

Biological Assessment
For The
Ma-le'i Dunes Cooperative Management Area
Public Access Plan

November 2006

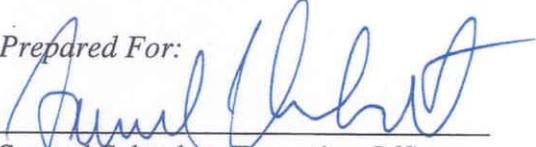
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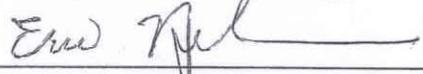
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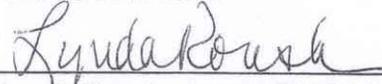
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Introduction

The purpose of this biological assessment is to review the proposed Ma-le'l Dunes Cooperative Management Area Public Access Plan in sufficient detail to determine to what extent the proposed action may affect any of the Threatened or Endangered species listed below. This biological assessment is prepared in accordance with legal requirements set forth under section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1536 (c)).

Species lists were requested from the United States Fish and Wildlife Service (USFWS) Arcata Field Office website and a list of endangered, threatened proposed and candidate species was generated for the Eureka and adjacent (Tyee City, Arcata North, Arcata South, McWhinney Creek, Fields Landing and Cannibal Island) 7.5 minute United States Geological Survey (USGS) quadrangles on 17 January, 2006 (Document numbers 631592170-105313, -105429, -105639, -105649, -105719, -105742, and -105810). The California Natural Diversity Data Base (CNDDDB) was also queried for the project region in January of 2006.

The following species are considered in this document:

Humboldt Bay wallflower (<i>Erysimum menziesii</i> ssp. <i>eurekense</i>)	Endangered
Beach layia (<i>Layia carnosa</i>)	Endangered
Western snowy plover (<i>Charadrius alexandrinus nivosus</i>)	Threatened
California brown pelican (<i>Pelicanus occidentalis californicus</i>)	Endangered

Critical Habitat

The action addressed within this biological assessment does not fall within Critical Habitat for western snowy plover. Final ruling on Critical Habitat for western snowy plover was established by the USFWS on September 29, 2005 (USFWS 2005).

Critical Habitat has not been designated for Humboldt Bay wallflower, beach layia or California brown pelican. California brown pelican has been proposed for removal from the Endangered Species List.

Consultations to Date

There has been no formal consultation to date.

David Imper, USFWS Ecologist from the Arcata Field Office, was informally consulted on February 15, 2006 regarding the status of the federally endangered western lily (*Lilium occidentale*) within the action area. Mr. Imper concurred that the proposed action will have no effect on western lily, considering that no occurrences of this species are known from the Ma-le'l Dunes CMA and suitable habitat is limited.

Current Management Direction

The 444-acre Ma-le'l Dunes Cooperative Management Area (CMA) consists of parcels owned by the Bureau of Land Management (BLM) and the USFWS. Therefore, the proposed action must be undertaken within the framework of the ESA policies of both federal agencies. Both the BLM and the USFWS share common goals for cooperatively developing and managing their respective properties

for public access, which include protecting the natural and cultural resources of the area while providing public access for recreation, education and research activities.

Bureau of Land Management – Ma-le’l South

The Ma-le’l Dunes CMA falls within the BLM’s Samoa Peninsula Management Area under the guidance of the BLM Arcata Resource Management Plan. The agency’s overarching mission is to sustain the health, diversity and productivity of public lands for the use and enjoyment of present and future generations. General management guidance for the BLM’s resource programs is derived from laws, Executive Orders, regulations, Department of Interior manuals, BLM manuals, and instruction memoranda (Washington and California State Offices). Together, these form the basis for management decisions concerning the public land resources and programs managed by the Arcata Field Office. General management policy for the Arcata Field Office is also provided by the federal Land Policy and Management Act. All BLM actions are subject to the National Environmental Policy Act, the Clean Water Act and the Endangered Species Act.

Although the agency operates under a multiple-use mandate, the 154-acre BLM-owned portion of the Ma-le’l Dunes CMA (Ma-le’l South) will allow for limited recreational activities as defined in their Arcata Resource Management Plan and subsequent amendments, which recommends actions for resource protection and provisions for public and recreational use on both the north and south spits of Humboldt Bay, and on the uses outlined in the Ma-le’l Dunes Public Access Plan (HWR 2006, USDI-BLM 2004b).

U.S. Fish and Wildlife Service – Ma-le’l North

The 290-acre USFWS-owned portion of the Ma-le’l CMA (Ma-le’l North) comprises the Ma-le’l Dunes Unit of the Humboldt Bay National Wildlife Refuge (HBNWR). The mission of the HBNWR is to protect fish and wildlife resources of national importance while providing opportunities for the public to appreciate and enjoy the natural heritage of the Humboldt Bay region. Along with other public and private lands around Humboldt Bay, the lands of the HBNWR are key stopover points for millions of birds that migrate along the Pacific Flyway. The refuge also includes the Lanphere Dunes Unit, which is adjacent to the CMA at its northern border. As noted in the Ma-le’l Dunes Public Access Plan “the refuge contains the most pristine remaining dune ecosystem in the Pacific Northwest and supports rare and representative examples of older forested dunes, young active dunes, dune swale wetlands, and coastal salt marsh (EDAW 2006).” The enabling legislation for the Lanphere and Ma-le’l Dunes Units include the Endangered Species Act, in recognition of the need for protection of endangered species and their habitats.

Additional management guidance for the proposed action is also provided by the Recovery Plan for the Seven Coastal Plants and the Myrtle’s Silverspot butterfly, the Humboldt Beach and Dunes Management Plan (1995) and the US Fish and Wildlife Service (USFWS) Conceptual Management Plan for the Lanphere Dunes Unit, Humboldt Bay National Wildlife Refuge.

Cooperative Management Goals

The proposed action is consistent with all of the above-listed policies and resource/land management plans as well as with the goals of the California State Coastal Commission (SCC) which are to “protect, restore and enhance coastal resources and to provide access to the shore”. In addition, the proposed action will adhere to any interagency agreements that may be entered into to facilitate cooperation and coordinated management of the Ma-le’l Dunes CMA.

The following cooperative agreements would be established:

- Agreement between BLM, USFWS, and the Redwood Gun Club;
- Agreement between BLM, USFWS, and the Wiyot Tribe;
- Agreement between USFWS and Sierra Pacific;
- Agreement between BLM and Friends of the Dunes.

