

**United States Department of the Interior
Bureau of Land Management**



**Arcata Field Office
1695 Heindon Rd
Arcata, CA 95521
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**2009 Expenditure Report
2010 Funding Request
Stuyvesant-Kure Oil Spill Settlement Fund Trustee Council**



Introduction

Funds received from the Stuyvesant/Humboldt Coast Oil Spill Final Damage Assessment and Restoration Plan (DARP) (CDFG 2007) for 2009 were used for maintenance of the existing Habitat Restoration Area (HRA) for western snowy plovers (*Charadrius alexandrinus nivosus*) within the South Spit area.

This report provides a general overview of the South Spit Area, projects completed with \$13,500 in funds provided for 2009 funds and proposed 2010 funding.

Background

Through a Deed of Conservation Easement, the State of California conveyed to the Bureau of Land Management (BLM) an “interest” in and the “right” to manage the South Spit in all aspects of its use in perpetuity. The purpose of the Easement is “*to preserve, protect, enhance, and restore the conservation values of the Property; to provide dispersed recreation for the general public; and to prevent any use of the property that will significantly impair or interfere with such conservation values*” (BLM 2007). The South Spit was also designated a State of California Wildlife Management Area pursuant to California Department of Fish and Game Code, Chapter 5, Article 2, Sections 1525-1530. This designation is used for management purposes to protect and enhance habitat for wildlife species, and to provide the public with wildlife-related and other recreational uses.



The South Spit is a 4.5 mile long, 800 acre, narrow strip of land located between Humboldt Bay’s entrance and Table Bluff. In 2004, BLM created a 24-acre snowy plover HRA, using a combination of prescribed fire and heavy equipment. The European beachgrass (*Ammophila arenaria*) covered dunes were bulldozed to the natural gradient of the un-vegetated beach. The 27-acre Foredune Restoration Area (FRA) was created in January 2009 using bulldozers to scrape the beach down to the natural gradient and remove beachgrass. Woody debris was left in place. Following restoration efforts in 2004, surveys documented the first successfully hatched nest on the South Spit since 1999 (BLM data). Successful nests with fledging chicks were documented yearly from 2005-2008, however no nests were initiated during the 2009 breeding season.

The Snowy Plover Recovery Plan (U.S. Fish and Wildlife Service 2007) identifies nest sites within Recovery Unit 2 (RU2) including South Spit. The Recovery Plan describes the delisting objective for the RU2 subpopulation as 150 breeding adults with a goal of 30 breeding adults at the South Spit. The Recovery Plan describes actions needed to achieve delisting criteria which includes increasing available nesting and wintering habitat. South Spit has the potential to reach 30 breeding adults with a nest density of one nest per 3.4 acres over the existing restoration areas. One nest per 3.4 acres has been exceeded at several other sites. For example, Willapa National Wildlife Refuge (NWR) had one nest per 0.73 acres in 2005 and San Francisco Bay NWR had one nest per 1.8 acres in 2009.

Overall, RU2 continues to be well under the subpopulation objective (Colwell et al. 2009). The recovery unit has been trending down recently with a dramatic decline during the 2009 breeding season. The recovery unit breeding population was between 50-75 individuals from 2001

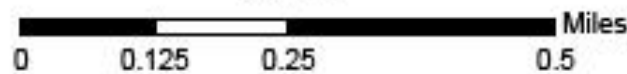


Plover Restoration Area

-  Habitat Restoration Area
-  Foredune Restoration Area



1:12,000



Expenditure of 2009 Funds

The California Conservation Corps (CCC) was dispatched to pull beachgrass in the HRA in June, 2009. The CCC crew spent 2 weeks manually pulling beachgrass at a cost of \$15,000, \$13,500 of which was provided by the Stuyvesant-Kure Oil Spill Settlement Fund Trustee Council. The remaining portion was funded by BLM.

The permanent fence on three sides of the HRA was removed in December, 2009 at a cost of \$1,500. Carsonite posts with decals stating the rules of the HRA will be installed in place of the fence prior to the 2010 breeding season. The fence (since removed) along the eastern boundary of the HRA is shown in the photo below.



