# United States Department of the Interior

BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OFFICE
1300 AIRPORT LANE, NORTH BEND, OR 97459
Web Address: http://www.blm.gov/or/districts/coosbay E-mail: OR_CoosBay_Mail@blm.gov
Telephone: (541) 756-0100 Toll Free: (888) 809-0839 Fax: (541) 751-4303


**In Reply Refer To:**

1792 (OR-120)
EA OR128-06-01
New River Foredune Management

***December 10, 2008***

Dear Citizen:

Enclosed are a copy of the "New River Foredune Management Environmental Assessment" (EA OR128-06-01) and a draft finding of no significant impact (FONSI) to conduct management activities on the foredune of New River. This project is designed to implement management objectives described in the BLM Coos Bay District Resource Management Plan and the New River Area of Critical Environmental Concern Management Plan: Update 2004. The environmental assessment analyzes a no-action alternative and a proposed-action alternative.

The Myrtlewood Field Office proposes to re-establish dune heights to mitigate blowing sand and ocean overwash into the New River system, expand the current Habitat Restoration Area for the Western Snowy Plover, and create two vegetated foredunes parallel to open sand areas. The project is located within the New River Area of Critical Environmental Concern in T. 30 S., R. 15 W., Sections 3, 10, 15, 21, 22 and 28.

You are encouraged to read the EA and comment on the appropriateness of the FONSI prior to the end of the 30-day comment period, January 13, 2008. This EA is located on our BLM web site at http://www.blm.gov/or/districts/coosbay/plans/index.php. A Decision Document will be published prior to implementing the activities.

Comments, including names and street addresses of respondents, will be available for public review at the address above during regular business hours (8:00 a.m. to 4:30 p.m.), Monday through Friday, except holidays, and may be published as part of the EA document or other related documents. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

Questions should be directed to Aimee Hoefs at (541) 751-4498.

Written comments on the EA and appropriateness of the draft FONSI may be sent to:
BLM Coos Bay District
Attn: Aimee Hoefs
1300 Airport Lane
North Bend, OR 97459-2000

You may e-mail your comments to: OR_CoosBay_Mail@blm.gov, RE: New River Foredune Management, Aimee Hoefs

Sincerely,

***December 10, 2008***

Paul T. Flanagan
Myrtlewood Field Manager

Attachment

United States Department of the Interior
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Telephone: (541) 756-0100 Toll Free: (888) 809-0839 Fax: (541) 751-4303

TAKE PRIDE IN AMERICA

**In Reply Refer To:**

1792 (OR-120)
EA-OR-128-06-01

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)**
**For the**
**New River Foredune Management Environmental Assessment**
**EA-OR-128-06-01**

## I. Introduction

An Interdisciplinary Team has prepared an Environmental Assessment (EA) for the New River Foredune Management Project located within the Myrtlewood Field Office of the Coos Bay District Bureau of Land Management. This EA is hereby incorporated by reference. Within this document, the team analyzed two alternatives: a no-action alternative and a proposed action alternative. The no-action alternative describes the effects of not conducting ground-disturbing activities on the foredune at this time. The proposed action alternative describes the effects of conducting these management activities on the New River foredune. The proposed action would re-establish dune heights to mitigate blowing sand and ocean overwash into the New River system, expand the current Habitat Restoration Area for plovers, and create two vegetated foredunes parallel with open sand areas. The project is located within the New River Area of Critical Environmental Concern in T. 30 S., R. 15 W., Sections 3, 10, 15, 21, 22, and 28.

## II. Background

The Coos Bay District of the Bureau of Land Management is under the direction of the Final Coos Bay District Proposed Resource Management Plan Final Environmental Impact Statement (USDI 1994) and its Record of Decision (USDI 1995), and the Final Supplemental Environmental Impact Statement on Management of Habitat for Late Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl, commonly referred to as the "Northwest Forest Plan" [NFP] (USDA/USDI 1994) and its Record of Decision [ROD] (USDA/USDI 1994a) as supplemented and amended by:

> *Management of Port-Orford-cedar in Southwest Oregon Final Supplemental Environmental Impact Statement* (USDA/USDI 2004), and its *Record of Decision* (USDI 2004).
>
> *The Final Supplement to The 2004 Environmental Impact Statement to Remove or Modify The Survey and Manage Mitigation Measure Standards and Guidelines* (USDA/USDI 2007) and its *Record of Decision* (USDI 2007).

This EA incorporates by reference and is in conformance with the *New River Area of Critical Environmental Concern Management Plan: Updated May 2004* (USDI 2004a).

As stated in the ROD for the NFP, the Aquatic Conservation Strategy (ACS) was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems on public lands within the range of Pacific Ocean anadromy. Consistency of the proposed alternative with the ACS Objectives is included in Chapter 3 of the New River Foredune Management EA.

**III. Finding of No Significant Impact**

I am adopting the EA, which indicates that there would not be a significant impact on the quality of the human environment from the implementation of any of the alternatives. This finding and conclusion is based on my consideration of the Council of Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the context and intensity of the impacts described in the EA.

Context

The proposed activities are not national or regional in scope. The New River Foredune Management EA comprises approximately 100 acres. The Coos Bay District Resource Management Plan/Record of Decision (USDI 1995) anticipated these types of management activities within the New River ACEC as well as conducting restoration activities for the recovery of listed species.

Intensity

*Impacts that may be both beneficial and adverse* (40 CFR 1508.27(b)(1))

Any impacts, both beneficial and adverse, are not significant as they are consistent with the range and scope of those effects analyzed and described in the 1994 Coos Bay District Final Proposed Resource Management Plan/Environmental Impact Statement to which the EA is tiered.

*Public Health and Safety* (40 CFR 1508.27(b)(2))

The proposed activities would not significantly affect public health and safety. Adherence to the Oregon Smoke Management Plan (OAR 629-43-043) and the State of Oregon Administrative Rule No. 340-108, *Oil and Hazardous Materials Spills and Releases*, would minimize impacts to Air Quality and from Solid/Hazardous Wastes.

*Unique characteristics of the geographic area* (40 CFR 1508.27(b)(3))

The proposed activities will have no impact on unique characteristics of the geographic are such as historic or cultural resources, park lands, prime or unique farmlands, wetlands or floodplains, Wild and Scenic Rivers, or wilderness. The proposed action would occur within an Area of Environmental Critical Concern. Within the Environmental Assessment (p.37-38) the effects of implementing the action on the recreational opportunities and Visual Resource Management objectives within the New River ACEC was analyzed. The effects of the proposed action are consistent with the *New River Area of Critical Environmental Concern Management Plan: Updated May 2004.*

*Degree to which effects are likely to be highly controversial* (40 CFR 1508.27(b)(4))
The effects on the quality of the human environment of the proposed activities are not highly controversial. Six comments were received in response to Scoping for this project (November 24 – December 24, 2005). No comments were received that I consider highly controversial.

*Degree to which effects are highly uncertain or involve unique or unknown risks* (40 CFR 1508.27(b)(5))
The possible effects of the proposed activities on the quality of the human environment are not highly uncertain and do not involve unique or unknown risk.

*Consideration of whether the action may establish a precedent for future actions with significant impacts* (40 CFR 1508.27(b)(6))
The proposed projects do not establish a precedent for future actions or represent a decision in principle about future actions with potentially significant effects. Habitat restoration activities have been conducted within New River for many years; the proposed action would change the manner in which they are conducted.

*Consideration of whether the action is related to other actions with cumulatively significant impacts* (40 CFR 1508.27(b)(7))
There are no cumulatively significant cumulative effects identified by this environmental assessment.

*Scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places* (40 CFR 1508.27(b)(8))
The proposed activities would not affect districts, sites, highways, structures or objects listed in or potentially eligible for listing in the National Register of Historic Places. Nor would the activities cause a loss or destruction of significant scientific, cultural or historical resources.

*Threatened or endangered species and their critical habitat* (40 CFR 1508.27(b)(9))

- The Myrtlewood Field Office requested re-consultation for management of Western Snowy Plovers within the New River ACEC. A Biological Opinion (13420-2008-F-0104) was received on December 2, 2008, concluding that the proposed action "will not jeopardize the continued existence of the plover and that activities are not likely to adversely modify critical habitat."
- Informal consultation with the National Marine Fisheries Service has been initiated concerning effects to the federally listed coho salmon. A Letter of Concurrence is anticipated. The result of this consultation would also be disclosed in the applicable decision record.
- The proposed action would also not result in adverse effects to Essential Fish Habitat as designated by the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1855 as amended).

*Any effects that threaten a violation of Federal, State, or local laws or requirements imposed for the protection of the environment* (40 CFR 1508.27(b)(10))
The proposed activities would not violate Federal, State or local laws imposed for the protection of the environment. These include the Clean Air Act and the Clean Water Act.

Analysis has also concluded that implementation of the proposed actions would not contribute to the need to list any Special Status Species as identified in BLM Manual 6840 and BLM OR/WA 6840 policy.

Pursuant to Executive Order 13212, the BLM must consider the effects of this decision on the President's National Energy Policy. As there would be no impact to the exploration, development or transportation of undeveloped energy sources from the proposed action, a Statement of Adverse Energy Impacts is not required.

Based on the analysis of potential impacts contained in the New River Foredune Management environmental assessment, I have determined that the proposed action would not have a significant impact on the human environment within the meaning of section 102(2) (c) of the National Environmental Policy Act of 1969, and that an Environmental Impact Statement is not required. I have determined that the effects of the proposed management activities within the New River Area of Critical Environmental Concern analyzed in the *Final Coos Bay District Proposed Resource Management Plan/Environmental Impact Statement* and would be in conformance with the *Record of Decision/Resource Management Plan* for the Coos Bay District.

_____
Paul T. Flanagan
Myrtlewood Field Manager

# New River Foredune Management

Environmental Assessment OR128-06-01

Bureau of Land Management
Coos Bay District Office
1300 Airport Lane
North Bend, OR. 97459

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# Chapter 1.0 Purpose and Need for Action

## 1.1 Introduction

In 1998, the BLM prepared an Environmental Assessment to enhance/restore habitat for the Western Snowy Plover on lands within the New River Area of Critical Environmental Concern (ACEC). The action consisted of removing European beachgrass through prescribed burning and mechanical removal on 24 acres to provide open sand habitat for breeding western snowy plovers. The foredune was lowered in elevation to encourage ocean washover events. Based on the successful response of plovers to this activity, another Environmental Assessment was prepared in 2000 to increase the total amount of acres available for treatment to 100. This was accomplished on the ground by 2002.

In 2003, scientists studying the geomorphic processes of the New River area started documenting unintended consequences of the plover habitat enhancement activities. Initial results from transect surveys prompted concerns about the decrease in elevation across the open sand areas. This decrease raised concerns that and ocean overwash event could compromise the physical integrity of the spit.

By 2004-05, portions of the New River channel adjacent to the plover habitat areas were infilling with sand. With the removal of European beachgrass, sand transport had been re-initiated (i.e. remobilizing sand dunes). The wide open sands increased Aeolian deposition within the river channel. New River has a host of ecological challenges such as elevated nutrient loads, algae blooms, exotic aquatic weeds and reduced available oxygen levels due to plant decomposition (Myers 2008 *Draft*). The infilling of the river likely exacerbates many of these problems.

As a result of this annual dune profile monitoring and channel monitoring, the BLM suspended plover habitat restoration activities in 2006 and 2007 due to concerns over river ecology and the potential effects to the ACEC as described above.

The combination of these events and the recent listing of OC coho salmon have prompted the BLM to reexamine the plover habitat manipulation practices. The intent of this analysis is to find a balanced approach for creating and maintaining nesting and wintering habitat for the snowy plover, maintaining the physical and ecological integrity of the sand spit and river and maintaining water quality and habitat for coho salmon.

## 1.2 Proposed Action

The proposed action is to modify past plover habitat restoration techniques and re-establish dune heights to mitigate blowing sand and ocean overwash into the New River system. To maintain past acreage available for plover habitat restoration activities, the current Habitat Restoration Area (HRA) boundary would be moved south and incorporate the previously designated "potential" HRA acres.

Two vegetated foredunes, each 50 feet in width, would be developed along the east and west edges of New River Spit, one along the ocean and one along the river. The design of the ocean foredune would reduce the risk of shoreline change resulting from restoration activities. The river foredune would maintain sand through maintenance and growth of beachgrass and minimize over time the possibility of a major ocean wave overwash into the New River channel. The distance between these two foredunes would be manipulated for open sand conditions favored by the western snowy plover.

## 1.2.1 Location

The current Habitat Restoration Area is located at the New River Area of Critical Environmental Concern (Map 1) in Township 30 South, Range 15 West, Sections 3, 10, 15, 21, 22, and 28 of the Bureau of Land Management Coos Bay District.

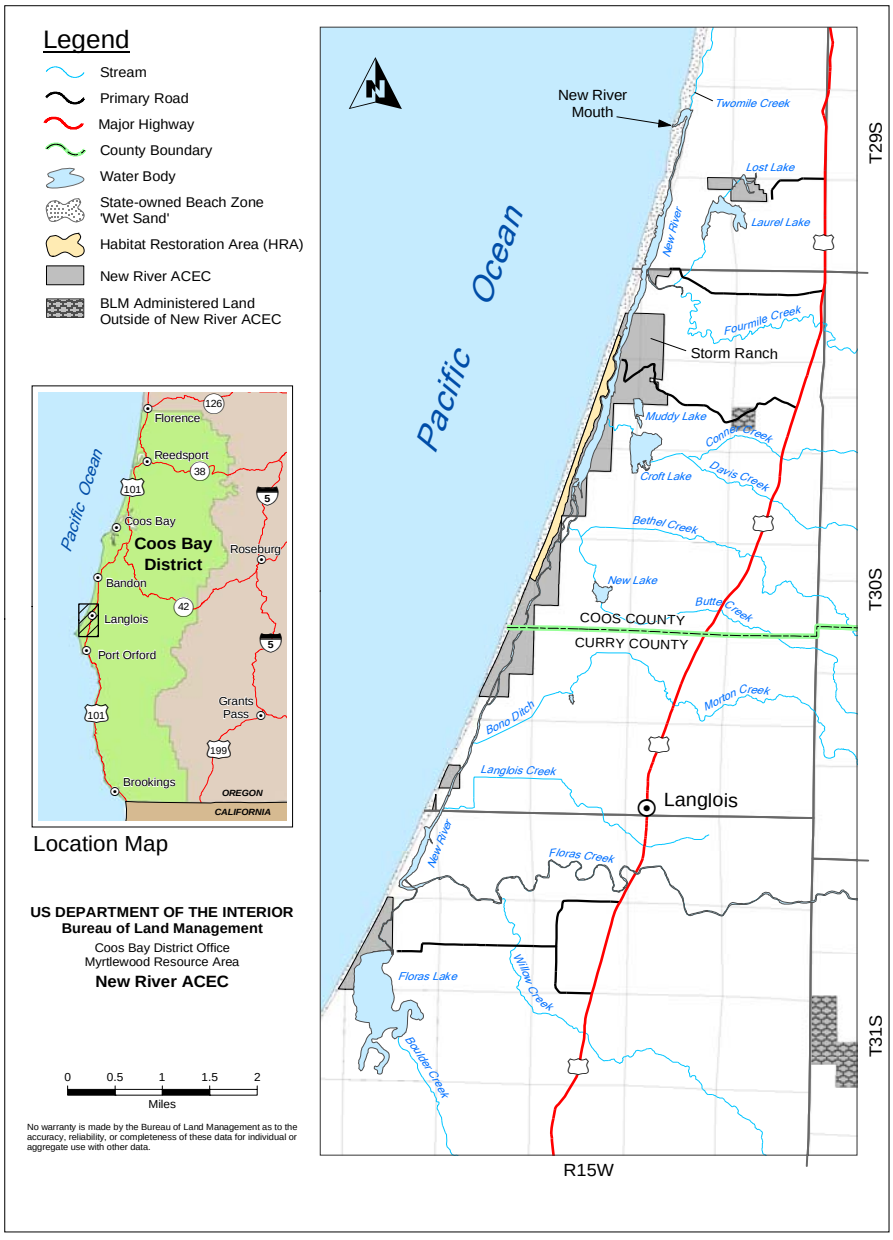


**Figure 1. Map of New River location**

## 1.2.2 Habitat Restoration Area

Mechanical restoration activities for the benefit of plovers were focused within a specific area of the New River ACEC. In the New River management plan update, these areas were given an official designation as the Habitat Restoration Area. This designation is simply a clarification and delineation of the outside boundary of the area where ground-disturbing activities would take place. The area is defined by New River to the east, the potential Storm Ranch breach site to the north, and

the Hammond Breach area in the south. The BLM only manages the dry-sand lands from the ordinary high-tide mark landward, as the State of Oregon owns most of the wet sand area (from extreme low tide to ordinary high-tide) (Jones&Stokes 2007). This area encompasses approximately 160 acres[1], of which three breach locations make up approximately 41.5 acres.

There was also a designated potential expansion area of the HRA boundary, incorporating BLM lands from the Hammond breach site south to the south edge of the Clay Island breach site. This area encompasses an additional 63.6 acres.

The total dry sand acreage from the two designations is approximately 177 acres with 4 breach areas totaling approximately 48 acres, for a total acreage of 225.

### 1.2.3 Conformance with Land Use Plans, Policies and Programs

This EA is tiered to and in conformance with the *Coos Bay District Resource Management Plan/Final Environmental Impact Statement* (USDI 1994) and its *Record of Decision* (USDI 1995a) and the *Final Supplemental Environmental Impact Statement* (FSEIS) *on Management of Habitat for Late Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl (Northwest Forest Plan [NFP])* (USDA and USDI 1994a) and its *Record of Decision* (USDA and USDI 1994b) as supplemented and amended by:

- *Management of Port-Orford-cedar in Southwest Oregon Final Supplemental Environmental Impact Statement* (USDA and USDI 2004) and its *Record of Decision* (USDI 2004b).
- *The Final Supplement to The 2004 Environmental Impact Statement to Remove or Modify The Survey and Manage Mitigation Measure Standards and Guidelines* (USDA and USDI 2007) and its *Record of Decision* (USDI 2007c).