The proposed access plan includes goals to accommodate safe and orderly public access and a range of recreational opportunities that minimize, to the extent practicable, any adverse impacts to the natural and cultural resources of the area. Toward this end, the following objectives have been proposed in the plan:

- Incorporate the minimal public access facility improvements necessary to support recreational activities such as hiking, sightseeing, wildlife viewing and photography, picnicking, dog walking, horseback riding, and Americans with Disabilities Act (ADA) accessibility;
- Incorporate provisions for the safety and well-being of visitors to the area;
- Minimize impact to native dune plant communities, coastal wetland habitat, salt marsh habitat, populations of endangered Humboldt Bay wallflower and beach layia, and cultural resources;
- Include interpretive information that fosters public awareness and appreciation of the area's natural and cultural resources via local publications, educational brochures, and wayside exhibits;
- Intensively manage for increased visitor use levels over the next 10 years;
- Suggest format and content of cooperative management agreements between agencies and organizations involved in planning, management, enforcement, biological research and public outreach;
- Identify strategies for implementing and maintaining public access to the area;
- Identify potential sources of funding for recommended infrastructure improvements.

Description of Proposed Action (Alternative A)

The proposed action, as described in the Ma-le'l Dunes Cooperative Management Area Public Access Plan, is to provide a range of public uses with minimum improvements to facilitate safe and orderly public access to the Ma-le'l Dunes CMA for recreation, education, and research activities (HWR 2006). Although currently open to the public, recreational use and public access improvements at Ma-le'l South were approved and implemented on an interim basis (USDI-BLM 2004a, USDI-BLM 2004b). Some of the pedestrian trails and beach access through the nearshore dunes of Ma-le'l South (where sensitive biological resources are present) are not currently delineated and pedestrian – vehicle conflicts exist along the access road. Pedestrian trails and beach access through the nearshore dunes of Ma-le'l North (where sensitive biological and cultural resources are present) are also not delineated and much of Ma-le'l North completely lacks amenities to support safe public access.

The proposed action (preferred alternative) has the following design features, which are presented in the categories of public use, access and circulation, access infrastructure, and access management.

Public Uses:

- Overnight camping would be prohibited, except as allowed at Ma-le'l South for special events, on a case by case basis that meet specific criteria;
- Fire would be allowed only in designated sites at Ma-le'l South;

- Motorized vehicle use outside of roadways and parking areas would not be allowed except in an emergency or for authorized maintenance, construction, restoration, or research purposes;
- Environmental restoration activities would continue;
- Educational field trip access would continue and increase;
- Firearms, crossbow/bow shooting, mineral sales, and livestock permits and leases would continue to be prohibited;
- Continued and increased pedestrian use and associated activities would be allowed only on 5,250 feet (~1 mile) of designated trails, open sandy areas, and on the wave slope;
- Continued and increased equestrian use would be allowed on 4,200 feet (0.8 miles) of designated trails and the wave slope on Ma-le’l South. Horses will not be allowed on Ma-le’l North;
- New pedestrian use would be allowed on 18,300 feet (3.5 miles) of newly designated and/or improved existing casual trails in the nearshore dunes and forest;
- Continued and increased off-leash dog walking would be allowed on designated trails and open sands throughout Ma-le’l South and along the wave slope. Dogs would continue to be required to be leashed in the Ma-le’l South parking/picnic area. Dogs would not be allowed on Ma-le’l North;
- Group camping may be allowed on a case by case basis at the Ma-le’l South Special Event Area based on specified criteria;
- Continued, new, and increased vegetative gathering for personal use from designated forest trails would be allowed by the general public from May to November in Ma-le’l South only, and otherwise by special permit on a case by case basis;
- Continued, new, and increased vegetation gathering for personal use by tribal members would be allowed in accordance with a memorandum of agreement with the Wiyot Tribe;
- Canoe and kayak launching and landing would be allowed in designated locations only;
- Access for people with disabilities would be provided at the Ma-le’l North and South parking and picnic areas and restrooms, and along approximately 2,800 feet (0.5 mile) of trail.

Access and Circulation:

- Continued existence and increased use of the improved Ma-le’l South day use/picnic area would be allowed;
- The existing gravel access road leading to the designated parking areas in both Ma-le’l North and Ma-le’l South would be improved and resurfaced. The road would remain “one lane” at 16-20 feet in width. Measures to improve road safety, drainage and durability would include: construction of “pull outs” in areas where no fill in wetlands or bank cuts are required, a turning radius at the Young Lane – access road intersection to accommodate vehicle turn-around, and gutter sections along roadway where needed;
- Pedestrians, bicycles, and motorists would be notified, through signing, to be aware of each other and to use caution along the road.

Access Infrastructure:

- Dilapidated structures, remnant posts, and wire fencing would be removed.
- The boundary fence along the shared BLM/Ma-le’l South and USFWS/Ma-le’l North property line would be removed.

- The casual parking area adjacent to the Pacific, Gas, and Electric high voltage transmission line/tower would be closed.
- The gate located near the high voltage tower would be moved approximately 80 feet south, closer to the Young Lane-access road intersection.
- The existing wetland view deck would be re-constructed.
- New improvements to the Ma-le'l South day use picnic area would include the installation of a water spigot for equestrian use, and a bicycle rack.
- A 1,000-foot pedestrian safety corridor along the access road would be installed.
- The existing caretaker trailer pad and surrounding area would be improved. This would entail re-grading of the pad area, placement of base gravel, and vegetation clearing.
- The Ma-le'l North parking/day use picnic area would be enlarged and re-oriented to accommodate increased use, and would be re-surfaced with crushed gravel. It would also be upgraded to include: Ten motorized vehicle spaces and bus parking with one ADA vehicle space, with expansion of the parking area for nine additional motorized vehicle spaces.
- A kayak and canoe ramp measuring approximately 8 feet wide and 35 feet long would be installed at the Ma-le'l North parking/day use picnic area.
- A bicycle rack, information kiosk, picnic tables, trash and recycling receptacles, and an ADA accessible vault toilet would be installed at the Ma-le'l North parking/day use picnic area.
- 2,800 ft. (0.5 miles) of ADA compatible surfacing would be installed along the railroad berm trail. Trailhead steps, cable steps, and wooden steps and rail would be installed at various locations along trail ways.
- Casual trails though out the project area would be taken out of use and re-vegetated.
- 7,000 feet (1.3 miles) of new beach access trails and 11,300 feet (2.1 miles) of new forest trail would be delineated and marked with trail markers.
- A 15-foot long footbridge would be installed over a seasonal wetland area along a beach access trail.
- An 8-foot by 10-foot dune view deck would be constructed.
- Eight benches along the railroad berm trail would be installed.
- A coordinated signing program would be designed and implemented to include kiosks and the following sign types: entry, information, and safety, boundary, regulatory, trail marker and direction, interpretive, and temporary.