Request for 2010 Funds:

In order to manage the HRA and FRA, BLM is requesting additional funding to continue maintenance (beachgrass removal) of the area, provide educational needs to the public, and conduct limited predator management. In addition, the BLM is interested in implementing a study using oyster shells to document plover use and to determine its effects on beachgrass encroachment. These four projects will be discussed and addressed separately below.

The Trustee Council has advised the BLM to focus maintenance activities on the HRA because council members believe restrictions on public use in HRA have the most potential to benefit

SNPL with the remaining available funding. The 2010 funding request has been adjusted to include mechanical treatment of the HRA only. In addition, a cost estimate has been provided for 2010 and 2011 to allow the council to allocate funds on an annual basis. If available funding becomes exhausted, all of the proposed management actions could be carried out on a year by year basis. The BLM has been able to provide funding through 2009 to meet the criteria outlined in the South Spit Management Plan Biological Opinion (BO) including hiring seasonal docents and maintaining the restoration areas. It is unknown what funding levels to expect in the future, however it is likely the BLM will continue to provide limited funding to keep in compliance with the BO.

Educational Needs:

Seasonal park aids (docents) have been hired annually to educate and inform the public of regulations regarding SNPL at the South Spit. The docents have proven to be extremely effective when talking to recreationists regarding the effects of their actions on SNPL and their habitat. Docents also provide a consistent and visible presence well above what law enforcement can provide. Docents (GS-5) cost \$16.50 per hour resulting in a monthly cost of \$2,640 each. Two docents for 5 months (800 hours each) will cost about \$26,400 per season.

Maintenance:

The BLM is seeking additional funds for the continued maintenance of the HRA. Use of equipment has proven more cost effective than hand pulling to re-treat beachgrass. While we have relied on bulldozers up to this point, discing or plowing may also be good options. Personal communications with Dave Lauten Oregon Natural Heritage Information Center, Steve Langenstein of BLM Coos Bay, and Marie Fernandez of Willapa NWR all provided unanimous support for discing the restoration area because of the success of discing at their sites (pers. comm.). Deep plowing may provide similar results. Large pieces of equipment cost approximately \$175–250 per hour. Cost is expected to be around \$400 per acre x 24 acres = \$9,600 per year.

It should be noted that several areas in Northern California (Point Reyes National Seashore, Redwood National Park) have moved away from discing and have had better success eradicating beachgrass by using bulldozers and excavators to bury it in deep pits. In a scenario such as the South Spit restoration areas we are only trying to suppress the beachgrass (in an area which will continue to be surrounded by beachgrass on three sides) to provide the SNPL with open beach habitat.

Local (Humboldt Bay) beachgrass control projects focus on manual pulling in an attempt to avoid damage to sensitive plants including the Humboldt Bay wallflower (*Erysimum menziesii*) and beach layia (*Layia carnosa*). Repeated re-treatments are used to gain control of the beachgrass at very high labor costs. One study estimated over 1,800 labor hours per acre needed to effectively control beachgrass including time to dig, pile, and burn at a later date (Pickart 1997).

Predator Management:

Avian and mammalian predators frequent the HRA and FRA. The small number of nests has limited the potential for predation events, with only one suspected nest predation in recent years

at South Spit. It is unknown if the presence of predators is a deterrence to snowy plovers looking for nest sites.

Avian predators such as common ravens (*Corvus corax*) and northern harriers (*Circus cyaneus*) are regularly observed on the South Spit. Less frequently observed raptors such as peregrine falcons (*Falco peregrinus*), American kestrels (*Falco sparverius*), and white-tailed kite (*Elanus leucurus*) are also potential SNPL predators. Clam Beach (Humboldt County, CA) and the salt ponds of San Francisco Bay have well known raven predation problems. Some sites in California are actively controlling ravens, harriers, and other raptors to protect SNPL. To reduce foraging in the HRA and FRA by avian predators, the BLM proposes to reduce the availability of perches. At South Spit avian predators typically perch on tall yellow bush lupine (*Lupinus arboreus*) plants and high clumps of beachgrass, though there are a few small trees in the area. Informational signs may also provide perches. Selectively removing perches near the HRA and FRA will reduce the amount of foraging in the HRA and FRA. Reduction of perches will be accomplished by pulling large bush lupine plants and beach grass clumps located on top of dunes. In addition, bird spikes will be placed on tops of signs and other perches that are not removed. Removal of bush lupine and beachgrass would likely be contracted, while installation of bird spikes would be completed by BLM staff.