This EA is also tiered to and in conformance with the *Final Programmatic Environmental Impact Statement Vegetation Treatments Using Herbicides On Bureau Of Land Management Lands in 17 Western States* (USDI 2007a) and its *Record of Decision* (USDI 2007b) as well as the *Coos Bay Integrated Noxious Weed Program* (EA OR120-97-11).

This EA incorporates by reference and is in conformance with the *New River Area of Critical Environmental Concern Management Plan: Updated May 2004* (USDI 2004a) which is available for public review at the Coos Bay District Office of the BLM, North Bend, Oregon.

The Watershed Analysis of the Sixes and New River Area was completed in January of 2008 and is incorporated by reference.

## *1.3 Need for the Project*

The New River ACEC has long been identified as a key nesting area for western snowy plovers, listed as threatened on March 5, 1993 (58 FR 12864). The project area is located within a designated Critical Habitat Unit (70 FR 56969) that stretches from Bandon to Floras Lake encompassing 632 acres. Called CHU OR 10A, the New River ACEC is included in its entirety. Effective May 12, 2008, the Oregon Coast (OC) coho salmon ESU (Evolutionary Significant Unit) was listed as threatened and Critical Habitat designated (73 FR 7816). The New River system is designated as OC coho Critical Habitat.

[1] As the dune system is constantly changing, these numbers are calculated from the most recent GIS data. On an annual basis these numbers would be expected to change.

As per the Endangered Species Act in section 7(a)(1), federal agencies are directed to actively promote the conservation of listed species.

The 2004 Update of the New River Management Plan included a variety of planned management actions to meet specific objectives within the plan. Under the Monitoring and Research Objective, non-program specific planned actions are listed. These include: 1. Develop a sand movement monitoring plan to determine the effects of the on-going coastal dune restoration project on the foredune and New River; 2. Determine if the 50-foot wide buffer of European beachgrass established along the east side of the foredune is adequate to maintain a balance between restored open sand habitat and the stability of the New River system (p.106). Monitoring conducted since 2003 has revealed that the New River system was not being adequately protected from sand infilling and overwashing as a result of the current management practice of creating the open sand habitat (Photograph 1).

**Photograph 1. Areas of overwash through the vegetated buffer of the open sand areas of the HRA.**

The overlying Need for the development of this Environmental Assessment is to incorporate this new information obtained as a result from monitoring the dune geomorphology and determine how to best balance the needs of special status species, while not violating federal statutes which include the Endangered Species Act and the Clean Water Act.

## *1.4 Purpose (Objectives) of the Project*

A reasonable action alternative must meet the objectives provided in the ROD/RMP for projects to be implemented in the planning area. The ROD/RMP specifies the following objectives to be accomplished in managing the lands in the project area:

1. Protect, manage, and conserve federal listed and protected species and their habitats to achieve their recovery in compliance with the Endangered Species Act, approved recovery plans, and bureau special status species programs (p.32) by:
    - Continuing to improve and maintain habitat for the snowy plover on the North Spit of Coos Bay and at New River (p.36).
    - Design and implement watershed restoration projects that promote long-term ecological integrity of ecosystems…and attain Aquatic Conservation Strategy objectives (p.25).

2. Maintain, protect, or restore relevant and important values of areas of critical environmental concern (p.38) by:

- Developing site-specific management plans for special areas as needed (p.38).

The *New River Area of Critical Environmental Concern Management Plan* was completed in 1995 and updated in May 2004. This Plan contains the following additional objectives in managing this area:

- Maintain, enhance, or restore ecosystem health, and ensure management supports a variety of habitats at different successional levels, particularly, but not limited to, those which are necessary for special status species using the area (p.68).
- Establish suitable water flow and quality, and maintain areas in a condition supportive of a healthy ecosystem (p.79).
- Facilitate improved management of the New River area through monitoring and research to learn more about the natural and cultural resources of the area (p.104).

### 1.4.1 Decision Factors

In choosing the alternative that best meets the purpose and need, consideration will be given to the extent to which each alternative would:

1. Work towards re-establishing the geomorphic stability of the New River foredune;

2. Promote the conservation of the Western Snowy Plover;

3. Promote the conservation of Oregon Coast coho salmon;

4. Comply with applicable laws and Bureau policies including, but not limited to: the Clean Water Act, the Endangered Species Act, The Magnuson-Stevens Fishery Conservation and Management Act, and the Special Status Species Program.

## *1.5 Decisions to be Made*

The Field Manager of the Myrtlewood Field Office, Coos Bay BLM, must decide whether to conduct dune manipulation treatments (Action Alternative described in Section 2.2), or to continue the current management activities within the New River ACEC (No Action Alternative described in Section 2.1). The Decision will be based on the Decision Factors listed above to determine which alternative best meets the Purpose and Need.

The Field Manager must also determine if the selected alternative would or would not be a major Federal action significantly affecting the quality of the human environment. If the Manager decides it **would not** significantly affect the quality of the human environment, then the Manager can prepare and sign a FONSI (Finding of No Significant Impact).

If the Manager decides that the selected alternative **would** significantly affect the quality of the human environment, then the project must either be dropped, modified, or have an EIS (Environmental Impact Statement) prepared.

## *1.6 Public Involvement Summary*

The primary purpose of 'scoping' is to identify agency and public concerns relating to a proposed project and helps define the environmental impacts of concern to be examined in detail in the EA. The general public was notified of the proposed project and EA through publication of the District's semi-annual Planning Update which is distributed to over 260 individuals, agencies and

organizations. A public notice requesting scoping comments was printed in the *World* newspaper. Additional scoping notices were also sent to adjacent landowners, agencies that have requested these documents, and other interested parties on the District NEPA mailing list. The public comment period was open from 24 November through 24 December 2005. Three comments were received from interested public.

Throughout development of the Action Alternative, the US Fish and Wildlife Service has been an active participant in effects discussions and project alternative development. With the re-listing of OC coho – the National Marine Fisheries Service was contacted for more direct involvement.

### 1.6.1 Issues

Internal and external scoping identified the following relevant issues that were used to develop and analyze the action alternatives:

- Compliance with the Final Recovery Plan for the western snowy plover.
- Re-establishing geomorphologic stability of the New River spit.
- Maintaining the management time stamp of 2000 conditions within the New River system (USDI 2004a).
- Preventing further degradation of water quality, such as eutrophication of New River.

## *1.7 Alternatives Considered but Eliminated*

### 1.7.1 Continue Past Actions

This Alternative would have continued the management practices analyzed in EA#OR128-00-03. Improvement of the Western Snowy Plover Habitat Restoration Area (HRA) would continue on up to 100 acres per year. Heavy equipment would be used to remove European beachgrass and sand. The material would be deposited on the beach within the tidal zone where ocean currents would destroy the beachgrass and redistribute the sand along the beach. An untreated 50-foot vegetative buffer strip would be maintained along the west side of New River to address impacts to the river (i.e. major sand input). Native seed would be spread. This alternative would lower the foredune to create open sandy conditions for nesting and wintering plovers and allow ocean overwash into the HRA to occur. Informational signing would continue to be erected from March 15 to September 15 during the plover breeding season as per the U.S. Fish & Wildlife Service's Biological Opinion (USDI 2005).

Implementation of this alternative did show a relative increase in plover nesting success within the HRA. After the 2004 nesting season there were 21 fledglings, compared to 9 in 1997 (Lauten *et al.* 2007).

New information, derived from geomorphic dune profiles, caused management to discontinue this practice in 2005. The effects of this action are what raised the concerns that are described in the Purpose and Need of this document. This alternative is eliminated because it is inconsistent with the basic policy objectives for the management of the New River ACEC.

### 1.7.2 Foredune Management Option 1

This alternative would continue to restore and maintain up to 100 acres per year within an expanded 224 acre plover HRA. This would be accomplished by using heavy equipment to move European beachgrass and sand from within the existing HRA eastward to eventually create a 25 to 31 foot tall foredune the length of the HRA. To accomplish this, the HRA would be managed as three

segments: the northern boundary to the Croft Lake breach; the Croft Lake breach to the New Lake breach; and the New Lake breach to the Hammond breach. Within each segment approximately 50% of the foredune length would be used as a 100-foot wide buffer along the river and the remaining 50% would be tapered west to establish a centerline foredune. The buffer would be contoured with dunes of varying heights for a more natural appearance, and stabilized by the natural advancement and growth of European beachgrass and the seeding and planting of native plants.

The final buffer elevation of 25 to 31 feet would be equivalent to a 10 to 100 year wave run up as estimated by State of Oregon Department of Geology and Mineral Industries (DOGAMI) Extreme Wave and Run-up models (Allan 2006a).These elevation estimates are utilized to minimize the possibility of a major wave run-up reaching New River (see introduction and geology section in Chapter 3) through manipulation of the elevation of the sand dunes adjacent to the river. The angle of repose for sand is roughly 33 degrees (approximately 65% or a little over 1:1.5). A full elevation of 31 feet would leave a foot print at 0 elevation of at least 93 feet (31 X 1.5 X 2 (both sides)). The current elevation of about 15 feet would leave a foot print of at least 48 feet. Higher base elevations would leave correspondingly shorter footprints. The HRA would be seeded and/or planted with native plants. Informational signing would continue to be erected from March 15 to September 15.

This alternative was rejected by the U.S. Fish and Wildlife Service.

## *1.8 Resources not Analyzed in Detail*

Due to lack of concern expressed by the scoping respondents, adequacy of existing best-management practices, inclusion of specific design features, or limited intensity of or scope of anticipated effects, the following issues/resources were not used to differentiate between the two alternatives.

- Air Quality: European beachgrass and/or pile burning would adhere to the Oregon Smoke Management Plan (OAR 629-43-043) for limiting the effects of particulate emissions.
- Cultural and historic resources: The history of the HRA indicates that cultural resources would not be found in the HRA foredune area. Prior to 1900, the foredune was unstabilized sand dunes. After introduction of European beachgrass, the dunes became stabilized. The flood of 1890 created New River just to the east of the foredune. While cultural resources are known to be present along the east bank of New River, this area would not be affected by the project alternatives.
- Noxious weed management: A project Noxious Weed Assessment has been conducted (Appendix C) and Project Design Features have been incorporated to prevent the spread of noxious weeds within the project area.
- Port-orford cedar: There is no Port-orford cedar within the project area.
- Solid or Hazardous Waste: Surveys did not identify and hazardous waste within the project area. Extensive project design criteria have been included to minimize the event of water contamination. These design features are listed in detail in Chapter 2.
- Wild and Scenic Rivers: New River is not designated as a Wild and Scenic River.
- Wilderness Values: There are no designated Wilderness Values within the project area.

# Chapter 2.0 Alternatives

## 2.1 No Action Alternative

This alternative would not re-initiate any type of mechanical dune manipulation to remove European beachgrass. There would not be any dune height manipulation to re-establish natural dune heights.

Other active management relative to the HRA would continue. This includes the following activities:

1. Public access would be prohibited from the dry-sand beaches of all BLM-administered beaches within the HRA from March 15 to September 15.
2. Fences, posts and ropes would be erected to enclose the HRA boundary informational signing would be posted from March 15 to September 15.
3. Dogs must be leashed at all times throughout the year.
4. Predator control measures would be implemented as outlined in EA#OR-120-02-09 *Predator Damage Management to Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover* (USDI 2002) which is modified every year in an Action Plan tailored to on the ground conditions.
5. On-site Law Enforcement patrols would be sufficient to ensure compliance with restrictions.
6. Public information and education programs would continue. These include advertising the seasonal closures, maintaining updated information and educational materials, and providing on-site educational programs
7. Annual and seasonal monitoring of plover activity would be coordinated with FWS and ONHIC biologists.

The above actions are included within the final Recovery Plan for the Western Snowy Plover (USDI 2007d) as effective recovery measures (p.157-213).

## 2.2 Action Alternative - Foredune Management

This alternative would increase the length of the previous Habitat Restoration Area, continuing south to the Clay Island Breach site, brining the HRA to a total of 177 acres. This area was identified for potential plover restoration activities in the 2004 New River Management Plan Update. The proposal is to restore and maintain 100 acres within this area in an open sand condition. Restoration and maintenance of habitat would be accomplished by using a combination of heavy equipment, burning, breaching and hand pulling to remove European beachgrass (*Ammophila arenaria*). Areas treated with heavy equipment would be grade staked to insure overall sand heights are maintained at 25 feet in elevation. Areas below the minimum elevation grade would be allowed to build up after the vegetation is removed, or would receive sand from adjacent areas that are above the minimum height. The width of the open sand would range between 100-200 meters depending on the width of the sand spit.

There would a 50-foot wide, vegetated, ocean-side foredune as well as a 50-foot riverside foredune. The ocean-side foredune would be maintained along the entire HRA except for breach locations and travel corridors. This foredune would be built to a minimum 22 feet in elevation where needed, but would then be allowed to be determined by natural processes (accretion and degradation). The purpose of the ocean-side foredune is to maintain the current shoreline form.

Travel corridors are open sand areas cut through the foredune, sloping down to the beach, to allow plover movement from the open sand area to the waterline. Corridors would be created by the use of heavy equipment or hand pulling and would be approximately 50 feet wide. There would be a minimum of eight travel corridors per mile of foredune.

The river buffer would be a 50-foot vegetated foredune maintained on the river side of the HRA to help suspend sand movement and minimize the possibility of a major wave run up reaching New River. Currently, a large portion of the HRA has an existing dune feature that performs this function, and an additional manipulation would not be necessary. In areas where the foredune has been compromised, the area would be stitched with logs and sand in order to provide immediate protection to prevent sand plumes from reaching the river. These areas will be allowed to re-vegetate and build up through time to accommodate a 10-100 year wave run up. The lowest elevation is a point across from Storm Ranch with an elevation of approximately 15 feet above sea level. An additional 10-16 feet of foredune will be necessary to provide this level of protection, estimated by State of Oregon Department of Geology and Mineral Industries (DOGAMI) Extreme Wave and run-up models(Allan 2006a). This foredune would be contoured with dunes of varying heights for a more natural appearance, but would gradually slope westward to prevent creating a perch for predators (Figure 2).

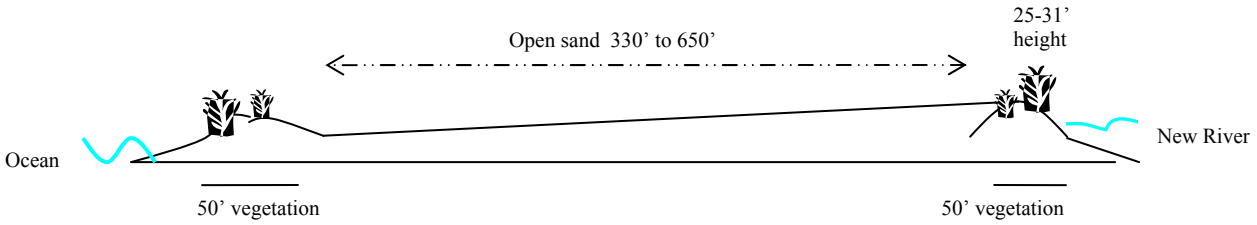


**Figure 2. Cross-sectional profile of the proposed Foredune management.**
The open sand area gradually raises going from the ocean to the river to establish heights to prevent ocean overwash.

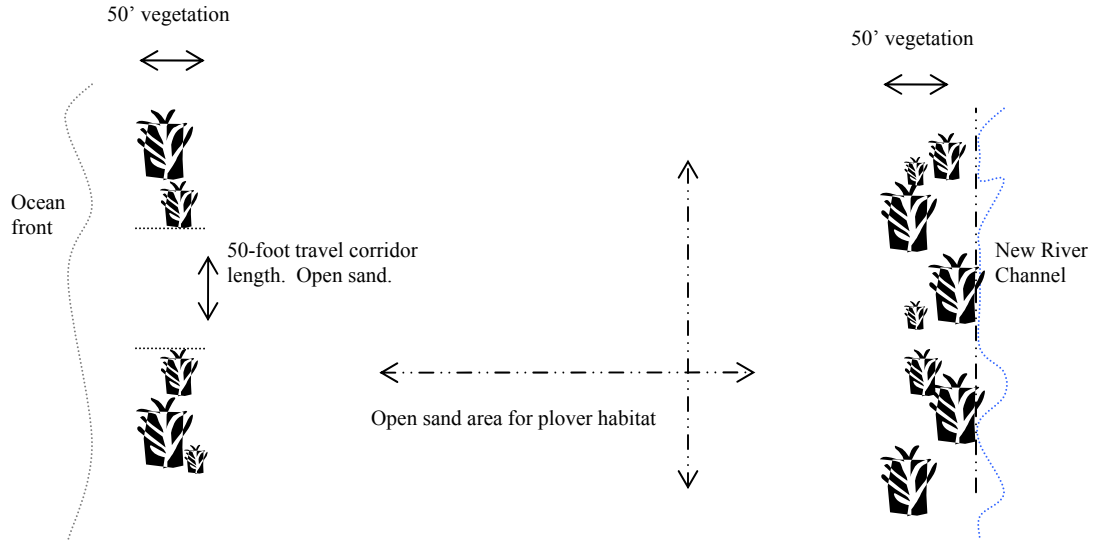


**Figure 3. Longitudinal profile of the proposed Foredune management.**
The open sand corridors would allow for plover movement from the nesting area to the foraging area along the ocean's edge.

Habitat restoration and maintenance would only be conducted between the ocean side foredune and riverside buffer foredune.

Work emphasis would be based on areas of nest concentrations, with the area across from Storm Ranch receiving first priority. Treatment priorities would be established annually by BLM in coordination with FWS and ORNHIC (Oregon Natural Heritage Information Center) biologists. Acres treated per year would be subject to funding and feasibility. Under current budget cycles, it is estimated that 20 acres would be restored a year. Once areas have been restored, they would need to be maintained every 2 or 3 years. The annual goal would be to treat acres that need maintenance first, and then restore additional acres. In order to fully realize the 100 acre goal, new areas previously identified as *HRA potential* would receive treatment. This expanded area would increase the boundary of the HRA from 176 acres to 225 acres. These new areas would be the last areas restored to reach the 100 acre goal. This additional acreage area extends from the Hammond Breach site to the Clay Island Breach site. It would likely take a number of years to accomplish the targets identified under this alternative, and then a perpetual maintenance program would be needed to prevent European beachgrass (EBG) from re-colonizing the area.