Access Management:

A full time onsite caretaker position and protocols regarding vehicle control, law enforcement, and security would be established.

The following cooperative agreements would be established:

- Agreement between BLM and USFWS for the management of the Ma-le'l Dunes CMA;
- Agreement between BLM, USFWS, and the Redwood Gun Club;
- Agreement between BLM, USFWS, and the Wiyot Tribe;
- Agreement between USFWS and Sierra Pacific; and
- Agreement between BLM, USFWS, and Friends of the Dunes.

This biological assessment addresses those elements of the proposed action that may result in direct or indirect impacts to habitats known to support, or with potential to support (e.g. as a result of on-going

habitat restoration) federally listed species. This applies to the beach and nearshore dune environments within the CMA. It includes an assessment of the continued public use of recently improved areas within the southern portion of the CMA only as these activities relate to a change from the existing condition and public uses.

Specific proposed actions identified within the access plan that may affect listed species and/or designated critical habitat include the following:

1. Establishment of 7,000 linear feet of new trail within the nearshore dunes, 354 linear feet of which pass through or immediately adjacent (within 50 feet) to endangered plant areas and the related impacts from public access;
2. Installation of boundary and directional trail signs within the nearshore dune environment. These signs will be placed at appropriate sight distances for clear trail and property boundary demarcation;
3. Decommissioning of casual trails within the nearshore dune environment. This may include native plant revegetation and/or erecting natural barriers or signs;
4. Construction of a footbridge over seasonal wetland within the nearshore dunes. This bridge will be installed in the foredunes across a seasonal wetland located on the Hudt Trail route within Ma-le'l North. It is described in the access plan as a puncheon-style footbridge spanning approximately 15 feet long and 4 feet wide, with anchors to prevent theft.

Of particular significance, proposed improvements and recommended public uses outlined in the access plan are expected to lead to an increase in visitor use to the beach and nearshore dunes. The USFWS estimated the public use of the Mad River Slough Cooperative Management Area between 1992 and 1994, prior to acquisition of the Ma-le'l Dunes addition, at approximately 2,000 visitors per year (USFWS 2004). Use figures from the adjacent BLM property were estimated as high as 6,000 per year during that same period (USFWS 2004). Visitors to Ma-le'l South and Ma-le'l North are expected to total approximately 16,500 and 8,000 persons per year, respectively, upon implementation of the access plan (HWR 2006). This represents an estimated 64% increase in visitor use to Ma-le'l South, and an estimated 75% increase in visitor use to Ma-le'l North upon implementation of the proposed action.

Minimization Measures:

Endangered Plants

A primary component of the Ma-le'l Dunes CMA Public Access Plan is to establish a designated hiking trail system to provide pedestrian access to the beach and nearshore dunes. Ma-le'l South has an existing equestrian and hiking trail system currently in use, however, beach access is not well defined or adequately signed at Ma-le'l North, and a number of casual trails have become established throughout the CMA. The access plan provides for the consolidation and/or decommissioning of various casual trails currently in use to avoid or minimize impacts to sensitive biological and cultural resources, as well as the extension of existing trails to provide further opportunities for beach and dune access.

Those portions of the proposed trail system that pass through sensitive dune environs were selected to avoid, to the extent practicable, endangered plant areas and/or cultural resource sites. The proposed route was selected in consultation with Friends of the Dunes representative Carol Vandermeer, U.S. Fish and Wildlife Service's Natural Resource Specialist Patti Clifford, and Wiyot Cultural Resource Advisor Marne Atkins, and based on the most recent distribution data for endangered plant populations provided by USFWS and BLM (pers. comm. Laura Kadlecik HWR Engineering & Science). Proposed new trail sections generally follow existing casual trails in all but a few locations,

and there are no new trail sections proposed through any existing rare plant areas. While the new alignment does not avoid endangered plant areas entirely (in some areas the trail passes within a few feet of known occurrences of rare plants), it is considered the least environmentally damaging alternative.

The access plan recommends the use of a variety of signs to welcome visitors to the CMA and to provide direction and guidance regarding land use regulations, interpretive information and boundary demarcation (HWR 2006). The use of regulatory signs will serve to inform visitors of regulations pertaining to biological resource protection, and directional trail signs will serve to clearly delineate hiking trails and discourage visitors from entering endangered plant areas. Boundary signs will be used to inform visitors where there is a change in ownership, jurisdiction, and/or management. Directional trail signs and boundary signs are especially important in the open dunes to distinguish the trail corridor and to discourage entry onto adjacent properties such as the Lanphere Dunes Unit of HBNWR. Directional trail signs and boundary signs will be installed at appropriate sight distances for clear trail/property boundary demarcation.

In this regard, the use of signs is expected to partially mitigate for the expected increase in visitor use to the CMA by consolidating foot traffic and minimizing the potential for trampling of endangered plant species. The development of the signing program will be consistent with the Humboldt Bay Interpretive Signing Manual (2003) developed by the Natural Resources Division of the Redwood Community Action Agency (HWR 2006).

The installation of directional signs or boundary signs within or adjacent to endangered plant areas will require a pre-construction survey to insure that activities associated with the placement of the signs (i.e. digging, material lay down, etc.) do not disturb or remove any endangered plant species. All work related to trail development within an endangered plant area shall be overseen by a USFWS or BLM CMA resource manager. All construction activities occurring within the nearshore dune community (initial placement of signs, construction of bridge over seasonal wetland) shall be timed to avoid the beach layia-growing season. All occurrences of Humboldt Bay wallflower located adjacent to construction areas shall be flagged in the field prior to commencement of work, and the resource manager will document any adversely affected individuals.

In addition to the minimization measures listed above, the USFWS will implement a conservation measure for Humboldt Bay wallflower that involves the collection of seed from reproductive individuals found within the Lanphere Dunes Unit and their subsequent dispersal within newly restored habitats on the Fernstrom-Root Parcel at Ma-le'1 North. The USFWS proposes to collect and distribute seed over a period of two seasons, and monitor for the successful introduction of the wallflower to the Fernstrom-Root parcel on year three (pers. comm. Andrea Pickart USFWS). Success shall be determined by estimating the number of flowering individuals on the Fernstrom-Root property by the third season. This measure is intended to facilitate the expansion of the wallflower population to newly restored areas within the CMA, and to help offset potential adverse impacts from ground disturbance associated with the anticipated increase in public access to the nearshore dunes.

