) are stored at three separate locations (Bullards Beach, Central Coast Region Office, Nehalem Bay State Park, Ft. Stevens State park) to ensure materials are available in the event a nest is found outside of SPMAs and RMAs.

A total of 11 nests were discovered outside of designated plover areas at Agate Beach, Bailey Beach, Bayshore, Collins Creek, Driftwood Beach and South Beach (see Table 4). In addition, five nests were located just outside of SPMAs: four north of Bandon and one north of Nehalem. ORBIC monitors (at Bandon) and OPRD staff (at all other sites) utilized symbolic fencing/signs to protect these nests.

37. Management Task: *Include notifications statements on coastal campsite receipts notifying visitors on any recreational restrictions in the area and requesting cooperation in adherence to the restrictions (HCP 5-27).*

Some coastal campsite receipts now contain the following text: “Please note some beaches have seasonal recreation restrictions for shorebird conservation, though the wet sand is always open to walking. Areas where special rules are in effect are marked on the beach. For more information go to bit.ly/wsplover”. This notification is on receipts issued to the following parks: Humbug Mountain, Cape Blanco, Bullards Beach, Sunset Bay, William Tugman, Umpqua Lighthouse, Honeyman, and Washburne.

38. Management Task: *OPRD will utilize volunteers at China Creek parking area in Bandon SNA for 20 hours/week from May through August. Volunteers will record information on the type of recreation use occurring, document violations, and report observed violations to the USFWS (HCP 5-11, 5-27).*

Volunteer docents provided outreach to beach visitors on plovers, beach regulations, and beach ecology at Bandon SNA. Docents also recorded recreation use, violations, and outreach contacts. OPRD had several volunteer docent positions to provide services (over 477 hours and 1000 contacts) at Bandon in 2018 that exceeded the minimum of

20 hours per week from May-August (Table 9). In 2018, plover hosts were also added at Nehalem and Sitka Sedge for a portion of the season; with a plan to replicate this activity for the 2019 season. Nehalem hosts were on site from June to September with a total of 220 hours on-site and over 1000 contacts at tabling and roving encounters with the public. Nehalem and Sitka hosts will be included in this table in 2019 when both sites have a full season to report.

Table 9. Volunteer Docent Hours for 2018 (Bandon Plover Hosts)

Month	Hosts names	Total contacts	Total Hours	
April	Annette Smith	4	12	
May	Jay & Susan Feagan	Annette Smith	54	92
June	Jay & Susan Feagan	Beth Haley	167	104
July	Jay & Susan Feagan	Beth Haley & Annette Smith	193	132
August	Jay & Susan Feagan	Pat Blue Heron & Mary James	663	137.5
			1081	477.5 hrs

39. Management Task: Maintain interpretive panel on snowy plover nesting & habitat at Bandon SNA (HCP 5-27).

The interpretive panel at Bandon SNA is shown in Figure 8, shown below.



Figure 8. Interpretive panel at Bandon SNA

40. Management Task: Provide programs and/or information about the snowy plover to community groups, chambers of commerce, school groups, and recreational enterprises as opportunity arises (HCP 5-27).

See Table 8 for a summary of actions taken in 2018.

41. Management Task: Work with land and resource managers on coordinating efforts pertaining to predator management, habitat restoration, monitoring, and public outreach and education on an annual basis and report on these efforts to the USFWS (HCP 5-27).

OPRD attended the Washington/Oregon Western Snowy Plover Working Team annual meeting in October 2018. OPRD staff worked with Wildlife Services and USFWS throughout the season to address predator management needs, including attending the Predator subcommittee working group meetings.

ADAPTIVE MANAGEMENT

Adaptive management is defined as a process that allows resource managers to adjust their actions to reflect new information or changing conditions in order to reach the purpose and goals of the HCP (HCP 1-17, 5-29).

42. Management Task: *OPRD will use adaptive management processes to minimize take related to management of Oregon's beaches and to ensure the long-term survival of the snowy plover on Oregon's coast (HCP 5-29)*

OPRD has altered signage and staff time to address needs at Bandon and other managed sites on the central and north coast, including several seasonal interpretive employee providing roving outreach and additional beach ranger positions described elsewhere.

43. Management Task: *If biological monitoring reports indicate consistent population declines, then OPRD and USFWS will meet and confer to determine if inadequate management actions by OPRD are responsible for or are contributing to declines. If so, OPRD will revise management actions in the HCP as soon as practical (HCP 5-30).*

Consistent population declines have not occurred; the population is continuing to grow.