*Aerial Photographs with past plover nesting sites overlaid with the Proposed Action are found in Appendix A.*

Other activities as outlined in the No Action Alternative would continue, such as predator control, seasonal restrictions, Law Enforcement patrols, public outreach and education, and monitoring.

### 2.2.1 Project Design Features for Action Alternative

#### *Foredune Buffer Design*

- Treatment would only take place to restore or maintain up to 100 acres per year within the 225 acre plover HRA.
- Along the ocean side of the New River Spit, 50-foot wide vegetated foredune would be maintained (Figure 2) or established.
- This foredune would begin at the westernmost edge of established beachgrass. For areas without EBG, this would be the high-tide watermark.
- In areas where this foredune does not meet an elevation of 22 feet, bladed material from the HRA would be moved westward to aid in elevation development. Once a continuous elevation is achieved, no more manipulation would occur.
- Along the river side of the spit, a 50-foot wide vegetated foredune would be established or maintained.
- This foredune would begin at the easternmost edge of the sedges/rushes line, or 50 feet from the stream channel edge, whichever is greatest.
- The preferred vegetation is European beachgrass.
- The river foredune would be built to a minimum elevation of 25-31 feet. This elevation would be equivalent to a 10 to 100 year wave run-up as estimated by the DOGAMI model. Also, the buffer would be contoured with dunes of varying heights for a more natural appearance.
- In areas where the river foredune does not currently meet these elevations, EBG and sand from within the proposed open sand area of the HRA would be moved eastward to aid in elevation development. Material would not be pushed into the New River channel.
- Once the river foredune reaches these elevations, mechanical height manipulations would end.

- Within the ocean foredune, 50-foot wide strips would be managed as open sand areas (Figure 3). For these plover travel corridors, the target would be eight per mile.
- Monitoring would continue as BLM staff time and funding allows.
- A proposed interagency monitoring plan (DOGAMI, BLM, ORPD, Etc.) for the entire littoral cell would be conducted as management approval is obtained and funding is secured. This plan is found in Appendix B.

### *Implementation Actions*

- For establishment of each year's treatment plan, the work area would be surveyed and staked to define the treatment area boundaries and measure elevations.
- Manual and mechanical treatments would occur between September 16th and March 14th, which is outside of the plover nesting season.
- Manual treatments would include broadcast burning or pile burning. Burning would occur after the nesting season and prior to wet winter weather, typically between 16 September and 15 October.
- Mechanical treatments would include the use of a bulldozer. The bulldozer would be used to treat the beachgrass layer *only* and not cut the established elevation down in the open sand area any further then necessary to remove EBG.
- Bulldozers would be left on-site at the end of each shift.
- Restoration equipment would remain on the premises for only as long as it takes to complete the project. Activities with equipment would be accomplished in the shortest timeframe possible.
- Restoration equipment would be restricted to paved road surfaces and the Pacific Ocean shoreline to minimize ground disturbance when accessing/leaving the area.
- Equipment crossing China Creek or the mouth of New River would be done at low tide and during low flow conditions in China Creek and New River. Equipment would not otherwise operate in the New River channel. Equipment would not cross any constructed breach site when water is flowing through the breach.
- Equipment would access from either the north (above China Creek) or from the south (Blacklock Road).
- All heavy equipment would be washed before entering federal lands.
- Noxious weeds would continue to be managed as per the District's noxious weed policy.

### *Hazardous Materials and Refueling Activities*

The proposed action is subject to State of Oregon Administrative Rule No. 340-142, *Oil and Hazardous Materials Emergency Response Requirements,* which specifies the reporting requirements, cleanup standards and liability that attaches to a spill or release or threatened spill or release involving oil or hazardous substances. The 2003 Coos Bay District Spill Containment Plan for Fisheries and Riparian Operations would be used (USDI 2003).

Restoration activities would adhere to the following contract stipulations regarding fueling practices, spill containment plans and hazardous/solid waste discovery:

- Equipment would be inspected by the Project Inspector for any leakage of petroleum products. Leakage will be a basis for issuing an immediate shutdown of operations.
- Fueling areas will be selected by and are subject to the approval of the Contracting Officer Representative/Project Inspector.
- Equipment shall only be fueled west of the vegetative buffer running between the project area and the river. If refueling is conducted via boat, the boat would be contained within the

confines of an absorbent boom at all times (i.e. refueling the cell in the boat and while transferring fuel to the equipment).

- All fuel, oil and fluid containers would be removed from the project site and disposed of in a legal manner.
- A Spill Containment Kit would be on-site at all times during the project. The kit must include two bales of absorbent pads; minimum size of each pad will be 17" x 19" x ¼".
- In the event of a spill, contaminants would be cleaned-up by the Contractor to DEQ/BLM standards, at the contractor's expense.
- Dumping of any waste material at any time, including waste generated by the contractor during the project, would not occur on federal lands (43 CFR 8365.1-1(b)(1) and (4)).
- All operations would be immediately suspended upon the discovery of any hazardous materials or solid waste within the project area.

# Chapter 3.0 Affected Environment and Chapter 4.0 Environmental Consequences

This chapter combines the affected-environment (typically EA Chapter 3) and the effects-analysis discussion (Chapter 4) and has been arranges by specific resource values that may be affected. It identifies the direct, indirect, and cumulative environmental effects that may result from implementation of either the two alternatives described in Chapter 2. The description of the current conditions inherently includes and represents the cumulative effects of past and current land management activities undertaken by the BLM and private entities.

### Reasonably Foreseeable Actions

Annual recurring activities are likely to occur within the project area. These include, but are not limited to, treatment of aquatic weeds, channel profile monitoring, migratory bird surveys, environmental education and outreach, water quality monitoring, and recreational activities such as hiking and kayaking.

In 2002, BLM initiated a long-term breaching project to control flooding on adjacent ranch lands. When a breach is open, it provides a channel through which water and sediment are flushed out of the river channel and into the ocean. Between 2002 and 2006, New River was temporarily breached across the foredune at strategic sites chosen to best improve river function. Three breach sites (Hammond, New Lake and Croft Lake) are located within the existing plover HRA and a fourth site (Clay Island) is located at the southern boundary of the potential plover HRA (Fig. 4). A fifth potential site will be selected from either (1) north of the existing HRA (Storm Ranch) or (2) south of BLM land on private property (Hanson Slough). In October 2007, the Clay Island site reopened naturally during a large storm event. This resulted in this site being breached for two consecutive years. To achieve channel deepening objectives, private landowners are focusing on opening New River at the Hanson Slough site in December 2008. This breach location is not within the boundary of the current or proposed HRA.

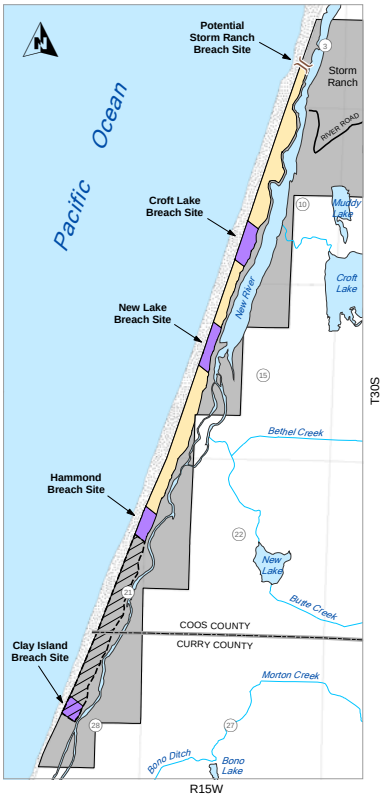


Figure 4: New River past and planned Breach locations in relation to the current and proposed expansion area of the HRA.

The BLM has completed NEPA analysis for the Edson Thin Commercial Thinning and Density Management project (EA OR128-07-02). There are 346 acres within the New River Frontal 5th Field watershed. The Edson Thin timber sale was offered on September 19, 2008.

### Other Actions

The Western Oregon Plan Revisions are a reasonable foreseeable action, with a ROD planned to be signed in late December 2008. However, this revision is not expected to change the current management actions/objectives related to management of the New River ACEC.

**Cumulative Effects Considerations**

The Council on Environmental Quality (CEQ) provided guidance on June 24, 2005, as to the extent to which agencies of the Federal government are required to analyze the environmental effects of past actions when describing the cumulative environmental effect of a proposed action in accordance with Section 102 of the National Environmental Policy Act (NEPA). CEQ noted the "[e]nvironmental analysis required under NEPA is forward-looking," and "[r]eview of past actions is only required to the extent that this review informs agency decision making regarding the proposed action." This is because a description of the current state of the environment inherently includes effects of past actions. Guidance further states that "[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historic details of individual past actions."

The information on individual past actions is merely subjective, and would not be an acceptable scientific method to illuminate or predict the direct or indirect effects of the action alternative. The basis for predicting the direct and indirect effects of the action alternative should be based on generally accepted scientific methods such as empirical research. The cumulative effects of this project upon the environment did not identify any need to exhaustively list individual past actions or analyze, compare, describe the environmental effects of individual past actions in order to complete an analysis which would be useful for illuminating or predicting the effects of the proposed action.

## *3.1 Geology Resources*

**NOTE:** The following is a summary for NEPA purposes only of the Geology Report with appendices. This report is included in its entirety in Appendix B. This report includes additional information on chronology of events, involvement by DOGAMI, and geomorphic monitoring, and presentations to regulatory agencies.

### *Affected Environment*

The bedrock geology underlying the New River Spit area consists of Jurassic Otter Point Formation (Ramp 1977) and possibly Eocene Roseburg Formation (Phillips *et al.* 1982), later defined as Siltez River Volcanics and/or the Umpqua Group by others. The Otter Point Formation consists of sandstone, siltstone, mudstone intermixed with metasediment and metamorphic rock within a mélange. The mapped Roseburg Formation consists of sandstone with siltstone and mudstone. The surficial geology of the project area is comprised of Quaternary sand forming the beach and accompanying dune field. The sediment on the southern portion of the spit is coarse, predominantly derived from Blacklock Point and adjacent sea cliffs. Blacklock Point is mapped as ultramafic rock containing serpentinite and peridotite. The sea cliffs directly north of Blacklock Point have been mapped as containing Pleistocene marine terrace sediments (Komar *et al.* 1999, Komar *et al.* 2001).

The New River Spit is located within the Bandon Littoral Cell. The cell is demarked and bound by Blacklock Point to the south and Cape Arago to the north. The total longshore length of the cell is approximately 27 miles. The littoral cell is sediment contained, with no or minimal migration of sand sediment beyond the bounding points of the cell (Komar *et al.* 1999). Initially emplaced sand of the Bandon Littoral Cell has similar identification characteristics as the sands of the Coos Bay Littoral Cell (Peterson 2004). The New River and adjoining areas east of the river are remnants of the Coquille River South/Fourmile Dune sheets ((Cooper 1958) as found in (Beckstrand 2001)).

Erosion of Blacklock Point and the sandstone cliffs north of the point (to Floras Lake) currently supplies beach sediment to the southern portion of the spit (Komar *et al.* 1999). This material is coarse grained sand and pebbles. In general, sea cliff erosion in the Bandon area is minimal because tectonic uplift exceeds sea level rise, giving a net decline in sea level. However, the current platform of the wave-cut terrace on which the depositional material of the beach, spit, and stabilized

dune front rests is currently below sea level (Peterson 2004). Erosion from the sea cliffs is due to groundwater movement as opposed to wave action (Komar 1997).

The New River Spit contains characteristics of a Dissipative Beach along the northern, finer-grained beach and characteristics of a Reflective Beach along the southern, coarser-grained beach. The Dissipative Beach tends to be more stable, responding less to major storms and undergoing smaller changes in elevations from summer to winter. The Reflective Beach tends to be less stable, changing rapidly in slopes and elevations during individual storms and from summer to winter (Komar *et al.* 1999).

Establishment of European beachgrass (EBG) in the 1930s facilitated starvation of the dune sheet, resulting in a continuous deflation plain. The sand was removed to the water table. The resulting deflation bowls and dune wetlands connected and separated in short time frames. As Floras Creek and the outlet of Floras Lake were deflected north by the over-sedimentation of the mouth and southern end of the spit by sediment supplied by Blacklock Point, the flows entered the expanding deflation plain. The river system incorporated the already existing deflation ponds, small outlets (such as New Lake), and wetlands, forming the existing New River. The expanding river system is not only directed by the expanding dunes into the self-created deflation plain, but it is also protected by the EBG-stabilized foredune, creating a "sea-wall."

The development of New River is a direct result of sufficient sand supply from the littoral cell and the expansion of EBG. If the supply of sand or the European beachgrass were not present, the river would not exist in its present form.

The greatest change of the New River and Spit is the progressive migration of the mouth of the New River to the north, which has shifted its position by 2.9 miles in 30 years (Komar *et al.* 1999), or an average of 0.16 km/yr [535 feet/year] (Komar *et al.* 2001). This corresponds to the explosive growth of dune vegetation during the last 100 years.

The BLM began EBG removal and dune manipulation in 1998 by mechanical removal. Initial treatments were limited to approximately 24 acres. Beginning in 2000, heavy machinery was used to treat up to 100 acres per year by removing EBG and manipulating dune form. The effect was a lowering of the foredune elevation, with deposition of material into the beachfront. This has occurred on a yearly basis, with areas previously treated being retreated. Dune elevations have been lowered from pre-management elevations up to 33.8 feet elevation to current elevations as minimal as 15 feet. Modeling predicts storm energy overwash elevations ranging between 28.05 feet to 31.50 feet. Open-dune areas experience sand migration due to aeolian process.

Three impacts of concern to the current system exist with the removal of the foredune and either the removal of the stabilizing effects of European Beachgrass or the succession of littoral cell sand supply. These are:

- Transportation of sand over the foredune by wave overwash. The most extreme case could have continual and sustained storm surge and flow over the beach front into the New River system, causing complete infilling of large portions of the channel and deflation plain. Less extreme cases would provide a chronic, but unsustained sediment supply into the New River System.

- Transportation of sand through aeolian (wind-blown) processes. Specific volumes of sand transport through direct wind transport (sand caught in air stream) and saltation (sand bouncing and dislocating additional particles) is determined by sand size, moisture,

vegetation, wind vectors, etc. Observations of other portions of the coast indicate an advancement of the Coos Dune Sheet at six to eighteen feet per year (Alt and Hyndman 2001). Areas of dune sand sales near Florence indicate 10,277 cubic yards of accumulation (17 inches of depth over 4.55 acres). Site specific sand movement monitoring has been proposed by DOGAMI (Allan 2006b).

- Removal of the foredune sand volume may result in the alteration of the beach face, the point where beach and surf meet. The foredune volume provides material for erosion during large storm events, with the material being replaced and trapped into the foredune during calm, non-erosional periods. Removal of this material would allow erosion of previously stable material, resulting in an easterly movement of the beach face. This in turn would result in the erosion of the unmanaged stabilized dunes, outside the HRA, as the system attempts to grade. This process can be exasperated if the net zero littoral drift within the cell was to be altered, such as a shift to a north drift, causing erosion within the southern part of the cell and deposition in the northern part of the cell. Such shift may be occurring along the Oregon Coast (Allan 2006b).

The BLM has been conducting dune monitoring along portions of the New River System. This consists of dune cross-sections within and without the managed-dune areas of the HRA as well as dune-parallel profiles of the foredune and buffer dunes within the managed HRA. DOGAMI has also proposed a complete monitoring plan of the entire littoral cell. Detailed geologic descriptions, as well as interagency documentation, can be found in the Geology-Geomorphology report found in Appendix B.

### *No Action*

In this alternative, allowing the system to re-establish its foredune growth with no management actions would create the least amount of risk of impact to the river system over time. This would not allow for the construction of an artificial new dune, but rely on historically established natural processes to continue. Because of the management activities already completed on the HRA, the amount of risk is time dependent, with the risk being high in the short term but progressively lowering as EBG is established, material is trapped and historic foredune growth and elevations are re-established. With sufficient time (within 60 years under pre-1997 deposition regimes) the dunes could obtain their original pre-management elevations and width. The unknown variables in the time dependent risk analysis is the actual recurrence interval of storms equal to or greater than those of the late 1990s, volumes of sand movement over open and reestablished dune systems, changes in littoral drift pattern and if summer deposition of sand by the oceanic cycle is indeed diminishing. Each of these variables would present less risk to the current New River system as time progresses.

Detailed process descriptions can be found in the Geologist/Geomorphology Report (Appendix B).

This Alternative would have a great risk comparable to that of the Continued Past Action within the near future. The risk would adjust to the least amount of risk over time, similar to the risk experienced by the unaltered dune systems (which will have some, but low, risk in a natural system). However, this alternative will eventually provide the least amount (to none) of open-dune habitat available to the plover, giving the No Action Alternative the greatest amount of risk in for plover objectives.

Cumulatively, this alternative would allow the geomorphic process to continue that created New River, continuing the ecosystem as is present. Sand migration and overwash would be managed

over time by the growing foredune system. The New River ecosystem would obtain the stability and function existing before HRA manipulation and management.

### *Action Alternative*

Every action within this dynamic system has risk of impacts to the adjoining systems. The choice of action produces a management of risk, not an elimination of risk. However, based on the project descriptions and incorporation of the recommendations, it is anticipated that the proposed action would have similar risk or lower risk as the previous preferred alternative that was considered but eliminated.