In summary, the following measures shall be implemented in conjunction with the Ma-le'1 Dunes CMA Access Plan to minimize potential adverse effects to endangered plant populations:

1. Trail routes through the dune environs shall represent the least environmentally damaging alternative, as identified by the CMA agency resource managers and staff and based on the most recent distribution data for beach layia and Humboldt Bay wallflower;
2. New trail routes will be sited in existing casual trails to the greatest extent possible to limit ground disturbance. All other casual trails will be decommissioned to minimize the effects of trampling to native vegetation;

3. Regulatory, directional and boundary signs will be utilized to inform visitors of regulations pertaining to biological resource protection, clearly delineate hiking trails and discourage entry into adjacent properties, particularly along the northern boundary between the Ma-le'l and Lanphere Units;
4. The boundary between the Ma-le'l Dunes Unit and the Lanphere Dunes Unit of HBNWR will be signed at intervals of no more than 300 feet from the beach to the forest edge to indicate a USFWS management change, and as necessary based on site and trail configuration to discourage off trail use in the vicinity of sensitive resources. "No dogs beyond this point" signs will be posted adjacent to the USFWS boundary signs, including the boundary USFWS shares with the BLM that is within the CMA project area;
5. All work related to trail development within an endangered plant area shall be overseen by a CMA agency resource manager or staff;
6. Construction activities conducted within the nearshore dune community (i.e. initial placement of signs, construction of bridge over seasonal wetland) shall be timed to avoid the beach layia growing season;
7. All occurrences of Humboldt Bay wallflower located adjacent to construction areas shall be flagged in the field prior to commencement of work, and the overseeing agency resource manager will document any adversely affected individuals.
8. USFWS will implement a conservation measure for Humboldt Bay wallflower that involves the collection of wallflower seed and subsequent dispersal in newly restored habitats on the Fernstrom-Root parcel at Ma-le'l North.

Existing management activities currently conducted by the BLM and USFWS are expected to continue in perpetuity for the protection of endangered plant populations. As implemented, these measures will further serve to monitor potential impacts to endangered plant populations resulting from an increase in visitor use of the CMA. These include:

1. Monitoring for new invasions of exotic species, especially in the vicinity of the equestrian trail resulting from horse feces, and their subsequent eradication;
2. Rare plant population monitoring as identified in existing management plans, including monitoring within the Lanphere Dunes Unit to identify potential indirect offsite impacts from unauthorized pedestrian access;
3. On-going restoration activities, which are expected to increase suitable habitat for endangered species.

USFWS is currently in the process of implementing a restoration plan at Ma-le'l North designed to restore the natural function (biotic and abiotic processes) of the dune system by removing invasive, nonnative vegetation and to achieve a "virtually self-maintaining system" (EDAW 2004). Since 1994, the BLM has worked with the California Conservation Corps (CCC) to remove upward of 20-acres of European beachgrass at Ma-le'l South, although much work is still needed for the treatment of sprouts (USDI-BLM 2004b, HWR 2006).

Conservation Recommendations

Western Snowy Plover

When native vegetation throughout the CMA was in an earlier successional stage and the foredune was poorly developed, the beach and backdunes of the CMA possibly supported suitable breeding habitat for the western snowy plover. Breeding season surveys have been conducted within portions of the CMA since 1997, and have not resulted in the documentation of breeding plovers there. However,

the surveys are not considered adequate to determine probable presence or absence of the western snowy plover because they have been inconsistent and have not included a survey of the backdunes. Because of a lack of recent intensive breeding season surveys for the species throughout the foredunes and backdunes of the CMA a monitoring scheme will be implemented as part of the Ma-le’l Public Access Plan. Monitoring will include a minimum of 1 breeding season (March 1 September 15) survey per month in suitable habitat and will be implemented as funding and personnel resources are available, so that plover use during the breeding season may be detected. Should plovers be detected within the CMA during the breeding season, the BLM and HBNWR will immediately coordinate with the USFWS to determine appropriate protection measures, which would utilize the most current methodologies for plover protection. BLM and HBNWR will re-initiate consultation if ongoing activities may affect the species.

California Brown Pelican

The action area falls outside of the breeding range for California brown pelican. In addition, no suitable breeding habitat for brown pelican occurs within the action area. Brown pelican may incidentally use the wetted intertidal zone within the CMA while foraging the nearshore area; however, most pelican use is at river mouths within the Eel River, Humboldt Bay, and Mad River areas. Therefore, no adverse impacts to the species are expected and no conservation recommendations for the species.

Action Area

The action area is defined as the Ma-le’l Dunes CMA and includes both BLM and USFWS property that will be cooperatively developed and managed to accommodate public access. It encompasses 444 acres of public land along a 1.5-mile stretch of coastline on the Samoa Peninsula (North Spit) of Humboldt Bay between the City of Arcata and the unincorporated community of Manila in Humboldt County, California (Figure 1). Access to the action area is via Ma-le’l Road from Young Lane off Samoa Boulevard/State Highway 255.

The site is bordered to the west by the Pacific Ocean, to the north by the Lanphere Dunes Unit of the HBNWR, to the east by Humboldt Bay and the Mad River Slough, and to the south by the BLM Manila Dunes Area of Critical Environmental Concern (ACEC). A public shooting range (the Redwood Gun Club (RGC)), an active lumber mill (Sierra Pacific Industries (SPI)) and several residential properties also abut the CMA (Figure 2).

The BLM owns and manages the southern 154 acres and the USFWS owns and manages the northern 290 acres of the 444-acre CMA, known as Ma-le’l South and Ma-le’l North, respectively. Ma-le’l South includes 112 acres of the Manila Dunes ACEC and a 42-acre property formerly leased by the Humboldt Buggy and ATV Association (a.k.a. “The Buggy Club”) and known as the Khoaghali parcel. Ma-le’l North includes the recently created Ma-le’l Dunes Unit of the HBNWR Complex and is comprised of the Fernstrom-Root property (formerly part of the Lanphere Dunes Unit of HBNWR) and a 160-acre property formerly owned by the Buggy Club and historically called “the buggy club parcel” (HWR 2006).