44. Management Task: *OPRD will work with USFWS to develop and implement protocols for assessing effectiveness of the conservation strategies based on the annual report and other information. Protocols will be developed in collaboration with other snowy plover partners (Federal, State, and local agencies and private landowners). OPRD will implement appropriate adaptive management measures, if necessary, to address snowy plover population declines or significant habitat degradation (HCP 1-13, 5-14).*

OPRD attended the Western Snowy Plover Working Team meetings to address regional snowy plover conservation strategies. No significant snowy plover population declines were documented in 2017-18. OPRD would like to develop a quick habitat assessment for land managers, with assistance from the Working Team.

45. Management Task: *OPRD will evaluate the relative success of nest exclosures in preventing predators from destroying nests and eggs, and will meet with USFWS annually to review on a site-by-site basis (HCP 5-30).*

OPRD continues to support the 2012 guidelines developed by ORBIC monitors, and USFWS determined guidelines for utilizing exclosures.

FUNDING

46. Management Task: *OPRD commits to protecting plover funding as a core function if budgets are reduced (HCP 7-5). Maximum biennial costs are outlined in Table 10 (HCP 7-8, 7-9).*

The total biennium budget for 17-19 was \$175,000, not including staff wages. A significant portion of OPRD's western snowy plover management is conducted in-house, and not represented in this report. Table 11 summarizes the estimated direct expenditures associated with implementation of the HCP. OPRD developed site management plans in-house rather than contracting out the work as listed in the HCP. The amount expended on fencing exceeds the amounts predicted in the HCP, due in part to supporting RMA signage needs, new occupied sites, and materials loss to storms and tides. Expenses for plover breeding population monitoring also typically exceed expected maximums. Biennial budgeted amounts for habitat restoration will occur during 2019 because of delays described elsewhere. Additionally, budgeted biennial amounts for education and outreach will also occur in early 2019 as staff is currently working on interpretive panel design for north coast sites, starting with Sitka Sedge State Natural Area (completion date est. May 2019). OPRD is exploring ways to improve tracking of staff time to better estimate actual plover program expenditures, including beach rangers, ocean shore staff, and wildlife biologist staff time, not accounted for in Table 11.

Table 10. Projected Expenditures for a single SPMA for the 2017-2019 biennium (adjusted for inflation)

Type	Activity	Biennial
Unoccupied	Site Management Plan Development	\$13,047.7
Unoccupied	Habitat Restoration	\$65,238.7
Unoccupied	Public Outreach	\$2,609.5
TOTAL MAXIMUM for Unoccupied SPMA		\$80,896
Occupied	Habitat Maintenance	\$78,286.4
Occupied	Breeding Population Monitoring	\$21,789.7
Occupied	Public Outreach	\$6,523.9
Occupied	Predator Management	\$20,876.4
Occupied	Beach Patrol/Law Enforcement	\$26,095.5
Occupied	Symbolic Fencing	\$1,304.8
TOTAL MAXIMUM for Occupied SPMA		\$154,876

Table 11. 2018 Spending Estimate

Funding Category	Total Annual Expended
Education/outreach	2210+
Habitat restoration and maintenance	0
Plover Monitoring	28,790
Predator Management	14,912
Symbolic fencing/signage/roping	6,500+
Total	\$52,412+

*Restoration funds for 2017-2019 will occur during winter 2019 as will substantial outreach funds.

47. Management Task: OPRD will promptly notify USFWS of any material change in the OPRD's financial ability to fulfill its obligations. In addition, OPRD will provide USFWS with a copy of its annual report each year of the HCP or with such other reasonably available financial information that USFWS and OPRD agree will provide adequate evidence of OPRD's ability to fulfill its obligations.

Funding sources were sufficient during 2018.

48. Management Task: OPRD will compile and provide an annual report by January 1 to USFWS documenting its management actions to date and indicating anticipated efforts for the following year. The report will include: summary of monitoring information, occurrence of take, status of site management plans, status of habitat restoration, public outreach efforts, predator management efforts, recreational use in vicinity of nesting areas including beach rangers, monitors, docents, volunteers, and other OPRD staff, and anticipated management for the following year (HCP 5-13, 5-14, 5-24).

The 2017 compliance report was submitted in 2018 and included the required categories.

49. Management Task: OPRD, ODFW, and USFWS will meet every 5 years following issuance of the ITP to evaluate the performance and effectiveness of the conservation measures (HCP 1-3, 5-14, 5-25, 7-2).

OPRD and USFWS have held review meetings; ODFW was not able to attend. The next review should occur in 2020.

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