The proposed action appears to reduce risk of both littoral erosion and aeolian erosion/movement when compared to current conditions as well as Continued Past Actions. The proposed action provides for an ocean-face vegetated dune to maintain a stabilized shoreline that was missing in other alternatives. This dune, as discussed on pages 9 and 10 of the Geology Report, would provide a stabilizing buffer to mitigate wave process erosion, reducing the risk of landward erosion. The presence of two dunes with stabilizing vegetation (preferably EBG) should reduce the amount of sand movement into the deflation plain (New River) as discussed in Section 3.1, Section 4.0 and Section 4.3 of the Geology Report. Elevation of the dunes provides wave overtopping protection as discussed in Section 4.2 of the Geology Report.

However, a new risk does exist with the proposed action. The creation of a west ocean-face stabilized dune could stabilize most sand at that point. This would lead to a possibility of creating a deflation plain between the two dunes. Extrapolated to a worst case scenario, this could provide for stream capture of New River, altering the course of the river westward and creating unforeseen breaching and shortening. However, with continued monitoring, evidence of this possibility should be detected early and mitigation designed and implemented.

This is an extremely dynamic and conflicting system, with one planned action having numerous unforeseen repercussions. As discussed in Section 4.1 and Section 6.0 of the Geology Report, the DOGAMI monitoring plan should be implemented to ensure early detection of changes in the geomorphologic systems. This monitoring should provide sufficient warning of catastrophic failures such that proper mitigation can be employed. However, unforeseen changes in the natural system, such as changes in littoral drift, increased storm intensity or relative sea level rise, will have impacts on the system. These impacts could alter the projections of risk for all alternatives, and as such, amplify the actions and consequences taken.

Current observations (June 2008) collaborate projections made in the Geology Report. Overwashes of the spit between the ocean and New River have delivered sand to the New River system. This delivery has created point bars which project into the river. Previous overwash sites were closed by stitching logs and sand fill. The current overwashes have eroded the un-stitched areas and flowed through to the river. Emergent vegetation is filling the river bed, indicating a constant shallowing of the river system. It can be suggested that this infilling is due to both lack of water flow to remove sediment and the deposition of aeolian sands. Continued fill will eventually cause the northern portion of the system to eutrophy, separating the New River drainage to the south from the Two Mile drainage to the north, eventually creating two separate systems. This is reflected in the following risk graph for both the No Action Alternative and the Continued Past Action.

While the No Action Alternative would eventually allow the dunes to rebuild, the river system may eutrophy completely before the needed dune height is achieved. This would require the river system to re-establish itself in similar process that originally created it. The time frame for the original

system was 60 to 100 years or more. Implementation of the proposed action would reduce the risk of river eutrophication due to sediment input through aeolian and oceanic systems. However, it should be noted that there may be other processes at work causing eutrophication beyond sediment input.

The anticipated risk of the Proposed Action has been graphed in the following risk analysis illustration:

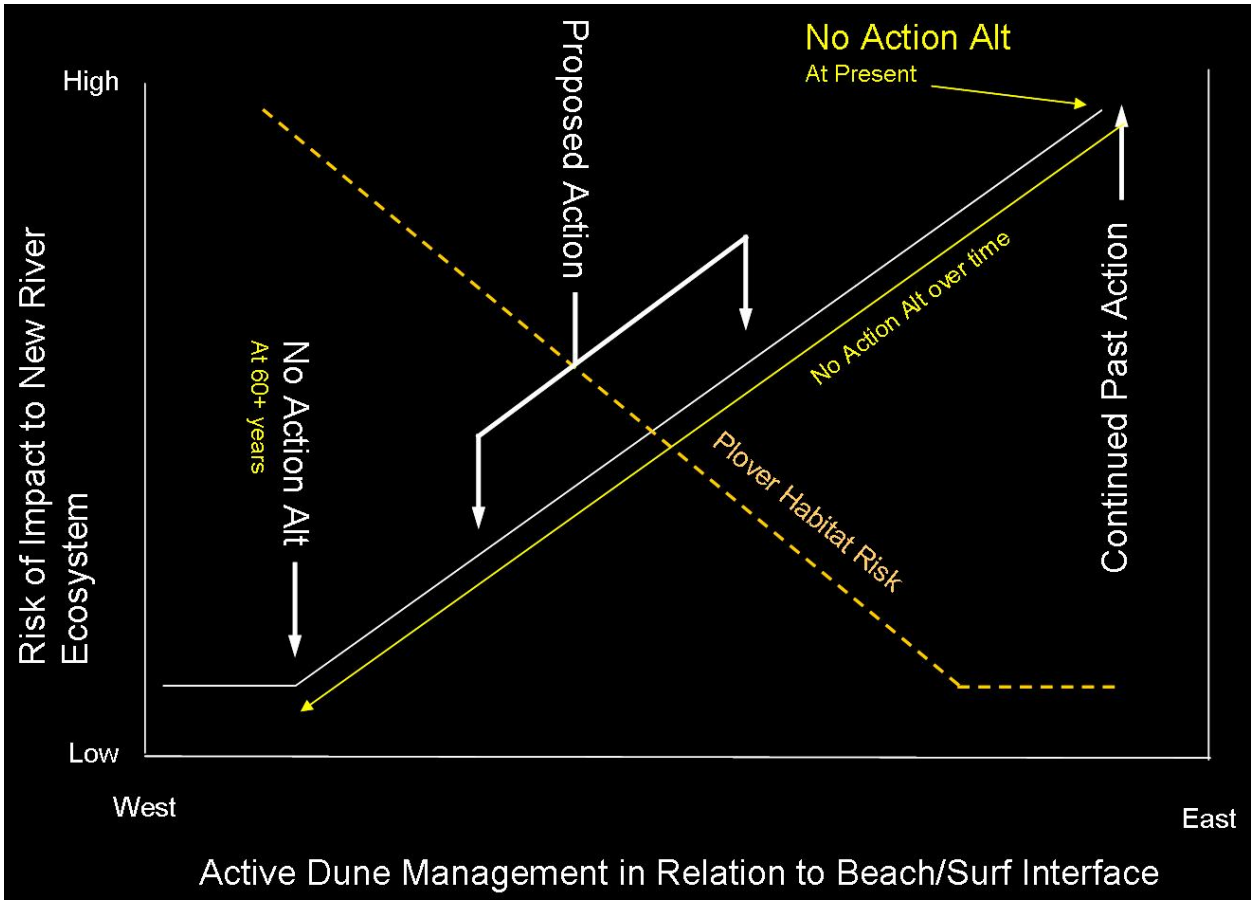


**Figure 4. The anticipated risk of the Proposed Action**

## 3.2 Soil Resources

### *Affected Environment*

Soils affected by the proposed action are primarily highly erodible fine or very fine sands. These sands compose the 2.75 miles of beach and foredune from west of the Storm Ranch boat launch south to the Coos and Curry County line between the Pacific Ocean and New River. The width of the HRA varies throughout this length but is generally 600 to 800 feet. The adjacent eastern shore of New River is also slightly affected with deposition occurring within a width of 100 to 600 feet depending on the amount of vegetative cover.

All of the fine, sandy soils in close proximity to New River are well drained with the exception of the deflation plain. This drainage allows rapid drying to occur and allows the wind to remove the upper surface sand by prevailing winds. Sands are removed from the ocean side of the foredune and deposition occurs in the vegetation adjacent to the river or within New River itself. In a study of stabilizing moving sand dunes (Zak 1977) it was observed that "There was sand deposition of 7.5 to

10 cm behind the rows of established grass and sand erosion where the grasses had failed to establish themselves." This is also the case within the HRA, where EBG exists; the capture of blowing sand seems to occur but it is unclear how much (depth) accumulation throughout the year.

The current area of sand is roughly 215 acres (from ocean edge to existing adjacent river vegetation); most of these acres have had treatments in the past and have a range of vegetative cover from 0 to 100%. The 215 acres were digitized from the 2005 air photos available on our ArcGIS database.

Generally, cover needs to be at least 40% of the bare area to successfully capture and deposit fine soil particles. According to the Natural Resources Conservation Service (NRCS), vegetation and crop residue is the most effective way to protect against soil erosion since it maintains the soil cover and protects unsheltered particles. Conservation tillage is a system that leaves more than 30% of the surface area covered by residue (Delgado 2001). In this near ocean environment, with very fine sands, high winds that exceed 20 MPH on a regular basis and no other trapping mechanism the amount of cover could have to be as high as 65% before deposition can successfully occur.

Wind erosion occurs when dry, sandy or fine-grained, non-cohesive surface soils are exposed to and then are transported by wind. The strongest prevailing winds in the project area occur during the winter on the coast when soils are wet and are not typically susceptible to blowing. However, during the summer or non-rainy periods during the winter, the sand dries out and is subject to consistently high and gusty winds that will erode and move the sands. Under field conditions, soils begin to move when the wind velocity reaches about 13 miles per hour at one foot above the ground surface (USDA 1989). During field reconnaissance of this project on August 13, 2008 sand migration was observed under a 6 MPH wind that was steady all afternoon. Thus, the potential for wind erosion throughout the project area is high to very high.

Continual wind erosion can remove the clay and silt particles from the soil and reduce the long term soil productivity. Delgado (2001) studied the continual erosion of uncovered surfaces and the data suggest that if cultivated sandy soils with sandier coarse substratum are left uncovered and unsheltered for decades, the physical and chemical properties may change, affecting the quality and potential soil productivity of the systems. If bare soils are not covered, the constant effects of wind erosion can affect the texture of the soil by transporting a significant amount of fine particles out of the system. In areas where the European beachgrass has been recently disturbed in the treatment area it appears to be healthier than in those areas where long term re-growth was evident. In areas where EBG has not been disturbed the quality of stem is weak, low to the ground and sparse in comparison.

Some armoring by vegetation, rock cover or crust formation of the loose sand has occurred since the last treatment in 2005. The delivery of sand to the New River system has substantially been reduced from the initial treatment disturbances.

### *No Action*

Without EBG removal and disturbance, the open sand areas would continue to revert back to European beachgrass cover over time, possibly between three to eight years except in overwash areas. This estimate is based on revegetation rates observed in the southern area of the HRA. Since the last treatment of this area in 2006, it has re-vegetated to an approximate cover level approaching 90%. In contrast, areas of the HRA treated annually using heavy equipment since 1998 and 1999 have only returned to a vegetated condition approaching a cover level of 40%. The overwash areas

in the northern part of the HRA and the breach areas (33 acres) would continue to be a source of sand.

Determining a specific amount of sand delivered to New River under this alternative is problematic primarily because wave and treatment actions have removed different amounts of plant cover from portions of the treated area. As stated above, the current level of vegetative cover across the disturbed areas approximates between 40% and 90%, with the southern areas having the most and the northern areas having the least. In addition, the breach areas would continue to provide an open sand area that would deliver sand at those locations. Sand delivery amounts would be less each successive year that treatment is withheld from the area. It is expected that within the next three, possibly eight years, the treated areas would be colonized by vegetation to a point (65% cover) that only the breach areas and the most open sand areas would deliver sand to the river. Dune-building processes would reoccur, provided sufficient sand from the ocean source is delivered by upwelling and wave transport.

Portions of the vegetated buffer between the river and treatment area have been compromised by overwashes, carrying sand, even as late as last winter. If ocean over-washing does not occur, these areas may gradually accrue sand, develop vegetation and ultimately, increase the foredune elevation. Sand movement and deposition into the river would lessen with increased foredune elevations and sand deposition would be minimal in comparison to past delivery.

Under active management, the rotational breaching events would prevent the re-establishment of vegetation. The continued input of sand in these areas would likely occur. Deposition of moderate to high amounts of sand would be expected in the river at these select locations.

### *Action Alternative*

Removal of EBG between the two foredunes may disturb between 20 and at most 100 acres a year. With expected budgets the disturbance level would only be 20 acres a year. Each time any treatment by machinery occurs it will reinitiate a blowing sand condition across the treated acres. This would be a substantial increase above the No Action Alternative.

The capture of sand would be primarily in the foredune areas but also within the sedge areas and delivery of sand to the New River system would be minor. Capture of sand on both sides of the open sand area would be expected as the prevailing wind direction changes between the winter and summer. Additional amounts of sand would come from the naturally-occurring open sand area between the ocean foredune and the ocean itself.

No over-washes would be constructed that would allow salt water to enter the New River system. Previously created over-washes would be treated in a manner that would allow them to gain elevation and provide ocean run-up protection. In those areas where the toe of the foredune is not adjacent to the sedge areas of New River, the filtering mechanism may not be adequate to deposit all the wind-blown sand and some low to moderate level of the total eroded sand mentioned above would be expected to deposit in the river. This action would be confined to the north end of the HRA where sedge areas are nonexistent.

It is expected to take ten to fifteen years to build a uniform European beachgrass cover on the foredune locations that would sufficiently trap all the blowing sand from the open sand areas and provide ocean run-up protection. Establishing and maintaining a cover of vegetation is the most effective method of controlling wind eroded sand dunes (Armbrust 1977, Fulbright *et al.* 2006).

Obtaining the desired foredune elevation is dependent on the ocean littoral processes delivering sand in quantities that make treatment economically feasible.

As with the No Action Alternative, the rotational breaching events would prevent the re-establishment of vegetation. The continued input of sand in these areas would likely occur. Deposition of moderate to high amounts of sand would be expected in the river at these select locations.

The constructed foredune along the river would offer greater protection against ocean run-up compared to the No Action alternative as it would gain elevation faster through manipulation than by depositional processes.

## 3.3 Hydrology Resources

### *Affected Environment*

New River is a drainage feature developed and stabilized by the complex interaction of agricultural management and the colonization of European beachgrass. The New River stream channel is dependent on the establishment and extent of EBG. The river occupies an area once characterized by an active dune sheet dissected by multiple drainages meandering through coastal lowlands. The establishment of EBG and the subsequent formation of the deflation plain allowed winter stream flow to accumulate and scour a stream channel along the length of the building foredune. The agricultural practice of excavating ditches to draw water from farmlands increased and concentrated stream flows of individual drainages within the newly formed deflation plain.

New River is a very low gradient channel with a streambed comprised of sand of various particle size classes. Stream channel surveys completed in the summers of 2003 and 2004 revealed a completely flat channel with slopes of less than 0.01% between channel cross sections. The streambed is typical of aeolian deposition, exhibiting bed forms of ripples, dunes and anti-dunes.

Currently, the foredune prevents the coalescing New River tributaries from overtopping during small flood stages. In turn, this process elevates what were once smaller flood stages into a combined larger volume that is stored against the stabilized sand wall of the foredune. This causes flooding of agricultural pastures to the east that are only released by mechanical or natural breaching. Except for the effects of breaching Floras Creek at the historical mouth where New River begins flowing north, the southern reaches of the foredune have been more developed in the accretion of sand caused by beachgrass. Here, elevations of the foredune are greatest and the beaches are steeper. The Croft Lake area to the north is flatter.

Preliminary data show an apparent increase in the New River channel depth near breach sites. This is likely due to the increase in velocity and sheer stress in these reaches. Stream velocities change with the tidal stage; flow decelerates during the flood tide and accelerates during the ebb tide (Blair 2001). Winter flows from Floras Creek, intermediate tributaries, ditch lines and groundwater connectivity build a substantial hydraulic head against the foredune. When this stored water is released by breaching, stream discharge through the non-cohesive foredune takes with it large quantities of local sand deposition eroded from the breach opening and the channel upstream and downstream of the breach. In some locations, dense vegetation such as rushes and sedges along the banks of New River resists lateral scour. However, these sheer stresses act on the stream bed to cause down cutting of the bed and deepening of the channel. Monitoring of breach sites to determine the effects of breaching are on-going.

At this time, the Pacific Ocean overwash occurs in three areas during winter storm events: (1) low elevations where managed breaches were placed to reduce flooding, (2) areas lowered by the mechanical removal of European beachgrass, and (3) low, flat, fine sand areas in the northern reach. During summer, when the breaches or the northern mouth of New River closes from the combination of low stream flows and windblown sand, the channel resembles a long, narrow lake. Tributary freshwater base flows continue to supply discharge volumes to the New River channel. In-channel velocities decrease to as low as 10 cubic feet per second as water moves slowly towards the northern mouth or seeps through the porous sand. Low flow velocities are unable to transport sediment. Deposition is pronounced occurring from sand accumulated from overwash or transported by wind from small fans of overwash material and in-channel sand bars in the active channel.

The reaches adjacent to the plover HRA are affected by breaching, overwash, past agricultural management, the state of channel formation, and increased amounts of wind-blown sand due to the removal of European beachgrass. Except near breach areas, New River lacks elevation gradients and stream energies to transport even the sand-size particles; this causes an excessively wide and shallow stream susceptible to solar heating. Strong northern winds provide surface currents which can transport and reshape sand bars along the edges of the channel, but are not sufficient in maintaining channel depth. Wind-blown sand, largely from the un-vegetated foredune or overwash areas, tends to deposit in the river and reduce channel depth.

Data collected at numerous sites throughout the New River system indicate water temperatures can reach 76°F during summer months and the State of Oregon temperature standard of 64°F is frequently exceeded. These high temperatures are approaching the lethal limits of salmon and steelhead. Warm stagnant water often develops in areas where the channel becomes de-watered. New River lacks tall, streamside vegetation throughout most of its length which could provide shade. The width, depth, and orientation determine a high solar budget input (i.e., solar radiation is absorbed) for stream surface heating. These factors combined with the potential for high nutrient loading from manure or fertilizers, can cause eutrophic conditions.

### *No Action*

This alternative would return New River toward the long-term trend of re-establishing EBG, affecting dune morphology and increasing dune heights. The evolutionary sequence of New River and the extent to which the river developed can be directly related to the temporal and spatial development of the building foredune created by EBG.

With EBG establishment, dune elevations would continue to increase similar to the development of the southern reaches of the river. These rates are dependent on the availability and deposition of sands and the dominant ocean dune processes. It is assumed that without mechanical intervention to remove EBG, the rate of foredune elevation gain and stabilization would be substantially increased.

Currently, approximately 0.5 miles or 18% of the beach foredune adjacent to the HRA have been excavated below 14.60 feet, an elevation corresponding to the 5-year combined tide and wave run-up event. This suggests the probable occurrence of frequent overwash and large inputs of sand to the active stream channel (see Appendix B).