Endangered Plants

The Ma-le’l Dunes CMA features a unique assemblage of coastal dune, forest, and wetland communities that comprise a portion of the dune-slough ecosystem of the upper Samoa Peninsula, or North Spit. The North Spit is a relatively mature dune system that contains a diversity of landforms.

Typically, the dune system begins above the beach with the foredune, a ridge of sand that forms parallel with the beach above the mean high tide. Behind the foredune is a series of longitudinal ridges and swales oriented parallel to the prevailing winds. Collectively, the foredune, ridges, and swales are referred to as the nearshore dunes. East of the nearshore dunes is a deflation plain that grades into large parabolic moving dunes or sand sheets. Older dunes, located east of the moving dunes, consist of stabilized parabolas, ridges and depressions that support coniferous coastal forest on the uplands and deciduous forest or marshes in the low lying wetlands. Estuarine wetlands associated with the Mad River Slough occupy the far eastern side of the CMA.

The discussion of the existing environment is restricted to habitats within the CMA that support or have potential to support, federally listed species. This includes the nearshore dunes and open sand areas west of the coniferous forest. Four main vegetation types have been identified within the nearshore dunes of the Ma-le'l Dunes CMA: dune mat, dune swale, European beachgrass, and lupine-coyote brush scrub (Figure 3).

Dune Mat

Approximately 75 acres of dune mat is found within the Ma-le'l Dunes CMA. Dune mat is characterized by native, perennial forbs, grasses, and low-growing shrubs growing on semi-stabilized nearshore dunes. Overall, plant species diversity is high in this vegetation type but cover is generally low, and open sand is a significant component of the community. In the Humboldt Bay dunes, dune mat is represented by the Sand verbena - beach bursage series described by Sawyer and Keeler-Wolf (1995) and Pickart & Sawyer (1998). Common species of this association include beach bursage (*Ambrosia chamissonis*), yellow sand-verbena (*Abronia latifolia*), beach pea (*Lathyrus littoralis*), dune goldenrod (*Solidago spathulata* ssp. *spathulata*), beach strawberry (*Fragaria chiloensis*), seaside daisy (*Erigeron glaucus*), beach morning glory (*Calystegia soldanella*), dune buckwheat (*Eriogonum latifolium*), dune sagebrush (*Artemisia pycnocephala*), seashore bluegrass (*Poa douglasii*), and beach evening primrose (*Camissonia cheiranthifolia*) (Pickart & Sawyer 1998).

Dune mat provides habitat for two federally listed endangered plant species that occur within the CMA, Humboldt Bay wallflower and beach layia, as well as a number of other special-status plants recognized by the State of California. This habitat has been severely impacted by the spread of invasive exotic species, primarily European beachgrass (*Ammophila arenaria*), yellow bush lupine (*Lupinus arboreus*), and iceplant (*Carpobrotus edulis* x *C. chilensis*), and reportedly has been reduced to an estimated 17% (470 acres) of its original, potential extent in the Humboldt Bay dunes (The Nature Conservancy, unpublished data in Pickart & Sawyer 1998).

Dune Swale

Dune swales occupy approximately 50 acres of the Ma-le'l Dunes CMA. Also known as dune hollows, dune swales are seasonal, freshwater wetlands that form in the nearshore dunes. During the spring and summer months, strong prevailing winds erode the sand down to the summer water table. When the water table rises in the winter, ephemeral ponds are formed and colonized by hydrophytic vegetation.

There are two vegetation types associated with dune swales: herbaceous and woody. Herbaceous swales are typically dominated by Brewer's rush (*Juncus breweri*) and/or slough sedge (*Carex obnupta*), the later being associated with areas that exhibit greater wetland hydrology. Over a period of just a few years, herbaceous swales can succeed to woody swales. Hooker willow (*Salix hookeriana*) is usually the first to colonize herbaceous hollows, sometimes followed by beach pine

(*Pinus contorta* var. *contorta*), wax myrtle (*Myrica californica*), red alder (*Alnus rubra*), and occasionally Sitka spruce (*Picea sitchensis*). Woody swales often have an understory dominated by Brewer's rush and/or slough sedge, and associated species in both vegetation types include Pacific silverweed (*Potentilla anserina* ssp. *pacifica*), springbank clover (*Trifolium wormskioldii*), and California blackberry (*Rubus ursinus*).

The Natural Heritage Program of the California Department of Fish and Game does not distinguish dune swales from other freshwater marshes and swamps, however for management purposes they are mapped separately from other wetlands located within the CMA because of their distinctive flora and geomorphology. Vegetated dune swales such as those described from the Ma-le'l Dunes CMA are considered Waters of the U.S. and are regulated by the United States Army Corps of Engineers under section 404 of the Federal Clean Water Act. They also fall within the jurisdiction of the California Coastal Commission as Coastal Act wetlands. Dune swales can provide important habitat for a variety of wildlife species, including songbirds, raptors, small mammals (including bats), amphibians and reptiles.

European Beachgrass

Approximately 25 acres of European beachgrass occur at the Ma-le'l Dune CMA. Native to coastal dunes in Europe, European beachgrass is a prolific, rhizomatous grass that was introduced to the North Spit of Humboldt Bay in the early 1900's, where it was planted to stabilize moving sand (Pickart & Sawyer 1998). In northern California and Oregon, it is known to substantially alter the physical and biological conditions of the natural dune environment, consequently leading to a loss of native vegetation (Pickart & Sawyer 1998).

In the Humboldt Bay dunes, European beachgrass has displaced much of the native dunegrass (*Leymus mollis*) and dune mat vegetation. Few species are found in association with the European beachgrass series, but relict native species can occur in and on the periphery of this vegetation type. Foredunes dominated by European beachgrass tend to form steep, continuous ridges oriented parallel to the beach. These stabilized foredunes experience few "blowouts," reducing sand movement to the interior dunes.

Restoration efforts of native dune vegetation often involve the eradication of European beachgrass and other invasive exotics such as yellow bush lupine and iceplant. Efforts to eradicate non-native species from the nearshore dunes and forest have been underway for several years on the BLM Manila Dunes and since 1992 on the USFWS Fernstrom-Root parcel, and have been successful. The agencies have begun to focus restoration efforts on their new respective acquisitions, the Khoaghali and Buggy Club parcels. The majority of the existing European beachgrass within the Ma-le'l Dunes CMA is found within the newly acquired, former "Buggy Club" parcel at Ma-le'l North, where restoration efforts are currently underway.