House cats (*Felis catus*), raccoons (*Procyon lotor*), opossums (*Didelphis virginianus*), striped skunks (*Mephitis mephitis*), coyotes (*Canis latrans*), and grey foxes (*Urocyon cinereoargenteus*) are mammalian predators also observed on South Spit. House cats are the most commonly observed mammalian predator. We are proposing only limited control of mammalian predators, specifically live trapping feral house cats. Any feral cat captured will be taken to the Humboldt County Animal Shelter. All other mammalian predators will be released onsite. Trapping would be conducted by BLM staff.

The cost of predator control, \$11,000 for two years, would be used to hire a contractor to selectively remove bush lupine and beachgrass. \$5,000 will be applied to a contract each year funding is available. The additional \$1,000 request for the first year would be used to purchase trapping equipment and bird spikes to be operated and maintained by BLM staff. Cost of traps is approximately \$50 each, resulting in an equipment cost of \$600 (12 traps @ \$50 each). The remaining \$400 would be used to purchase bird spikes, bait, and to repair traps if needed.

Oyster Shell Application:

The requested funding is to implement a study by distributing oyster shells on specified areas within both the HRA and FRA to enhance habitat for SNPL. Oyster shell application would start at the HRA and continue into the FRA if funding is available. Application of oyster shell over sand has been successful at several other sites on the west coast. Without hesitation, Dave Lauten of the Oregon Natural Heritage Information Center recommends the oyster shell application (pers. comm.). He has noticed that re-vegetation of beach grass after the application is slower than normal and suggests the distribution of shells alters the pH level in the sand and slowed re-vegetation.

Oyster shell distribution has been very successful at Willapa NWR where similar treatments to SNPL habitat have been done. Refuge staff has provided summary data which is included in

Table 1. SNPL have demonstrated a clear preference for the oyster shell substrate. Not only are they nesting far more frequently on oyster shells, the nests are much more likely to hatch and fledge then on barren sand. Initially, Willapa NWR created a small, 1 acre, HRA in 2002 and placed only four small patches of oyster shell amounting to less than 1 acre. The only SNPL nest in the area that year was in a oyster shell patch. The size of the HRA and oyster shell patches grew each year with less than half of the HRA covered in oyster shell. Ninety-eight percent (53 of 54) of the nests from 2005–2007 were located in oyster shells.

Table 1. Willapa NWR Oyster Shell Project Results

<u>Year</u>	<u>HRA Acres</u>	<u>HRA Acres in Oyster shells</u>	<u>Nests in Oyster Shells</u>	<u>Nests in Sand</u>
2002	1	> 1	1	0
2003	8	> 1	1	1
2004	16	1	3	0
2005	40	14	21	1
2006	63	28	16	0
2007	84	41	16	0

San Francisco Bay NWR implemented oyster shell habitat enhancement on salt ponds prior to the 2009 breeding season, also with very encouraging results. The highest SNPL nest densities on the San Francisco Bay salt ponds were recorded in the oyster shell plots. Oyster shell plots also had significantly higher hatch and fledging rates coupled with lower predation then control plots during the first year of the project (Robinson-Nilsen et al. 2009).

The method of oyster shell application continues to change as more cost effective machinery is used. Current restoration projects utilizing oyster shells have spread the oyster shells with a number of methods including dump trucks, shoveling from the back of pickup trucks, and using front-end loaders. The BLM Coos Bay has started utilizing a slightly modified manure spreader to spread the oyster shells on their restoration site. They have been very happy with the results thus far. The mechanism is power take off driven and the application rate is easily adjustable. On new areas they have been spreading about 50 cubic yards of oyster shell per acre on new restoration areas while using half or less on areas with previous applications of oyster shells.