The potential for increased overwash and resulting sedimentation is reduced by maintaining a cover of European beachgrass to aggrade sand and increase the foredune elevations. New River would return to its former morphologic trajectory. The re-colonization of EGB within the HRA would reduce, but not eliminate, the amount of windblown sand and ocean overwash from entering New

River. The spatial extent of available bare sand would be progressively reduced alleviating the movement of sand into the channel by wind and ocean overwash. Establishment of riparian vegetation such as sedges and rushes along New River would help stabilize river banks and allow the channel to narrow and deepen.

Reduced width/depth ratios in New River would have a beneficial effect on water quality. Data collected by the South Coast Watershed Council in 2006 (Myers 2008 *Draft*) showed that water quality was correlated with depth. Dissolved oxygen levels and pH were good in deeper reaches and poor in shallow reaches. High water temperatures in summer would also be reduced since heat absorbed is directly correlated with the amount of surface area exposed to solar radiation.

Cumulatively, this alternative does not entirely reduce sediment delivery to the stream channel from wind-blown sand and overwash. Sediment would also continue to be delivered by upland tributaries. Planned breaching at Storm Ranch and other locations in the HRA, when possible, would help transport sand out of the system.

### *Action Alternative*

In the short term (1-2 years), foredune management may increase wind-blown sand delivery in reaches of New River adjacent to treated areas. However, elevating the foredune would immediately reduce the potential for sand delivery by overwash that could rapidly fill the channel. Therefore, the risk of a reduction in channel depth and a corresponding increase in width would be somewhat less under this alternative. Only a portion of the area adjacent to the channel would be treated each year. Planned breaching at Storm Ranch and other locations in the HRA, when possible, would help transport sand out of the system. Suspended sediment or turbidity would not measurably increase because sand, due to its size and density, would quickly settle to the river bed and travel through the system as bedload.

In the long term (>2 years), as vegetation stabilizes the elevated river buffer, this alternative would reduce the amount of sand entering New River from wind and water transport compared to the previous management practices. Maintaining elevated foredune and riparian buffers, and establishing elevated riparian buffers where they do not currently exist, would restrict sand movement into the river (Appendix B). The elevated buffers (Figure 2) would capture windblown sand, help prevent an unintentional over-wash, and allow continued establishment of riparian vegetation. Establishment of riparian vegetation such as sedges and rushes would help stabilize river banks and allow the channel to narrow and deepen. This condition can be seen in reaches to the south with an elevated foredune as in the reach adjacent to Knapp Ranch. The 50-foot wide travel corridors through the foredune would have little effect on sand movement into the river system because the elevated river buffer would capture a majority of any sand transport from the corridors.

Some sand would still be delivered to New River in the HRA area through wind transport and potential over-wash in low elevation, un-vegetated breach locations and by transport from upstream. Over time, this smaller amount of transported sand may still create or maintain reaches with a high width/depth ratio. However, increased river velocities from planned breaching in the HRA area during winter (when possible) would serve to maintain and increase channel depth in adjacent reaches.

This alternative should have the effect of reducing width/depth ratios at a greater rate than in the no action alternative because of the establishment of the two foredunes to prevent overwash and capture blowing sand. Narrower and deeper channels in New River would have a beneficial effect

on water quality by maintaining good Dissolved Oxygen and pH levels. High water temperatures in summer would also be reduced since heat absorbed is directly correlated with the amount of surface area exposed to solar radiation.

## 3.4 Wildlife Resources

### *Affected Environment*

The New River ecosystem is a blend of freshwater lakes and streams, a tidally-influenced river with a mix of fresh and salt water, forest, wetland and coastal dune habitats. About 230 species of waterfowl, shorebirds, wading birds, and migratory birds are known from New River ACEC (USDI 2004a). In fall of 1996 the New River ACEC was designated a Critical Bird Area by the American Bird Conservancy because it as an essential place for protecting rare, declining, or migratory birds. As New River is situated within the Pacific Flyway, during spring and fall migration it hosts tens of thousands of birds. For example, the mudflats exposed during low tide at the mouth of Fourmile Creek provide high quality foraging habitat for migrating shorebirds. River otter, mink and beaver utilize the lakes, creeks, river vegetation and the shoreline for foraging and den sites.

**Special Status Species**

The most current list of the wildlife Special Status Species found within the Coos Bay District is located in the Analysis File. Other than the western snowy plover, which is described below, there will be no effects to the other special status wildlife species from the two alternatives. These species were not analyzed in depth because of any or all of the following: 1) the project is outside of the species' known range; 2) key habitat features are not within the reach of project impacts; or, 3) the species is unlikely to be present because key habitat features are lacking or other evidence suggests they would not be present.

**Migratory Birds**

Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (66 FR 3853), of January 17, 2001, directs federal agencies to conserve migratory birds to meet obligations under the migratory bird conventions and the Migratory Bird Treaty Act. Interim management guidance is provided by BLM Instruction Memorandum No. 2008-050, dated 18 December 2007. This guidance establishes a consistent approach to project level analysis until a Memorandum of Understanding (MOU) is established with the U.S. Fish and Wildlife Service. Western birds on the U.S. Fish and Wildlife Services' *Bird Species of Conservation Concern* and *Game Birds below Desired Condition* are to be addressed when actions could potentially affect those species. These lists are based primarily on North American breeding bird survey data which can be accessed at http://www.mbr-pwrc.usgs.gov/bbs/ (Sauer *et al.* 2007).

Table 1 lists the birds that may geographically occur in or near the project area, or have potential habitat in the project area, and the potential effects to the species. Species that may be affected by the proposed project are discussed in greater detail in the remainder of the document.

**Table 1. Migratory birds with potentially occurring within the project area.**

| Common Name | Key Habitat / Species Notes / Range | Reason for No Effects |
|---|---|---|
| Ancient Murrelet | Off shore Rocks/Headlands | Habitat not present. |
| Black Oystercatcher | Rocky shore and headlands | Habitat not present. |
| Black-footed Albatross | Pelagic species | Habitat not present. |
| Caspian tern | Colonial nester, does not nest or roost in project area. | Not present. |

| | | |
|---|---|---|
| Cassin's Auklet | Pelagic species | Habitat not present. |
| Marbled Murrelet | Nest in older forest near coast, feeds in open ocean | Habitat not present |
| Pacific Golden Plover | Nest on arctic tundra, winter migrant. Uses sand beaches during winter migration | Nesting habitat not affected, beneficial affects to wintering habitat (see snowy plover) |
| Short-billed Dowitcher | Shallow water wetlands | Habitat not affected |
| Snowy Plover | See write up | Habitat present |
| Surfbird | Rocky beaches and reefs | Habitat not present |
| Whimbrel | Freshwater grasslands | Habitat not affected. |

**Western Snowy Plover**

## General Information

The U.S. Fish and Wildlife Service (FWS) has summarized the taxonomy, ecology, and reproductive characteristics of the Western Snowy Plover (plover) and has determined the Pacific coast population of the plover to be threatened (58 FR 12864; 74 FR 20607). The final recovery plan outlines goals and objectives needed to recover and maintain a future, self-sustaining plover population coast-wide (USDI 2007d).

Historically, snowy plovers nested at 29 locations along the Oregon coast (USDI 2007d). By 1999, only seven sites remained occupied (Castelein *et al.* 1999). Intensive management efforts initiated in the 1990s led to an increase in the Oregon population from an average of 48 adults at seven sites in the early 1990s to an estimated 162 plovers at eight sites by 2007 (Lauten *et al.* 2007).

Loss and degradation of suitable nesting habitat are two of the many threats facing Oregon's plover population. The New River foredune is one of the most important plover breeding sites remaining along the Oregon coast. At New River, plovers have historically nested along the entire length of the beach between the Storm Ranch boat ramp and the open spit near the mouth of New River. Plovers rear their broods on the beach, in the overwashes, and along the river on the extensive mudflats where food is available (Castelein *et al.* 1998). Maintenance of current suitable habitat and restoration of former habitat is important to the recovery of the plover as well as providing alternate breeding areas for an expanding population. For example, during the 2006 nesting season numerous nests failed because of predation and several adult plovers disappeared in the vicinity of the Bandon nest area (Lauten *et al.* 2007). Some of the remaining plovers moved south to the New River HRA, using the area in its entirety. This event resulted in seven chicks fledging from the HRA, and underscores the need to create and maintain existing and future nest areas.

## Critical Habitat

The final rule for designation of critical habitat for the western snowy plover was published in the Federal Register on September 29, 2005 (70 FR 56969). A total of 32 critical habitat units (CHUs) were designated in Washington, Oregon, and California. The New River ACEC is located within a subunit of CHU OR 10. This rule supplanted the original critical habitat designation published in 1999 (64 FR 68508) and reduced the size of the Critical Habitat Unit (CHU) OR-10A by approximately one mile, eliminating 0.5 miles from the north and south ends of the CHU. Critical Habitat features essential for the conservation of the snowy plover are termed Primary Constituent Elements (PCEs). Critical Habitat Unit OR-10A includes the following PCEs: expansive sparsely vegetated interdune flats (for nesting and foraging); areas of sandy beach above and below the high tide line that support small invertebrates (for nesting and foraging); and close proximity to tidally influenced estuarine areas used for foraging (70 FR 56969).

The Final Rule listed the following threats that may require special management in this CHU: introduced European beach grass (EBG) that encroaches on the available nesting and foraging habitat; disturbance from humans, dogs and off-road highway vehicles in important foraging and nesting areas; and predators such as the American crow and common raven.

Critical Habitat Unit OR-10A encompasses about 632 acres within a 12 mile long area between China Creek in Bandon Beach State Park and Floras Lake. The 177 acres of the Habitat Restoration Area (HRA) within New River ACEC are included within the CHU OR-10A. This CHU contains three main plover nest areas: (1) Bandon Beach and New River [Bandon], (2) New River HRA, and (3) Floras Lake and New River Overwash. The numbers of nests, eggs and fledglings are counted each year by Oregon Natural Heritage Information Center (ORNHIC) wildlife biologists. Between 1991 and 2007, CHU OR-10A produced 25% (228 of 962) of the Oregon Coast plover fledglings (Lauten *et al.* 2007).

## Habitat Restoration

The New River ACEC Management Plan (USDI 2004a), under Planned Actions, states that the BLM will manage and continue restoring Western Snowy Plover breeding and wintering habitat on the foredune (p. 72). Since listing of the plover in 1993, this has been accomplished by restricting public access to plover nest areas during the breeding season from 15 March through 15 September, and restoration of sand dune habitat impacted by European beachgrass.

In 1998, BLM began work on its western snowy plover Habitat Restoration Area (HRA) project at New River. Work was completed with the use of a front-end loader on about 10 acres, directly across from the Storm Ranch boat ramp, clearing out about three overwashes because they were starting to fill in with beachgrass. At that time, the overwashes allowed ocean water to flow over the foredune into the river. The objective was to allow this natural overwash process to continue and to use that process to aid in maintaining the habitat. The following year about 24 acres of European beachgrass were removed using a bulldozer. In 2000, analysis was concluded to expand the treatment area to 100 acres. European beachgrass was removed by heavy equipment from 1998 to 2005 on the New River foredune. EBG, other vegetation and large wood were scalped off and deposited in the tidal zone, gradually reducing the elevation of the spit over time. A 50-foot wide vegetative buffer was left along the eastern edge of the HRA to prevent large deposits of sand from washing into the New River channel. This buffer has generally been effective (except for the Storm Ranch area) at reducing sand deposition in most cases, though wind-blown sand continues to be transported. Along the northern-most portion of the HRA, the elevation has been lowered to the point where ocean waves wash over the foredune and periodically compromise the vegetative buffer (Table 2). Large storm events occurring in the winter of 2007/2008 produced abnormally high waves that swept over the HRA, penetrated the buffer along the river, depositing sand in the river channel.

**Table 2. Summary of Western Snowy Plover Habitat Restoration Area project.**[2]

| Initial Treatment Year of HRA Segment | Consecutive Years of Treatment | Estimated Elevation of Foredune Centerline (Feet) | Linear Distance (Miles) | Size (Acres) |
|---|---|---|---|---|
| Existing: | | | | |
| 1998 | 8 | 15.9 | 0.16 | 4.5 |
| 1999 | 7 | 16.1 | 0.22 | 8.9 |
| 2000 | 6 | 18.6 | 0.67 | 33.9 |
| 2001 | 5 | 19.7 | 1.06 | 41.8 |
| 2003 | 3 | 20.6 | 0.68 | 31.1 |
| Untreated (potential) | 0 | 33.8 | 1.07 | 57 |

As described earlier, the BLM initiated a long-term breaching project in 2002 to control flooding on adjacent ranch lands. When a breach is open, it provides a channel through which water and sediment are flushed out of the river channel and into the ocean. Breach sites normally close during the spring, and are generally well armored with a sand berm prior to winter storm events. While the breaches have been effective for flood control on adjacent ranchlands and restoring the river channel, they also contribute to open, sand habitat and feeding areas for the plover along the shoreline bordering the breach itself. Breaching has reduced the amount of area needing treatment by heavy equipment within the HRA. During the 2006 and 2007 breeding season, nest sites were located in the Croft Lake breach.

During the 1998 breeding season, plovers were documented nesting along the entire length of the beach from the Storm Ranch boat ramp to the open spit near the mouth of New River. That fall, BLM began habitat restoration at New River, focusing on three overwashes across from the Storm Ranch boat ramp. The following year, biologists documented three plover nests within the treated overwashes. Each year thereafter, plovers have been documented nesting within the HRA

New River to Floras Lake account for 19% of all observations in 16 years of breeding window surveys, with the number of plovers counted ranging from a low of five in 1992 to a high of 28 in 1997 (Appendix D). Overall, there has been an upward trend in population and number of fledglings at New River. Fledging numbers peaked in 2007 with 14 chicks (Appendix D). Fluctuations in the number of plover nests and fledglings are relatively common because of the dynamics of over-winter mortality, predation, recreational disturbance, site fidelity (strong tie to the breeding area by male birds), and year-to-year changes in the nesting areas. Low productivity years occurred in 2000 and 2005, when only 1 fledging being produced each year in the HRA. To date, 58 plover nests have been located on the HRA producing a total of 42 fledged chicks since 1999 (Lauten *et al.* 2007). Over the past 5 years, fledgling produced per male at New River has consistently been near or exceeded the goal of 1.00 fledgling per male (Lauten *et al.* 2007) representing 17% of the total number of fledglings for the Oregon coast from 1990-2007. Annual reports produced by ORNHIC analyze data on snowy plover nesting, brood success and fledgling rates for Oregon.

The Recovery Plan target for CHU OR-10A is a minimum of 54 breeding plovers. During the 2007 breeding season ORNHIC biologists monitoring the CHU documented 65 nests that produced 44 fledglings. Out of the 71 adult plovers present, 53 were confirmed breeders (Lauten *et al.* 2007)

## *No Action*

[2] (Note: The estimated elevation of the existing HRA is based on a June 2005 longitudinal survey of the foredune centerline using GPS waypoints. The estimated elevation of the potential HRA area is based on survey results from a cross-dune profile [Komar et al. 1999]). Acreages were calculated using GIS and should be considered approximate.

Plover nest success would be expected to diminish, although not quite to pre-treatment levels. European beachgrass would become re-established throughout the HRA, reducing habitat quality and providing increased cover for predators. It is estimated that within a five-year period, beachgrass would dominate all but approximately 50 acres of the HRA. Open nesting habitat would be restricted to the beach face, various overwashes/wave run-up areas and breach sites. The largest remaining open sand habitat would be directly west of the Storm Ranch boat ramp and the four breach locations. Small inclusions of suitable habitat would be located in small wave run-up areas directly off the beach face.

Traditionally, the greatest concentration of nesting effort has occurred across for the boat ramp. From 1999 to 2007, 80% of the known plover nest in the HRA occurs in this area (Lauten *et al.* 2007). Plover use of the HRA has been sporadic over the years and predicting where they may choose to nest in any given year is speculative. Plovers exhibit a high degree of site fidelity and return to the same general area year after year, particularly if they are successful nesting and raising young. Because of current plover nesting success, the HRA would continue to be used as the primary nesting location. Due to the lower dune height, this area experiences greater overwash events. European beachgrass (EBG) would re-colonize at a slower rate than in other parts of the HRA, and some nesting habitat would continue to persist. As EBG begins to dominate this area, trapping sand and raising the dune elevation, overwash events would become more infrequent and plover habitat would degrade. With the unpredictability of winter storm frequency and severity, it is impossible to predict how rapidly this would occur, but within 10 years it is likely to be firmly reestablished.

Starting in 2006, plover began to use the breach locations as nesting sites. From 2006 through 2008 a total of 8 nest sites were located at breaches (Lauten *et al.* 2007). Currently, there are 44 acres of open sand habitat associated with the breach sites. These areas have remained "grass-free" because of the amount of initial disturbance and the occasional overwash. These areas are likely to remain in an open sand condition for 10-15 years. Currently, EBG is beginning to pioneer into the oldest breach location at Croft Lake. Although this area has had lower nesting attempts than the Storm Ranch overwash area, it is being used annually and would play a more essential role under this alternative.

Predator control would continue throughout the HRA but would become increasingly problematic due to the additional hiding cover. The increase in vegetation may provide additional cover for predators that are known to prey on snowy plovers (i.e. foxes). CHU OR-10A is unique in that an introduced population of red foxes has been established in the area. The presence of plover predators (foxes and corvids) is reduced by a predator control program that has been ongoing for several years. Fledging success at New River has gone from an average of 14 % prior to predator control (1992-2001) to 46% since predator control (2002-2007) (Lauten *et al.* 2007). An increase in predation would impact nesting and fledging success rates.

Since 1999, there have been 58 plover nests located on the HRA producing a total of 42 fledged chicks, representing 17% of the total number of fledglings for the Oregon coast from 1990-2007 (Lauten *et al.* 2007). Because of the role that the federal lands play in CHU OR-10A, the eventual degradation of foraging and nesting habitat at the New River HRA would most likely interfere with the current progress of plovers reaching population numbers targeted for recovery as outlined in the recovery plan.