Lupine–Coyote Brush Scrub

The lupine-coyote brush scrub vegetation type occupies approximately 10 acres within the CMA, and is primarily found in the nearshore dunes of the newly acquired "Buggy Club" parcels at Ma-le'l North and Ma-le'l South. It is characterized by the presence of two shrub species, yellow bush lupine (*Lupinus arboreus*) and coyote brush (*Baccharis pilularis*), which occur in varying degrees of dominance and cover. Wax myrtle and twinberry (*Lonicera involucrata*) may also be associated with this vegetation type, although these shrubs occur in lower cover values. The shrub canopy may be intermittent or continuous, but is typically less than 2 m (6.6 ft) in height (Pickart & Sawyer 1998).

The ground layer is variable, but European beachgrass and exotic annual grasses such as ripgut brome (*Bromus diandrus*), European hairgrass (*Aira caryophylla* and *A. praecox*), and vulpia (*Vulpia bromoides*) are common in the understory.

Yellow bush lupine is believed to be native between Sonoma and Ventura counties but has become naturalized locally. It is considered an invasive exotic species in Humboldt County where, like European beachgrass, it has a history of being planted to stabilize coastal dunes (Sawyer and Keeler-Wolf 1995). Yellow bush lupine acts as a catalyst for the invasion of other non-native species by increasing the levels of organic matter and releasing nitrogen to the surrounding substrate, thereby diminishing the competitive advantage native species' have on the otherwise low-nutrient sand dunes (Pickart & Sawyer 1998). Although coyote brush is a native species, it is typically found on degraded dunes that have previously been stabilized by European beachgrass and/or yellow bush lupine.

Open Sand Areas

Open sand is the mapping unit used to delineate the beach and the moving dunes within the CMA that are primarily unvegetated. Also referred to as the littoral strip, the upper beach represents the area of loosely compacted sand that occurs between the tidal wash zone and the foredune. Abiotic factors, rather than stabilizing vegetation, influence the landscape here. High winds, waves, cyclic tidal inundation and sand transport by littoral action severely restrict plant growth. Drift accumulates here and new dunes form if the beach is accreting (i.e. expanding). Pioneer plant species such as the exotic but non-invasive sea rocket (*Cakile maritima* and *C. edentula*) and native dunegrass (*Leymus mollis*) may establish in the summer and fall, but are frequently removed by winter storm activity. European beachgrass may also colonize open sand areas, leading to the creation of very high, stable foredunes.

Moving dunes to the east also support little to no vegetation; however, sea rocket, yellow sand verbena, and the invasive European beachgrass are known to occur. These active, unstable, and windblown dunes do not provide optimal habitat conditions for endangered plants or associated dune mat species. However, the federally endangered beach layia is occasionally found growing here, although in relatively low density.

Species Accounts and Status within the Action Area

Humboldt Bay Wallflower

Federal Status: Endangered (1992)

The Humboldt Bay wallflower (*Erysimum menziesii* ssp. *eurekaense*) was listed as endangered under the Federal ESA in March of 1992, and is included in the 1998 Recovery Plan for Seven Coastal Plants and the Myrtle's Silverspot Butterfly (USFWS 1998). It is one of four subspecies of Menzies' wallflower (*Erysimum menziesii*), three of which are federally recognized as endangered with a collective distribution over three coastal dune systems in Humboldt, Mendocino, and Monterey counties. Humboldt Bay wallflower is a local endemic, restricted to the nearshore dunes around Humboldt Bay. The majority of the population occurs on the Samoa Peninsula (North Spit), although isolated subpopulations have also been documented on the South Spit and Elk River Spit of Humboldt Bay (Pickart & Sawyer 1998).

Humboldt Bay wallflower primarily grows on the flanks and crests of nearshore dunes in the dune mat community, usually in clustered patches ranging from a few to hundreds of individuals. The wallflower is also known to occur in suboptimal habitats such as open sandy areas and on the borders of lupine scrub and herbaceous swales. It is not usually found growing in dense vegetation where invasive species are dominant.

Humboldt Bay wallflower is a member of the mustard family (Brassicaceae). Its life history is that of a semelparous (monocarpic) perennial, meaning that it flowers and produces fruit only once during its life, after which, it dies. The wallflower forms a basal rosette of leaves that may persist for up to eight years before flowering. Blooming typically occurs from March through April, although it may begin as early as late February. The fruits mature by mid-June. The seeds remain attached to the fruit walls after dehiscence, and disperse over a long period, primarily in conjunction with winter storm events that dislodge the mature inflorescences and scatter them by way of a tumbling action (Pickart and Sawyer 1998). Fecundity is high, with individual plants producing numerous seed; however, the wallflower does not have a persistent seed bank (Carothers 1996) and seedling survivorship is low, with 98.3% mortality shown to occur in the first year (Pickart and Sawyer 1998). Reproduction may also be hindered by infestation of *Albugo canadensis*, an endemic fungal pathogen that causes crucifer white rust disease in the local subspecies. Disease symptoms are more prevalent on reproductive individuals, where they can decrease fecundity by reducing seed number or viability (Pickart & Sawyer 1998).

A primary threat to Humboldt Bay wallflower at the Ma-le'l Dunes CMA is displacement from invasive non-native species, particularly European beachgrass, yellow bush lupine, ice plant, and jubata grass (*Cortaderia jubata*). Management strategies for the recovery of the wallflower have focused primarily on control and eradication of these species. Other conceivable threats to the wallflower within the Ma-le'l Dunes CMA include actions that cause habitat degradation and destruction or mortality of individual plants, such as facility development, vehicle trespass, episodic and high intensity use by pedestrians or horses, and wildlife predation and disease (USDI-BLM 2004b).

Population and Distribution

The Recovery Plan written in 1998 described six extant occurrences of Humboldt Bay wallflower, with an estimated population size of 18,800 individuals occupying approximately 2,235.7 acres. The South Spit colony occurring on private land owned by Texaco was reported to have 178 plants in 1991 and only 75 plants in 1998 (USFWS 1998).

More recent survey efforts place the population size higher than estimates reported in the Recovery Plan. In 1989, Andre and Sawyer sampled wallflowers larger than 3 cm (1.2 in) in diameter on the North Spit, and estimated the population at 20,657 plants \pm 2,344 (95% confidence intervals) (Pickart & Sawyer 1998). Nine years later (1998), the Nature Conservancy re-sampled the North Spit population using the same methods and found that the population had increased to 29,657 (\pm 5,263), but noted that the increase was not consistent among all North Spit colonies, some of which had declined (Pickart & Sawyer 1998). The North Spit has had a considerable amount of restoration work and invasive plant removal since 1988, which is thought to be correlated to the increase in wallflowers.