Unfortunately, all of the local Humboldt Bay oyster producers sell their oysters in the shell to be shucked off site. Coast Seafoods is the largest local producer and sends their oysters to Washington State. While not a major hurdle, it will require trucking in oyster shells from another state. Assuming that such a project would entail end hauling shells from Washington, a round trip distance of approximately 800 miles, about 16 hours of trucking would be required. Current trucking rates are about \$120.00 per hour, resulting in a transportation cost of approximately \$1,920.00 per load. A loader with a 3 cubic yard capacity would require about 4.4 hours per deliver each 40 yard load from the road to the HRA, a cost of about \$562.50 per load. If available, a 10-yard manure spreader can spread about 10 yards per hour at a lower hourly rate.

The HRA is a long, narrow stretch of sand approximately 3,250'x400'. The HRA would be divided into 12 sections, each approximately 2 acres (400' x 220'). Coverage would alternate between oyster shells and bare sand resulting in 6 areas of oyster shell coverage totaling 12 acres. Application could be completed in 1 year or over several years. The application rate for the first year would be at 40 cubic yards per acre. The application rate may be adjusted in future years. Retreatment of beachgrass in areas with oyster shell application would be completed by discing or plowing. Both methods will leave the oyster shells in the application area while the use of a bulldozer would push most of the oyster shells to the eastern edge of the HRA.

Application of the oyster shells can provide additional cover for plovers and potentially reduce problems with blowing sand. Other advantages of this study are to monitor the affects oyster shells are having on suppressing the grown of beachgrass, and documenting the changes in nesting success within the HRA. If it is determined that oyster shell placement does suppress beachgrass growth then this treatment can decrease future maintenance activities.

To affectively monitor the areas, the oyster shells would be placed above the high tide line to the easterly edge of the HRA. The area would be monitored for a minimum of 2 years to determine the effectiveness of the treatment, both on the use of the area as well as the effects on beachgrass growth. The set-up and implementation of this study (determining site locations, monitoring, etc.) would be conducted by BLM personnel. Data collection would be performed by MRB biologists and BLM staff. The analysis would focus on a few factors, primarily percent of SNPL relative to available habitat types (oyster shell area vs. bare sand) and re-growth of beachgrass in oyster shell areas vs. adjacent bare sand areas. Nesting information such as number of nests, hatch rates, and fledging success are to be monitored and evaluated regardless of oyster shell application.

NEPA and ESA Requirements

Oyster shell application was included in the environmental assessment for the creation of the HRA. The February 13, 2004 Letter of Concurrence resulting from the HRA project list oyster shell application as a management option.

The South Spit Management Plan includes management of non-native plant species. Live trapping predators and installation of bird spikes have not been addressed in any planning documents. NEPA requirements will be met prior to start of work.

Funding Request Summary

ACTIVITY	2010 COSTS	2011 COSTS	TOTAL
HRA Maintenance			
24 acres X 2 hours per acre X \$200 hour	9,600	9,600	19,200
Docents			
2 docents X \$16.50hr X 800 hours (5 months)	26,400	26,400	52,800
Oyster Shell Application			
Ship 40 yards oyster shells to South Spit, free oyster shells. 16hrs trucking X \$120.00hr X 12 loads	23,040	23,040	46,080
Apply oyster shells to HRA @ 9 cubic yards per hour X 54 hours X \$125hr	6,750	6,750	13,500
Total	29,790	29,790	59,580
Predator Management			
Purchase 12 live traps @\$50 each	600	0	600
Purchase bird spikes	400	0	400
Issue vegetation control contract	5,000	5,000	10,000
Total Predator Control	6,000	5,000	11,000
10% Contingency	7,179	7,079	14,258
PROJECTED TOTAL PROJECT COSTS	78,969	77,869	156,838

2010 Reporting

An annual progress report will be prepared and submitted to the Stuyvesant Oil Spill Trustee Council by January, 2011. The report will summarize all activities implemented with the allocated funds.

References

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