The reduced amount of open sand habitat within the New River HRA would put more pressure upon the role of state and private lands. In the Bandon HRA, state land consists of 50 acres, but only 14

are managed to maintain an open sand condition. The loss of open sand habitat in New River would likely increase nesting pressure from plovers within the Bandon HRA.

### *Action Alternative*

Active habitat restoration has been shown to benefit snowy plovers and their Critical Habitat by increasing the availability of suitable nesting and wintering habitat (USDI 2007d). The 100 acres in this alternative would be managed intensely to remove European beachgrass, encourage the re-establishment of native plants within an open sand environment and provide plovers with the highest quality habitat possible.

The re-establishment of ocean-side foredune would lead to a net increase of 14 acres of European beachgrass being re-established. This increase would be offset by clearing an additional 14 acres of EBG in the southern portion of the HRA. Overall, the proposal would not lead to a net increase in vegetation in the action area, but the location of vegetation would be altered. The increase in vegetation between the ocean shoreline and the HRA would decrease suitable habitat in this area and increase hiding cover for predators. As previously stated, CHU OR-10A is unique in that an introduced population of red foxes has been established in the area. The presence of plover predators (foxes and corvids) is reduced by a predator control program that has been ongoing for several years. Elsewhere, there would be a decrease in hiding cover for predators, and an increase in suitable habitat in areas not previously managed for snowy plovers.

Many current plover nesting sites have a vegetative foredune and young have successfully fledged at these locations. For example, the North Spit of Coos Bay, one of the most successful plover nesting locations in Oregon, maintains a vegetative buffer between the beach and the HRA. However, the re-establishment of a vegetated foredune would hamper access from the HRA to the beach for the plovers. Travel corridors 50 feet in width would be established every ⅛ of a mile. The introduction of the red fox population at New River makes this design feature a necessity in this HRA. The inclusion of travel corridors would aid in plover protection and prevent hiding cover for the fox. Predator control in the HRA will continue to be a high priority for the agency.

In 2006, 2007 and again in 2008, plovers nested south of the principle nesting location across from Storm Ranch. Habitat in this area is a mix of mostly unsuitable habitat and a limited amount of high quality habitat. The proposed action would allow continued habitat improvement in this area and would create additional habitat further south. This southward movement should contribute to greater plover resiliency in the HRA, by lessening the effects of predators and stochastic events by dispersing nest locations. As seen in other locations along the coast, plovers can quickly respond to and occupy newly created habitat. At the North Spit of Coos Bay, newly cleared areas were used almost immediately by plovers for nesting and brood rearing (USDI 2007d).

Winter use of the HRA may also be altered briefly because of the inherently disruptive nature of the heavy machinery used to remove beachgrass and other vegetation. One or more pieces of equipment may be in operation simultaneously, and noise level is high relative to ambient levels. The BLM has routinely conducted habitat restoration and maintenance work once a year, for several years on the HRA as funding permits. Work is usually concluded by 4 PM each day, is typically not conducted on the weekends and is completed within four to eight weeks. As described, the primary objective is to remove European beachgrass from the HRA. In addition to routine maintenance using a bulldozer, other techniques such as prescribed burning may be used in areas of high beachgrass density. These methods may be highly disruptive to plovers using the area, but generally occur on small percent of the overall wintering habitat in the action area. Work is conducted on the HRA during the non-nesting season (between 16 September and 14 March); therefore, affected

plovers are wintering or migrant birds. While restoration activities are unlikely to cause direct mortality to non-nesting plovers, the associated disturbance may lead to reduced feeding and resting opportunities and, ultimately, to the inability to gain sufficient fat stores necessary for survival and reproduction (Lafferty 2001).

These effects are expected to be minimal because documented winter use of the HRA by snowy plovers is low and sporadic and large communal roosts have not been observed. Plovers are more likely to be found on the China Creek portion of Bandon State Beach during winter months, although plovers have been observed on the beach affronting the HRA while restoration was on-going. The overall long-term beneficial effect of restoration efforts on plover productivity and Critical Habitat more than compensate for any short-term disturbance or displacement that may occur. These actions also serve to provide the primary constituent elements of snowy plover Critical Habitat: foraging, nesting, rearing of young, roosting and dispersal.

It will most likely take several years to clear and maintain the 100 acre of habitat under this proposal. In the meantime, areas of habitat that are currently suitable will continue to degrade. The project proposes to maintain areas that have demonstrated the highest use (nesting) first, and work towards the areas with the lowest nesting success. This should lead to an immediate improvement in habitat in the areas west of the Storm Ranch boat ramp where 80% of the nesting has occurred since 1999. Maintaining and improving this area will have the greatest impact on preserving population gains over the last decade. Outside of this immediate area, the majority of nesting has been occurring in the breach sites and small inclusions in the foredune that allow for overwash. These areas should be relatively stable for the next 10 years, or until treated.

Cumulatively, state lands present within the CHU include the ocean beach below the dry sand for about 12 miles and a 50-acre HRA located at the southern end of the Bandon State Natural Area. These areas are included in the Habitat Conservation Plan (HCP) that provides standards and guidelines for management of the ocean shore and western snowy plover habitats (Jones&Stokes 2007). The development of the Bandon HRA and conservation measures in the HCP that apply to state lands contribute significantly to the protections afforded to snowy plovers within CHU OR-10A and would be expected to play a key role in meeting recovery objectives for this CHU.

Private and county lands present within the CHU support a mix of suitable and marginal habitats that may be considered important to plover recovery. Although plovers have been documented nesting on these lands (21 of 65 nests in 2007), habitat conditions on these lands are expected to be remain unimproved and possibly degrade. Plover use of these lands would be expected to decline as the younger dunes in the north build through time and open, flat, open sand habitat declines (Appendix B). Currently, these lands have supported 30% of plover nest sites within the CHU in 2007. However, as the habitat degrades these numbers may drop, making the habitat created within the New River HRA more valuable for plover recovery.

The dynamics of the beach environment and available nesting habitat can change from year to year, and plovers have shown they can adapt readily to changes on the landscape. Overall, it is reasonable to expect the BLM's change in management of the HRA will continue to contribute to recovery of the plover within CHU OR-10A. Through this proposal we expect to continue to create and maintain 100 acres of high quality nesting and wintering habitat, and we expect plovers to use the area as they have in the past.

## 3.5 Aquatic Resources

### *Affected Environment*

**Aquatic Habitat**

New River takes on the characteristics of a lentic or lake system in some areas, while in other areas the habitat is more representative of a lotic or moving stream system. During the winter months, the flooded wetlands and terraces of New River likely serve as prime over-wintering habitat for juvenile coho salmon. During low-flow conditions, the nature of the aquatic habitat found along this linear river system changes fairly frequently (USDI 2004a). New River is a very low gradient channel with sand/silt streambed (See section 3.2.3 Hydrologic Resources for more channel info).

Juvenile salmonids are found rearing in New River. Adult salmonids migrate through New River to reach spawning areas in tributaries. Because of the sandy substrate in the channel bottom, it is not used for spawning. Adults move through New River in the fall and winter to access cobble and gravels areas in the tributaries, such as Floras Creek.

As noted in the Hydrologic Resources section, temperatures within New River have been recorded that frequently exceed ODEQ standards. Fish mortality due to warm summer water temperatures has been documented at New River. This is exacerbated in the summer when portions of New River have gone dry, creating physical barriers to juvenile movement. However, cooler water temperatures were measured at the north and south ends of New River, where flow is most influenced by Fourmile Creek and Floras Creek (Myers 2008 Draft). Areas with groundwater input could be serving as localized water temperature refugia for salmonids. Deep pools located in New River may also serve as refuges from high water temperatures during summer.

Localized improvements in New River, including a narrower and deeper channel, have resulted in certain locations based on mature dunes in the south and breach locations. However, periodic flooding, ocean over-washing through low spots in the foredune, and wind-blown sand processes cause localized shifts in the river from a more mature back to a juvenile stream state (USDI 2004a). The southern portion of New River generally has a deeper, narrower channel with the northern portion generally wider and shallower. Several cross sections the BLM has established to the south of Storm Ranch have shown increased average depth and decreased width/depth ratio in the main, low-flow channel. The channel has gotten deeper near areas of breach location. Water thalweg depths ranged from 1–7 feet during August, with deeper areas located near the recent Clay Island breach site (Myers 2008 Draft).

**Endangered Species Act**

- In a Federal Register published February 11, 2008 the National Marine Fisheries Service (NMFS) issued the listing determination for the Oregon Coast (OC) coho salmon ESU as threatened effective May 12, 2008 (73 FR 7816). Critical habitat was also designated. The New River watershed is located within the Oregon Coast Evolutionary Significant Unit (ESU), which extends south from the Columbia River to Cape Blanco.
- New River is also located within the OC steelhead ESU. On April 15, 2004, NMFS moved some species from the candidate status to a species of concern status. This new category was introduced to better reflect those species that listing "was 'not warranted,' but significant concerns or uncertainties remained regarding their extinction risk and/or threats" (64 CFR 19975). The OC steelhead trout ESU (*O. mykiss*) is currently listed as a Species of

Concern. Species of Concern status does not carry any procedural or substantive protections under the ESA

- Pacific lamprey (*L. tridentata*) is located within the analysis area and is listed as Species of Concern by the U.S. Fish and Wildlife Service.

### Magnuson-Stevens Act (Essential Fish Habitat)

Fisheries including groundfish, coastal pelagic species and salmon have essential fish habitat (EFH) as designated by the Magnuson-Stevens Fishery Conservation and Management Act as amended through January 12, 2007. The term "essential fish habitat" means those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity. Table 2 lists the species with designated EFH which could be found in the analysis area.

**Table 3. Species with designated EFH in the Estuarine EFH Composite in the State of Oregon**

| **Groundfish Species** | |
|---|---|
| Leopard Shark | *Triakis semifasciata* |
| Soupfin Shark | *Galeorhinus zyopterus* |
| Spiny Dogfish | *Squalus acanthias* |
| California Skate | *Raja inornata* |
| Spotted ratfish | *Hydrolagus colliei* |
| Lingcod | *Ophiodon elongates* |
| Cabezon | *Scorpaenichthys marmoratus* |
| Kelp Greenling | *Hexagrammos decagrammus* |
| Pacific Cod | *Gadus macrocephalus* |
| Pacific Whiting (Hake) | *Merluccius productus* |
| Black Rockfish | *Sebastes melanops* |
| Bocaccio | *Sebastes paucispinis* |
| Brown Rockfish | *Sebastes auriculatus* |
| Copper Rockfish | *Sebastes caurinus* |
| Quillback Rockfish | *Sebastes maliger* |
| English Sole | *Pleuronectes vetulus* |
| Pacific Sanddab | *Citharichthys sordidus* |
| Rex Sole | *Glyptocephalus zachirus* |
| Rock Sole | *Lepidopsetta bilineata* |
| Starry Flounder | *Platichthys stellatus* |
| **Coastal Pelagic Species** | |
| Pacific Sardine | *Sardinops sagax* |
| Pacific (Chub) Mackerel | *Scomber japonicus* |
| Northern Anchovy | *Engraulis mordax* |
| Jack Mackerel | *Trachurus symmentricus* |
| California Market Squid | *Loligo opalescens* |
| **Pacific Salmon Species** | |
| Chinook Salmon | *Onchorhyncus tshawytcha* |
| Coho Salmon | *Onchorhyncus kisutch* |

### Special Status Species

Aquatic Special Status Species (SSS) found in New River include OC coho (federal threatened) and OC steelhead (Sensitive). Table 3 lists other aquatic Sensitive species on the Coos Bay District, but not present within the analysis area.

**Table 4. Aquatic Sensitive Species not present in the Analysis Area**

| Species Name | Species Range |
|---|---|
| Pacific Coast chum salmon | The historic and current distribution of chum salmon does not include New River (ODFW 2005, Streamnet GIS Data 2003). |
| Foothill yellow-legged frog | Found in larger freshwater streams with some open sky. Habitat not present. |
| Rotund lanx (snail) | Found in large turbulent waters of larger rivers – Range: Mainstem Rogue/Umpqua. Habitat not present. |
| Robust walker (snail) | Perennial seeps, shallow mud banks and marsh seeps leading into shallow streams. Range: Chetco River |

| Species Name | Species Range |
|---|---|
| | drainage. Outside of known range. |
| Pacific walker (snail) | Wet leaf litter and vegetation near flowing or standing water in shaded areas, high humidity. Range: Lower Millicoma sub-basin. Outside of known range. |
| Caddisfly *(R. chandleri)* | Freshwater habitats. Range: Douglas, Lane, Deschutes counties. Outside of known range. |
| Haddock's Rhyacophilan Caddisfly, (*R. haddocki*) | The species was found on Mary's Peak in Benton County and near the Elk River, 1.5 miles above the Elk River fish hatchery in Curry County. The analysis area does not include any known sites. |

## *No Action*

According to the Geologic Resources analysis, the discontinuation of the plover restoration activities in the HRA would create the least amount of risk to New River in the long term. The amount of risk to New River would decline over time, as more European beachgrass becomes established and is able to trap wind-blown sand. The amount of wind-blown sand entering New River would continue to return to pre-plover restoration activity levels. Because European beachgrass has become established within the HRA since the last date of treatment the amount of open sand and sand blowing into New River has decreased. Dune elevations would increase over time as more sand is trapped, which would decrease the potential for wave over-wash events to reach New River. Until the dune elevations build up, the risk of wave over-wash events reaching New River would continue to exist at the current levels.

## *Action Alternative*

The action alternative would result in the potential for wind-blown sand to enter New River. However, wind-blown sand would not cause the river depth to decrease to a point which would cause measurable changes to the width-to-depth ratio, physical barriers, pool habitat or temperature.

The retention of the buffers and the revegetation of the buffers by European beachgrass and native vegetation would reduce the possibility of sand delivery to New River by aeolian process (Appendix B). The amount of sand blowing into New River would decrease over time as European beachgrass becomes established on the river buffer and as the elevation of the buffer increases. Based on the current and future breaching activities, New River should be able to flush out the additional volume of sand blown into the river as a result of the proposed action. New River is expected to become a narrower, deeper channel over time because of the 1) the immediate reduction in the potential for wave over-wash events, 2) the reduction of wind-blown sand entering New River after one to two years and 3) the breaching activities. The action alternative would not increase the potential for wave over-wash events. Building up the elevation of the river side buffer would decrease the potential for wave over-wash events in the short and long terms.

Equipment crossing China Creek or the mouth of New River would be done at low tide and during low flow conditions in China Creek and New River. Equipment would not otherwise operate in the New River channel. Equipment would not cross any constructed breach site when water is flowing through the breach. The channel at the mouth of New River is not used for adult spawning or holding, nor is it used for juvenile rearing. The channel flows across a sandy beach into the Ocean, with no pools. Adult and juvenile fish move quickly through the mouth of New River to access upstream reaches. During the time equipment would cross the channel the depths at the mouth are not deep enough to allow adult or juvenile fish to move through. There is an extremely unlikely probability adult or juvenile fish would be present at the mouth of New River when equipment would cross.

**Special Status Species**

The action alternative would not result in the need to list the aquatic Special Status Species found within the analysis area.

**ESA**
The proposed Action Alternative has been determined to "may affect, but not likely to adversely affect" Oregon Coast coho salmon and its designated Critical Habitat. A Biological Assessment has been submitted to the National Marine Fisheries Service, and a Letter of Concurrence is anticipated.

The action alternative would have no effect on the near shore or off-shore coastal waters. Material would not be pushed into the ocean and the ocean buffer would prevent any beach face impacts and erosion. Because there would be no changes to the near shore or off-shore environment, no direct or indirect effects would occur to listed marine mammals or their habitat. These marine mammals are not found in New River.

**EFH**
The minimal amount of wind-blown sand which could reach the channel would not adversely affect EFH in New River.

The action alternative would have no effect on near shore or off-shore EFH. Material would not be pushed into the ocean and the ocean buffer would prevent any beach face impacts and erosion.

## *3.6 Botany Resources*

**Plant Communities**
The plant communities, special status plants and noxious weeds at New River ACEC are fully discussed in the two New River ACEC Management Plans (USDI 1995b, 2004a). The terrestrial botanical resources at New River ACEC are described by five vegetation types: forest, woodland, shrubland, dwarf-shrubland, and herbaceous. In addition to the plant community description in the management plan, the HRA's herbaceous vegetation type can be further divided into four community types: the open sand community, the European beachgrass community, wetland community, and the meadow community (Barbour *et al.* 1985, USDI 1995b). The meadow community is found in small patches and rarely constitutes a well defined community within the HRA. Some plant species typical of one community type may be found in the ecotone or transition area between plant communities. In areas of disturbance, the native plant community is invaded by exotic species, a few of which are considered noxious.

**Special Status Species**
There are two herbaceous plant communities present on the New River spit, the open sand and European beachgrass communities. These communities contain one special status species, pink sand verbena (*Abronia umbellata* var. *brevifolia*). There is potential habitat for silvery phacelia (*Phacelia argentea*) throughout the HRA, but no sites are known at this time.

Conservation efforts for the pink sand verbena on federal lands have been undertaken during the past 13 years (Kaye and Benfield 2004). A population of pink sand verbena has been established on the New River HRA. During the fall, seeds are collected from the North Spit, from plants originally introduced from a naturally occurring Port Orford population. During March of each year, 80,000 to 150,000 seeds are hand sown in the HRA. The number of vegetative and reproductive New River pink sand verbena plants grew steadily during years when mechanical site preparation was used to control the European beachgrass with the population increasing from 275 in 2001 to 2,174 in 2005 (Thorpe and Kaye 2008). No site preparation was done during either 2006 or 2007 and the population correspondingly dropped to 616 plants in 2006 and to 480 in 2007 (Thorpe and Kaye 2008).