Also in 1998, a previously undocumented colony of wallflower was discovered on the Elk River Spit, a census conducted in 2000 revealed a population total of 3,782 plants over 2 cm in diameter, of which 13% were reproductive; and a total of 6,066 plants < 2 cm in diameter (USFWS unpublished data). In 2002, the USFWS re-surveyed the South Spit colony and found a total of 133 individuals (excluding small rosettes less than 2 cm in diameter), of which 32 percent were reproductive. By 2006, the South Spit colony had increased to 457 plants (excluding small rosettes) of which 33 percent were reproductive (Clifford 2006). This increase is attributed to the caging of flowering individuals, which were being grazed by deer.

Population and Distribution within Action Area

In 2006, the USFWS completed a third population-wide survey for Humboldt Bay wallflower; however, population size data will not be available before completion of the Ma-le'1 Dunes Coastal Access Plan Biological Assessment. The current (2006) distribution of the wallflower was provided and mapped for the CMA as shown in Figure 4. Preliminary observations indicate that the population has increased in range and probably in size (Andrea Pickart, pers. comm.).

Between 2003 and 2005, the Center for Natural Lands Management (CNLM) served as a liaison for the acquisition and transfer of the Fernstrom-Root parcel and the two former Khoaghali and Buggy Club parcels from private ownership to the USFWS and the BLM. In 2004, CNLM surveyed and mapped the population of Humboldt Bay wallflower within what is now referred to as Ma-le'1 North. CNLM estimated the population within two macroplots (representing close to the total population) at 1,040 wallflowers with a 95% confidence interval of ± 297 individuals (USFWS unpublished data *in* EDAW 2005).

The BLM reports that in 1997 the 112-acre Manila Dunes ACEC had approximately 500 individuals of wallflower with a standard error of about 55 (USDI-BLM 2004b). Most of the wallflower was found in the north half of the property, and no wallflower has been seen within BLM's newly acquired, 42-acre parcel Khoaghali parcel as of 2006.

Based on the 1997 population-wide survey, the wallflower at the Ma-le'1 Dunes CMA (using the most recently available sampling data from CNLM, BLM, and USFWS) represents approximately 5.1% of the entire population of Humboldt Bay wallflower, and 5.2% of the North Spit population.

Beach Layia

Federal Status: Endangered (1992)

Beach layia (*Layia carnosa*) was listed as endangered under the federal ESA in March of 1992, and is included in the *1998 Recovery Plan for Seven Coastal Plants and the Myrtle's Silverspot Butterfly* (USFWS 1998). This species is found in coastal dune systems from Vandenberg Air Force Base in Santa Barbara County north to Freshwater Lagoon in Humboldt County (CNDDDB 2006). It occurs in greatest abundance in Humboldt County, and in particular, on the North Spit of Humboldt Bay (USFWS 1998).

In the Humboldt Bay dunes, beach layia is found primarily on nearshore dunes in the dune mat community. It occurs in lower densities along margins of lupine scrub, herbaceous hollows, and open areas with moving sand. It is also known to tolerate disturbed and gravelly soils along roadsides, vehicle trails, and footpaths (Duebendorfer 1992). Beach layia readily colonizes newly created bare sand areas, and is resilient to disturbance; however, it does not tolerate competition with other plants and does not establish in areas where there is high cover of native or non-native plants.

Beach layia is an annual herb that belongs to the sunflower family (Asteraceae). It germinates in mid-winter during the rainy season and typically blooms from March to May, completing its life cycle by late spring. Seeds are dispersed mostly by wind in late spring and summer. The number of seed-heads produced by individual plants varies in relation to plant size. Short, unbranched, erect plants growing on dry, exposed sites may produce only a single head, whereas taller, highly branched individuals found in moist dune swales may produce as many as 100 seed heads (USFWS 1998).

Loss of habitat due to coastal development, encroachment of non-native plant species, and trampling by vehicles and pedestrians are all factors that contribute to the decline in numbers of this species. Beach layia is most susceptible to trampling effects during its growing season from mid-winter to late

spring. However, a certain amount of disturbance during the off-season may favor beach layia by opening up areas for colonization (Botanica Northwest Associates 1992).

Population and Distribution

Beach layia is currently known from approximately 20 occurrences over eight dune systems (representing approximately 1,390 acres) between Humboldt County and Santa Barbara County. The largest population reportedly occurs on the North Spit of Humboldt Bay. Five historical occurrences in San Francisco, Monterey, and Humboldt counties are believed to have been extirpated (USFWS 1998). The population distribution of beach layia does not lend itself well to the CNDDDB definition of "occurrences." There is a disjunct occurrence at Freshwater Lagoon (Redwood National Park; less than one acre). Beach layia then occurs in a patchy fashion along a semi-continuous corridor from Mad River Park south to the Samoa Dunes Recreation Area, on a combination of private, NGO, local, state, and federal government properties. Populations continue along the South Spit (BLM managed), Eel River Wildlife Area (Department of Fish and Game), and the vicinity of McNutt Gulch and the mouth of the Mattole River (private and BLM).

The following distributional information for Marin, San Francisco, Monterey, and Santa Barbara counties is taken from the Recovery Plan, dating from the 1990s (no updated information is available (USFWS 1998): The Marin County occurrences are located in the dunes between Kehoe Beach Dunes and Point Reyes lighthouse at Point Reyes National Seashore. Surveys by California Native Plant Society (CNPS) volunteers have recorded thirteen colonies along the dune complex at Point Reyes. An occurrence in Golden Gate Park on the San Francisco Peninsula has been extirpated since 1904. The Monterey Peninsula dune system had four occurrences, although the Point Pinos site is thought to have been extirpated. After it had been reported as extirpated, an occurrence at Asilomar State Beach was rediscovered following the removal of iceplant. Additional occurrences have been discovered on neighboring private property. Two beach layia occurrences exist on north Spyglass Hill and on the nearby Spyglass Hill dunes. In April 1995, David Keil rediscovered a small occurrence (80 plants) of beach layia on Vandenberg Air Force Base, Santa Barbara County. During a subsequent visit to the site an additional 200 individuals were discovered closer to the ocean bluffs.