### *No Action*

European beachgrass would continue to dominate the HRA. Native species diversity would remain low and be greatest in open overwash areas not yet colonized by European beachgrass. The dominance of EBG in the HRA would severely limit the ability of native plants to survive or become established. Other non-native species and noxious weeds adapted to growing among EBG would continue their colonization of the site. Yearly seeding of pink sand verbena seeds would continue dependent upon funding resources and staff workload. However, the success of seeding would likely decline over time as the open sand areas would be limited to the breach areas.

Without site preparation, the population of pink sand verbena would likely continue to decrease with plants limited to whichever overwash areas are able to survive the European beachgrass re-invasion. A persistent seed bank may be a necessary component of a viable population for successful reintroduction and recovery of this species.

### *Action Alternative*

Mechanical site preparation to control European beachgrass would create open sand habitats favorable for the pink sand verbena and other native plants. Seeding of these native species would occur between the two buffers as funding and other constraints permit. As noted by Thorpe and Kaye (2008), there was a direct correlation between site preparation and success for vegetative and reproductive pink sand verbena plants. However, with the ocean-side foredune buffer, historical seed dispersal from winter overwash events would not occur.

## *3.7 Recreation Resources*

### *Affected Environment*

The New River Management Plan contains a lengthy discussion of the recreational opportunities available with the ACEC. Included are information about Watchable Wildlife, Visitor Use Management, the Recreation Opportunity Spectrum and the myriad of recreational use at New River. As none of these elements would be affected by any of the alternatives, they will not be discussed further.

Visual resources are a significant aspect of the physical setting affecting recreational opportunities and experiences. The project area is located between the river and the ocean shore, which is designated as VRM Class II. The objectives for management of VRM Class II lands allows for low levels of change to the characteristic landscape. Management activities may be seen but should not attract the attention of the casual observer. Additionally, changes should repeat the basic elements of form, line, color, texture, and scale found in the predominant natural features of the characteristic landscape.

### *No Action*

As there would be no bulldozer activity on the foredune, there would be no impact to visual resources from management activities. Eventually, as the foredune becomes re-vegetated with European beachgrass, the straight-line edge along the open sand area would disappear. This would fully attain the objectives of the VRM Class II designation.

### *Action Alternative*

Expansion of the existing boundary of the HRA would restrict an additional 56 acres from human recreation during the nesting season. Access for kayakers to stop and walk across the foredune to

see the ocean would be restricted to the last segment of BLM land just past the Clay Island Breach and BLM lands across from the Knapp ranch.

Having large mechanical equipment on the foredune does not attain VRM Class II objectives for the ACEC. However, with the inclusion of design features limiting the amount of time the equipment is in the area, this impact would be kept to the minimal amount of time to accomplish restoration objectives for the plover.

Re-establishment of the foredune on the river in the northern portion of the HRA would also restore the natural appearance of the viewshed.

## *3.8 Consistency with ACS Objectives*

***Components of the Aquatic Conservation Strategy***

There are four main components to the Aquatic Conservation Strategy (ACS): Riparian Reserves, Key Watersheds, Watershed Analysis and Watershed Restoration. A "fifth" component is a subset of these four, and is the standards and guidelines for management activities. These standards and guidelines were incorporated into the Draft Coos Bay District Management Plan preferred alternative which was under development (p. A-2). With the signing of the Record of Decision for the Resource Management Plan in May of 1995, these standards and guidelines were superseded by the RMP management actions/direction.

**1) Riparian Reserves:**

The interim Riparian Reserve width in the New River area is based on a 192-foot tall site potential tree (USDI, 2008b).

**2) Key Watersheds:**

The proposed actions are not located within a Key Watershed. The New River Frontal 5$^{th}$ field watershed and the Croft Lake-New River Frontal 6$^{th}$ field watershed are not designated as Key Watersheds in the Coos Bay District RMP.

**3) Watershed Analysis:**

Sixes and New River Area Watershed Analysis was completed in January 2008 (USDI 2008). The action alternative is consistent with the Watershed Analysis.

For the purposes of Western Snowy Plover management the following priority areas and tasks should be undertaken as stated in the Watershed Analysis:

- Continue to educate users and post plover nesting areas during breeding season to increase population levels to recovery levels.
- Maintain an open sand environment within the New River Habitat Area by removing the European beachgrass using an economical means as outlined in management plan.
- Monitor the New River channel for response to breaching or the open sand maintenance program, channel width and depth are primary components to assess.

**4) Watershed Restoration:**

The purpose of the action alternative is to restore, improve and maintain breeding and wintering habitat for the Western Snowy Plover, while improving channel conditions in New River. The action alternative balances the Western Snowy Plover restoration while minimizing the amount of wind-blown sand and wave over-wash events depositing sand in New River. Reducing sand

delivery into the stream channel would benefit fish habitat in New River, including that used by Oregon Coast coho.

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***Management Actions/Direction***

The following management action/direction is applicable to the action alternative:

- Design and implement wildlife habitat restoration and enhancement activities in a manner that contributes to attainment of Aquatic Conservation Strategy objectives (USDI 2004a).

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***Existing Watershed Condition***

The Sixes and New River Area Watershed Analysis described the existing conditions of the New River Frontal 5th field watershed:

- The New River Frontal watershed drains approximately 99, 375 acres (155 square miles).
- Elevations in this watershed range from sea level to approximately 2,786 feet on Edson Butte.
- Grazing, rural residential development and other agricultural uses (including cranberry bogs) are dominant in the lower portion of the basin. Streams throughout the lower watershed have been diked, ditched and drained for the past several generations to provide grazing land for sheep and cattle.
- Over 95% of the watershed is in private ownership.

***Aquatic Conservation Strategy Objectives***

New River has a large diversity of aquatic habitat types, including stream, pond, lake, wetland, lagoon, and estuarine habitat types. New River supports a relatively diverse assemblage of fish species. Based upon the dominance of sand in the river substrates, the predominant use of New River by fish is likely to be for rearing and migration purposes.

*1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*

The action alternative would maintain the distribution, diversity and complexity of watershed and landscape-scale features at the site scale in the short term. These features would be restored at the site scale in the long term.

The action alternative may result in some minimal amounts of wind-blown sand entering New River in the first one to two years after areas of European beachgrass (EBG) are cleared. As EBG becomes established on the river-side buffer, the amount of wind-blown sand entering New River would decrease. The minimal amount of sand entering New River would not alter the diversity or complexity of New River.

*2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*
The action alternative would maintain connectivity at the site and 5th field scale in the short and long terms. Physically and chemically unobstructed routes would be maintained at the site and 5th field scale in the short and long terms. The short term (one to two years) potential of sand blowing into New River would not result in dry sections forming in the channel because of the minimal amount of sand deposition and the influence of breaching activities of flushing out the channel.

Heavy equipment accessing the HRA would not alter the connectivity at the mouth of New River. The equipment would not operate in the 50-foot river buffer and would not be closer than 50 feet to New River. No new roads or culverts are proposed as part of the action alternative.

*3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*
The action alternative would maintain the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations at the site and 5th field scale in the short term. The action alternative would restore the shorelines, banks and bottom configuration of New River at the site scale in the long term because of the reduction in wave-overwash events and the reduction of wind-blown sand entering New River.

The short term (one to two years) potential of sand blowing into New River would not result in change in the shorelines, banks and bottom configurations of New River at the site or 5th field scale.

Heavy equipment accessing the HRA would not alter the shoreline, banks or bottom configuration at the mouth of New River. If equipment crosses the mouth of New River to access the HRA, the sandy shoreline, banks and bottom would not be altered. The equipment would not operate in the 50-foot river buffer and would not be closer than 50 feet to New River. No new roads or culverts are proposed as part of this action.

*4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*
The action alternative would maintain water quality in New River at the site and 5th field scale in the short and long term. Water quality would be improved at the site scale in the long term as the potential for wave over-wash and wind-blown sand is reduced.

Wind-blown sand would not cause the river depth to decrease to a point which would cause a measurable increase in temperature. The placement of the buffers and the revegetation of the buffers by European beachgrass and native vegetation would reduce the possibility of sand delivery to New River by aeolian processes. The amount of sand blowing into New River would decrease

over time as EBG becomes established on the river buffer and as the elevation of the buffer increases. Based on the current and future breaching activities, New River should be able to flush out the additional volume of sand blown (in the short term) into the river as a result of the action alternative.

The action alternative would not increase the potential for wave over-wash events. Building up the elevation of the buffers would decrease the potential for wave over-wash events in the short and long terms.

Shade producing trees and vegetation are not present on the western side of New River. The HRA and the 50-foot river buffer consist of EBG, sedges, rushes, and other small plant species.

The action alternative is subject to State of Oregon Administrative Rule No. 340-142, *Oil and Hazardous Materials Emergency Response Requirements,* which specifies the reporting requirements, cleanup standards and liability that attaches to a spill or release or threatened spill or release involving oil or hazardous substances. The Coos Bay District Hazardous Materials Contingency Plan and Spill Plan for Riparian Operations apply to operations where a release threatens to reach surface waters or is in excess of reportable quantities. Restoration activities would follow contract stipulations regarding fueling practices and spill containment plans.

*5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*
The action alternative would maintain the timing, volume, rate and character of the sediment regime in New River. The action alternative is intended to put the area on a trajectory to mimic the conditions which were present in New River prior to BLM's plover restoration activities. The action alternative would restore the sediment regime in New River at the site scale in the long term because of the reduction in wave-overwash events and the reduction of wind-blown sand entering New River.

Wind-blown sand entering New River would be a larger size material that would immediately sink and not increase the suspended sediment or turbidity levels.

The placement of the buffers and the revegetation of the buffers by EBG and native vegetation would reduce the possibility of sand delivery to New River by aeolian process at the site scale in the long term (Appendix B). The amount of sand blowing into New River would decrease over time as EBG becomes established on the river buffer and as the elevation of the buffer increases. Building up the elevation of the buffers would decrease the potential for wave over-wash events in the short and long terms.

The action alternative would have a neutral effect on suspended sediment and turbidity levels.

*6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*

The action alternative would maintain the timing, magnitude, duration and spatial distribution of in-stream flows in the short and long term at the site and 5th field scale. The alternative would not change the amount or timing of water elevations in New River or the surrounding areas.

*7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*

The action alternative would maintain the timing, variability and duration of floodplain inundation and water table elevation in meadows and wetlands in the short and long term at the site and 5th field scale. The timing, variability, and duration of floodplain inundation along New River fluctuates based on breaching activities and would not be affected by the action alternative.

The action alternative would not change the amount or timing of water elevation in New River or the surrounding areas. Meadows are not present in the analysis area, but wetlands are located along the banks of New River and on islands within the New River channel. Building up the elevation of the buffers would decrease the potential for wave over-wash events in the short and long terms, which would decrease the potential of wetlands along the shoreline of New River becoming covered with sand. Wetland inundation by sand would also be reduced in the long term because the 50-foot river buffer would trap and store wind-blown sand.

*8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of down wood sufficient to sustain physical complexity and stability.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*
The action alternative would restore the species composition and structural diversity of plant communities in riparian areas and wetlands in the analysis area. Also, this alternative would remove portions of European beachgrass, which would facilitate the establishment of native plants such as pink-sand verbena at the site scale in the short and long terms.

Summer and winter thermal regulation, nutrient filtering, surface erosion, bank erosion, and channel migration would be maintained because of the river and ocean buffers. The river buffer would begin between a distinct line of EBG and riparian influenced vegetation such as sedges and rushes near the shoreline of New River and extend toward the ocean 50 feet. The area of sedges and rushes near the shoreline would have no treatment. The treatment could be as far as approximately 100 feet or more to as close as 50 feet to New River, depending on the width of sedges and rushes.

The action alternative would not affect the supply and distribution of down wood. Because of harsh weather conditions within the HRA, trees have not been able to become established. Dominant species found in the HRA and the western edge of New River includes EBG, sedges, rushes, and other small plant species.

*9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.*

**Site Scale/5th Field Analysis**

*Short-Term/Long-Term*
The action alternative would restore habitat needed to support population of native plant, invertebrate, and vertebrate riparian-dependent species at the site scale in the short and long terms.

Sedges and rushes near the shoreline of New River would be maintained because of the reduced potential for wave over-wash events. Wind-blown sand covering sedges and rushes would be reduced over time because of the 50-foot river buffer.

Native plants such as pink-sand verbena and snowy plover habitat would improve in the short and long terms at the site scale because of the reduction of European beachgrass. The buffers associated with the HRA would help to protect aquatic habitat in New River at the site and 5th field scales in the short and long terms.

# 4.0 List of Preparers

**BLM Interdisciplinary Team Members:**

**Team Lead(s)**

| | |
|---|---|
| Kip Wright | ACEC Coordinator |
| Aimee Hoefs | Writer and NEPA Reviewer |

**Core Team**

| | |
|---|---|
| Larry Standley | Hydrologist |
| Matt Azhocar | Hydrologist |
| Tim Barnes | District Geologist |
| Stephanie Messerle | Fish Biologist |
| Reg Pullen | Recreation Planner |
| Tim Rodenkirk | Botanist |

**Technical Support Team**

| | |
|---|---|
| Jay Flora | GIS |
| Steve Samuels | Archeologist and Environmental Justice Coordinator |
| Dale Stewart | District Soil Scientist |
| Paul Gammon | Hazardous Material and Solid Waste |

# 5.0 List of Agencies and Persons Consulted

Association of O&C Counties
Coast Range Association
Coast Watch
Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
Confederated Tribes of Siletz Indians of Oregon
Coos County Commissioners
Coquille Indian Tribe
Coquille Watershed Association
Croft Lake Homeowners Association
Curry County Livestock Extension Service
Douglas Timber Operators
Governor's Natural Resources Office
Kalmiopsis Audubon Society
Klamath-Siskiyou Wildland Center
Komar, Dr. Paul D., Professor Emeritus Oregon State University
Natural Resources Conservation Service
NOAA National Marine Fisheries Service
Oregon Coastal Wetlands
Oregon Department of Agriculture, Weed Control Program
Oregon Department of Geology and Mineral Industries
Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Oregon Department of Land Conservation and Development
Oregon Division of State Lands
Oregon Native Plant Society, West Side Conservation
Oregon Natural Heritage Information Center
Oregon Natural Resources Council
Oregon Parks and Recreation Department
Oregon State University
Oregon Water Resources Department
Oregon Shores Conservation Coalition ("Ocean Shores")
Pacific Corp, Real Estate Plan & Strategy
Sierra Club, Many Rivers Group
South Coast Watershed Council
U. S. Department of Agriculture, Farm Service Agency
U. S. Department of Agriculture, Forest Service
U. S. Environmental Protection Agency, Coastal Ecology Branch
U. S. Fish & Wildlife Service, Roseburg Field Office
U. S. Fish & Wildlife Service, Newport Field Office
Umpqua Watersheds Inc.

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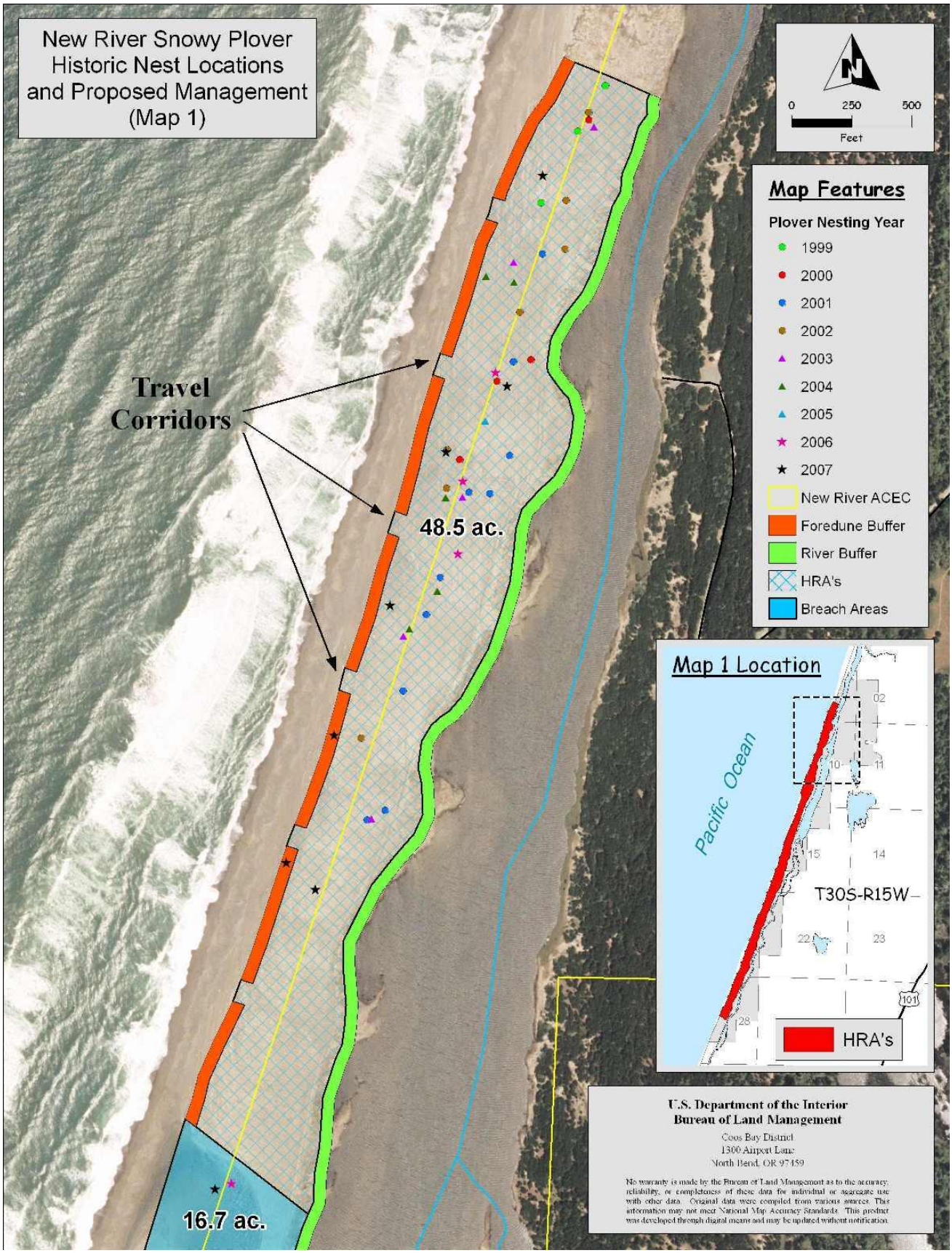
# Appendix A Maps


New River Snowy Plover
Historic Nest Locations
and Proposed Management
(Map 1)
N
0
250
500
Feet
Map Features
Plover Nesting Year
1999
2000
2001
2002
2003
2004
2005
2006
2007
New River ACEC
Foredune Buffer
River Buffer
HRA's
Breach Areas
Travel
Corridors
48.5 ac.
16.7 ac.
Map 1 Location
Pacific Ocean
T30S-R15W
HRA's
U.S. Department of the Interior
Bureau of Land Management
Coos Bay District
1300 Airport Lane
North Bend, OR 97459
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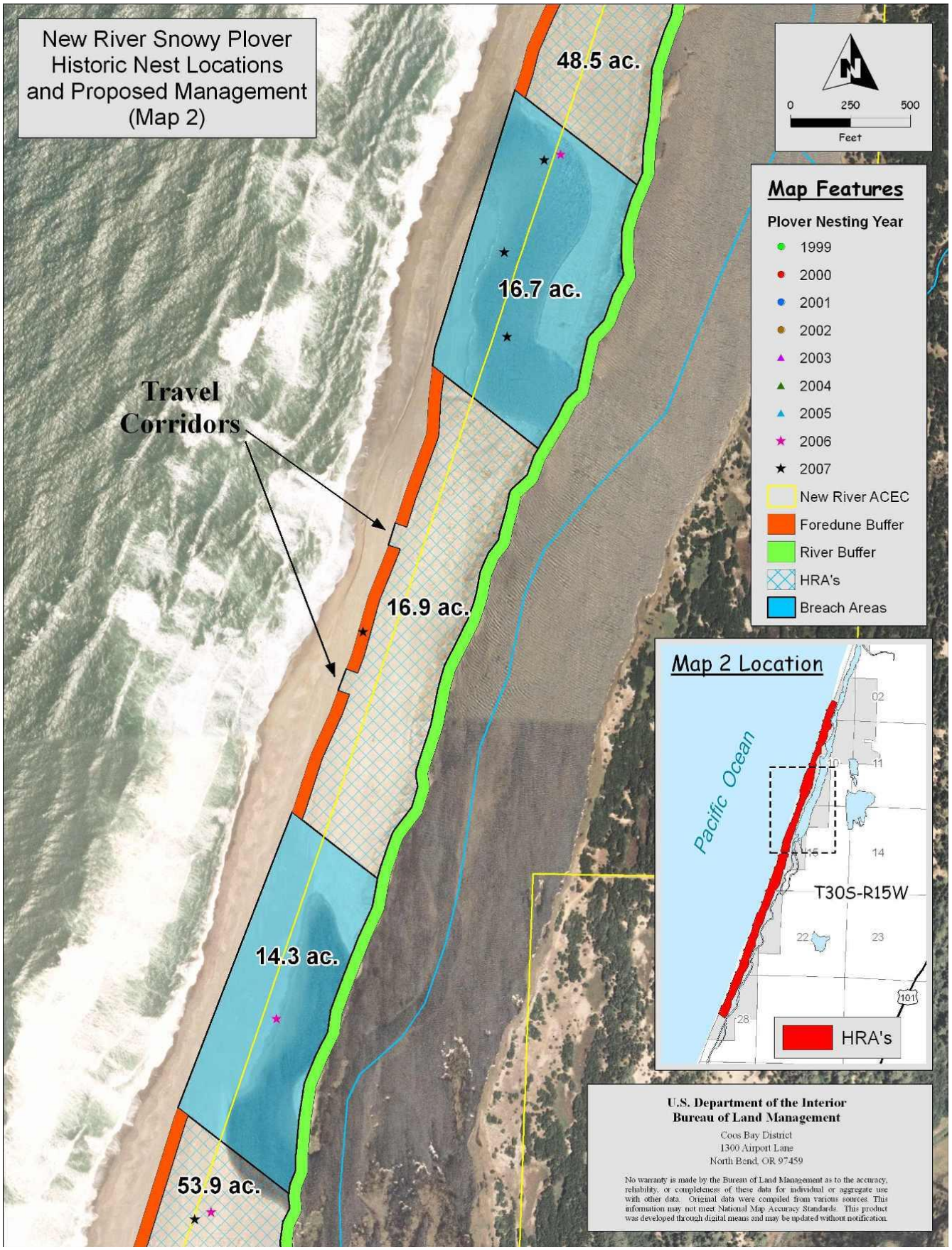
New River Snowy Plover Historic Nest Locations and Proposed Management (Map 2)
48.5 ac.
16.7 ac.
Travel Corridors
16.9 ac.
14.3 ac.
53.9 ac.
0 250 500
Feet
Map Features
Plover Nesting Year
1999
2000
2001
2002
2003
2004
2005
2006
2007
New River ACEC
Foredune Buffer
River Buffer
HRA's
Breach Areas
Map 2 Location
Pacific Ocean
T30S-R15W
HRA's
U.S. Department of the Interior
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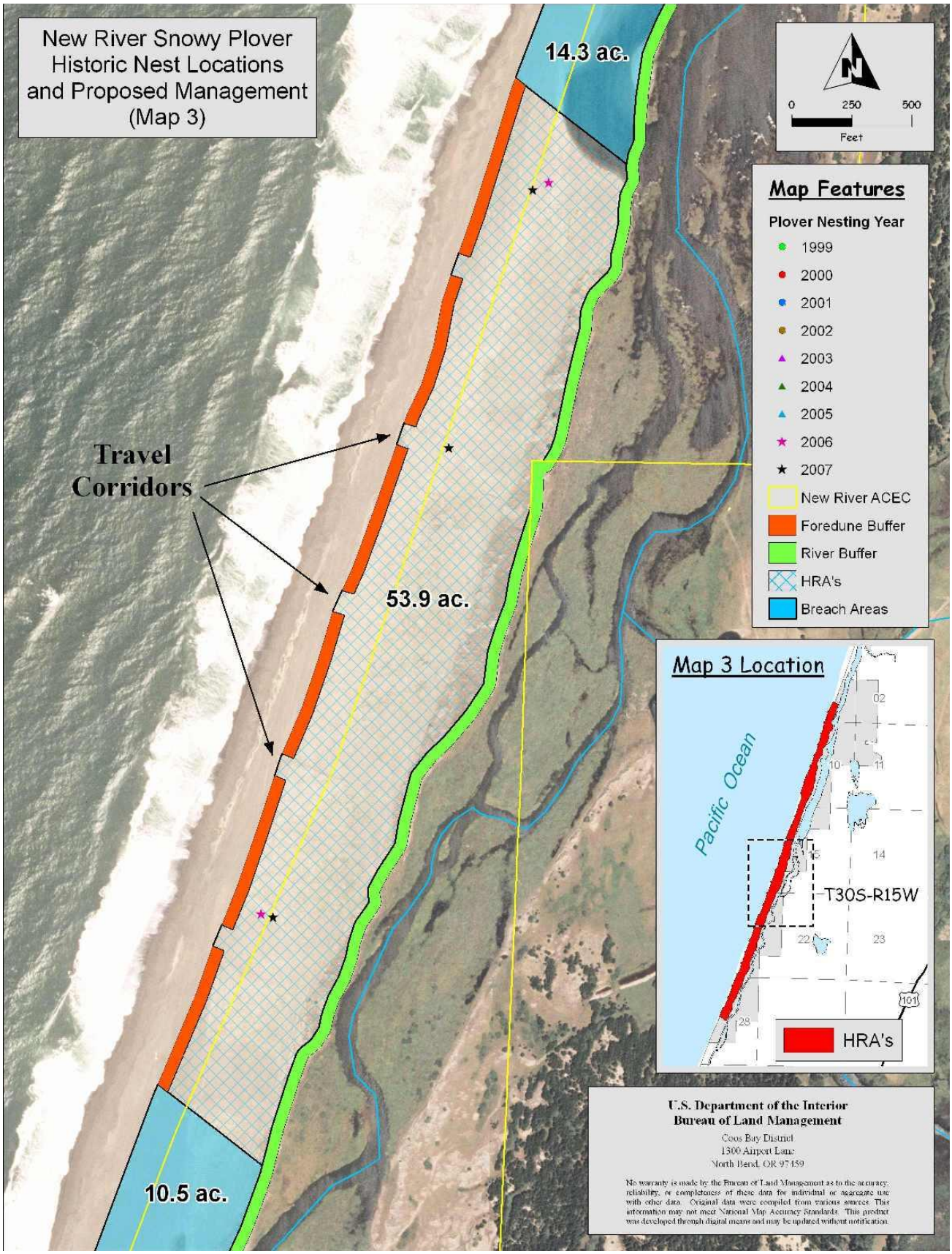
New River Snowy Plover Historic Nest Locations and Proposed Management (Map 3)
14.3 ac.
0
250
500
Feet
Map Features
Plover Nesting Year
1999
2000
2001
2002
2003
2004
2005
2006
2007
New River ACEC
Foredune Buffer
River Buffer
HRA's
Breach Areas
Travel Corridors
53.9 ac.
10.5 ac.
Map 3 Location
Pacific Ocean
T30S-R15W
HRA's
U.S. Department of the Interior
Bureau of Land Management
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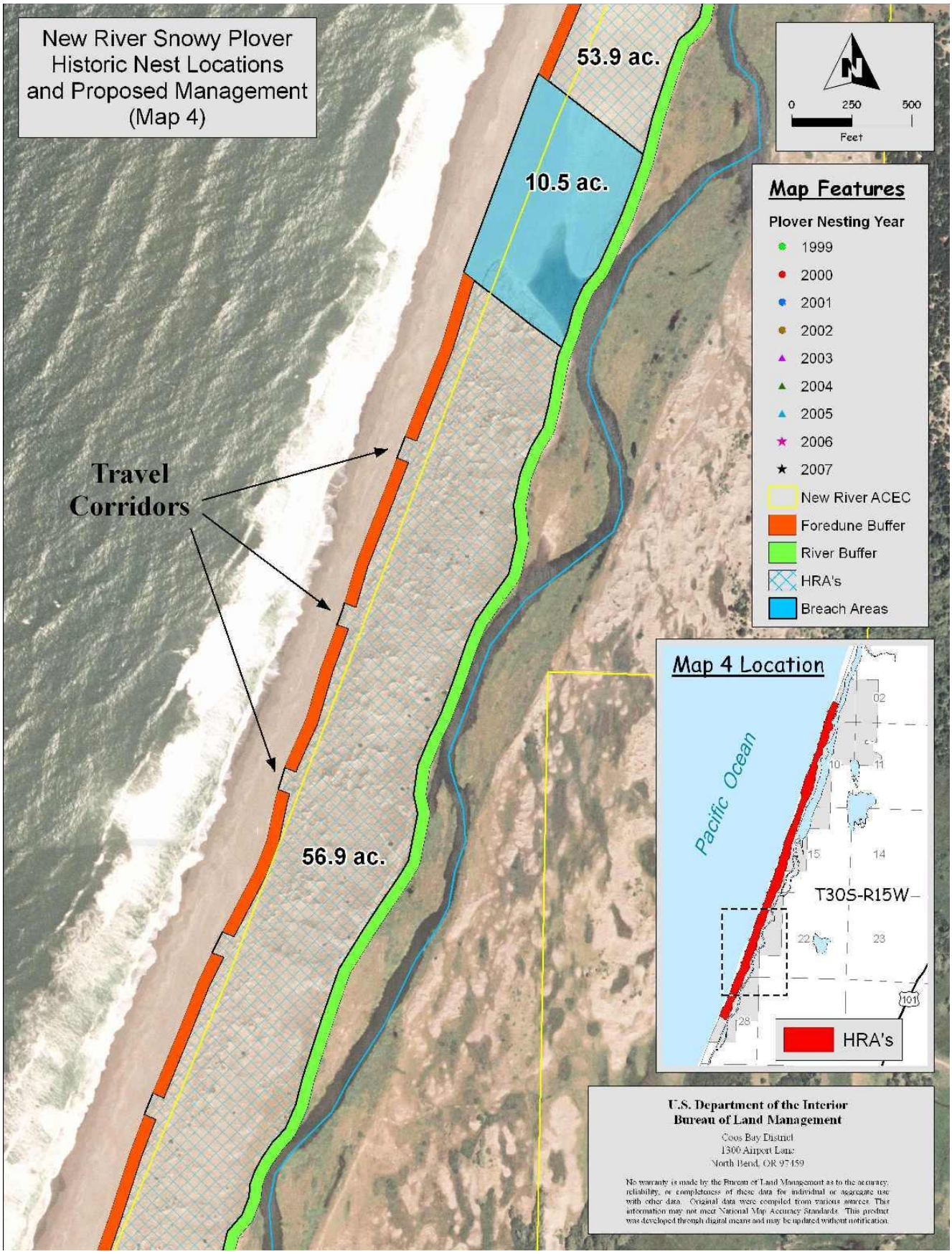
New River Snowy Plover Historic Nest Locations and Proposed Management (Map 4)
53.9 ac.
10.5 ac.
56.9 ac.
Travel Corridors
0 250 500
Feet
Map Features
Plover Nesting Year
1999
2000
2001
2002
2003
2004
2005
2006
2007
New River ACEC
Foredune Buffer
River Buffer
HRA's
Breach Areas
Map 4 Location
Pacific Ocean
T30S-R15W
HRA's
U.S. Department of the Interior
Bureau of Land Management
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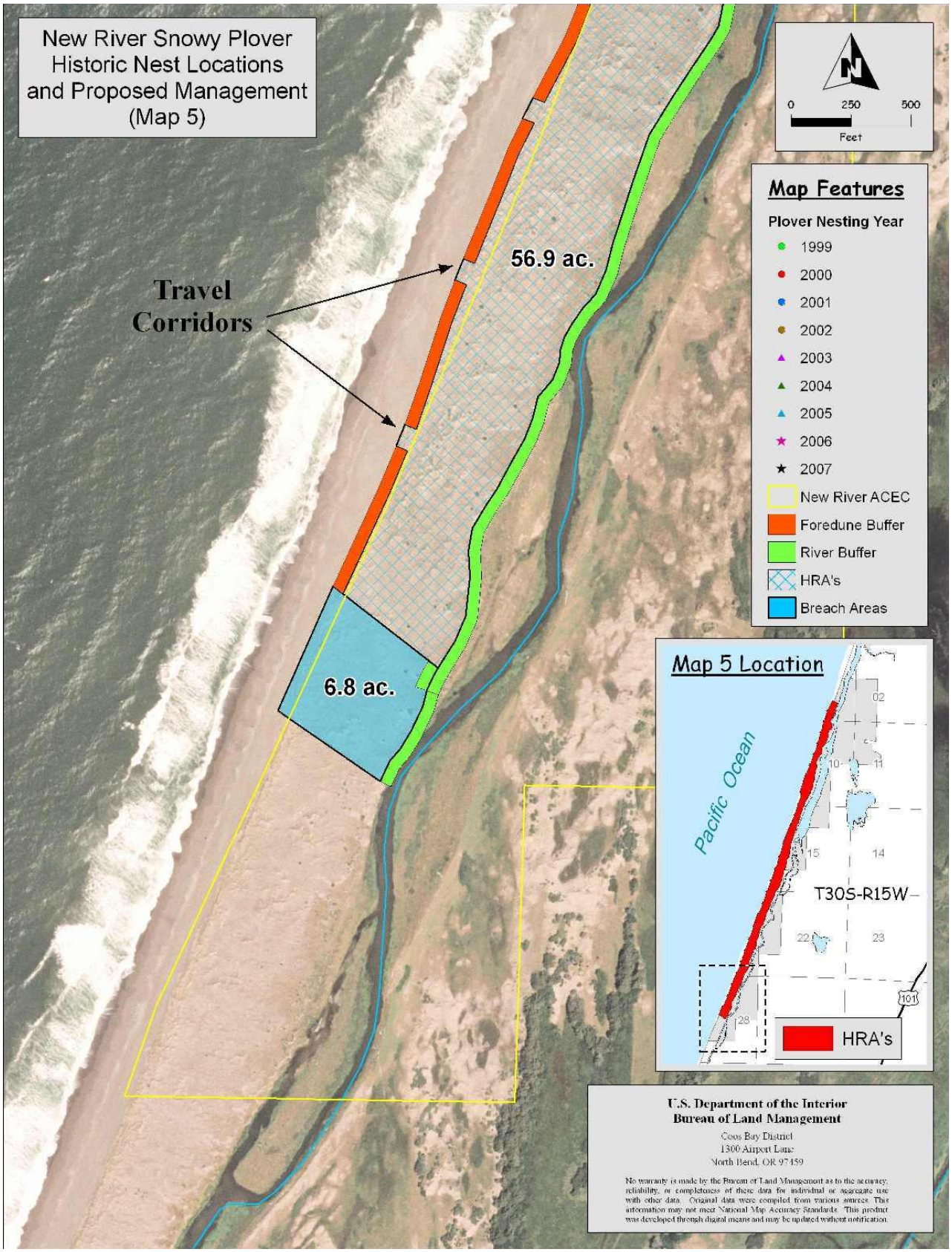
New River Snowy Plover Historic Nest Locations and Proposed Management (Map 5)
N
0
250
500
Feet
Map Features
Plover Nesting Year
1999
2000
2001
2002
2003
2004
2005
2006
2007
New River ACEC
Foredune Buffer
River Buffer
HRA's
Breach Areas
Travel Corridors
56.9 ac.
6.8 ac.
Map 5 Location
Pacific Ocean
T30S-R15W
HRA's
U.S. Department of the Interior
Bureau of Land Management
Coos Bay District
1300 Airport Lane
North Bend, OR 97459
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