The total range wide population size of beach layia is estimated in the Recovery Plan at 300,000 individuals. This estimate was acquired mostly from informal estimates of populations made across the range prior to 1998, and it did not include an estimated 19,400 plants documented in 1993 from the Eel River Wildlife Area, or the population at the Lanphere Dunes Unit that had been estimated at +/- one million. The historical data is considered of limited value due to large annual fluctuations in both population size and local distribution, and the frequent underestimation of population size in small annual species such as beach layia.

A 1992 pilot study of field sampling methods conducted by Botanica Northwest found an estimated 2.5 million individuals \pm 750,000 on the North Spit (Botanica Northwest Associates 1992). The 2005 sample of beach layia at the Lanphere Dunes Unit estimated at total of 1.5 million plants +/- 320,000 (USFWS unpublished data). A statistical protocol was also implemented by the BLM and USFWS in May 2003 to estimate the beach layia population on the South Spit of Humboldt Bay. That data has not yet been fully analyzed, but preliminary analysis suggests the total South Spit population may exceed 5 million plants (unpublished data on file, BLM Arcata), further suggesting that the summary of occurrence data in the Recovery Plan may grossly underestimate the true range wide population of beach layia. Redwood National Park personnel estimated the beach layia population at Freshwater Spit in 2003 at just over 11,000 plants (Redwood National Park 2003 in USFWS) Based on these estimates, the total number of beach layia occurring around Humboldt Bay and Redwood National

Park likely exceeds 5 to 6 million. Population estimates for sites located south of Humboldt County are not available.

Population and Distribution within Action Area

Beach layia was surveyed and mapped by CNLM in May 2004 at Ma-le'l North, where it was found to occupy approximately 6.4-acres (Figure 4). Density was estimated at 3.8 individuals/m² ± 1.3 (95% confidence interval) by sampling a single, 0.6-acre macroplot (USFWS unpublished data in EDAW 2004). The BLM reports that beach layia is abundant throughout the foredunes of Ma-le'l South, and is increasing where invasive weed eradication efforts have occurred. Completion of invasive weed eradication over the nearshore dunes of the newly acquired, 42-acre former Khoaghali parcel is expected to boost beach layia density and distribution on about 10 acres (USDI-BLM 2004b). Ongoing restoration at Ma-le'l North is also expected to result in increased population of beach layia at that site.

Western Snowy Plover

Federal Status: Threatened (1993)

In 1993, the USFWS listed the coastal population of the western snowy plover (*Charadrius alexandrinus nivosus*) as a threatened population under the federal ESA (USFWS 1993) and designated critical plover habitat in September 2005 (USFWS 2005). The plover was listed based on evidence of a significant population decline, as well as a reduction in the number of breeding locations. Just prior to the time of listing, estimates (Page et al. 1991) placed the California population at 1,386 plovers, down 11 percent from the 1,565 plovers estimated a decade earlier (Page and Stenzel 1981). In 2000, a statewide breeding survey indicated a further decline of ~30% to 976 plovers in California (Page, unpublished data).

Two petitions to remove the coastal population of the western snowy plover from the Federal List of Threatened and Endangered Species, the first filed in September 2002 by the Surf Ocean Beach Commission of Lompoc, California and the second filed in May 2003 by the City of Morro Bay were submitted to the USFWS. These petitions contend that the coastal population does not qualify as a distinct population unit and therefore, is not threatened. The USFWS initiated status reviews on 22 March 2004 upon finding that the petitions presented substantial information to warrant consideration of delisting (69 FR 13326). The 12-month finding on the delisting petitions was completed April 12, 2006, reconfirming the Pacific coast western snowy plover's status as threatened (71 FR 20607).

The causes of the western snowy plover's population decline were determined to be a combination of the following: 1) increased human recreational use of beach habitats (including off-highway vehicle (OHV) traffic); 2) alteration of nesting habitat from encroachment by European beach grass (*Ammophila arenaria*); and 3) predation of eggs and young by corvids (*Corvus brachyrhynchos*, *C. corax*), gulls (*Larus* spp.), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). These three factors either reduce reproductive and survival rates or cause plovers to avoid otherwise suitable habitat. Currently, plovers breed in coastal habitats (salt pans and levees, dredge spoil islands, river gravel bars, and unvegetated ocean beaches) at 28 locations from the central Washington coast to Baja, Mexico (USFWS 1993).

As part of the recovery plan, the USFWS designated Mendocino, Humboldt, and Del Norte counties as a discrete management unit (Recovery Unit 2), one of six management units within the range of the listed population. Within Unit 2, snowy plovers breed and over-winter along ocean beaches and along the lower Eel River gravel bars. The majority of plovers breeding in Recovery Unit 2 occur in Humboldt County.

Historical records and recent surveys (Page and Stenzel 1981, Fisher 1992-94, LeValley 1999, Page unpublished data) indicate the importance of Humboldt County to breeding plovers. In 1977, Page and Stenzel (1981) found 64 birds (18 nests) at seven locations in the county and estimated that this represented 6% of coastal plovers breeding in California, and that Humboldt County had more plovers than any other location north of Monterey. During the breeding seasons of 1992-1994, Fisher conducted surveys of beach habitats and estimated 22-32 plovers initiated 17-26 nests. More recently, LeValley (1999) estimated that 49 birds (23 nests) bred at four locations in 1999; Interestingly, LeValley noted that plovers were absent from at least five beach sites where they were reported nesting by Page and Stenzel (1981) or Fisher (1992-1994). In 2000, this same area supported about 40 adults and 42 nests (McAllister et al. 2001). Over the past 6 years (2001-2006), increased research efforts provided estimates of 57-74 breeding plovers annually in Recovery Unit 2, nearly all of which were in Humboldt County (Colwell et al. 2006).

Historically, snowy plovers nested along much of the once open beaches of Humboldt County, including the north spit of Humboldt Bay, possibly within the area that now comprises the Ma-le'l Dunes CMA. Harris (1996) noted that two sets of eggs were collected from the ocean beach near Samoa on April 27, 1902 (M. and J. Davis *in* Harris 1996). However, following the introduction of European beachgrass to the west coast in the late 1800's and its subsequent encroachment onto Humboldt County beaches, local snowy plover use patterns have changed. The European beachgrass invasion has led to the stabilization of many of Humboldt's dune systems and the loss of open sand available for habitat. This has drastically changed the suitability of much of the County's coastline for the snowy plover, as the species requires open sand for breeding. Within the CMA, the ocean regularly reaches the base of the foredune at high tide, even during the breeding season, both in areas that were altered by European beachgrass and in those that have never been invaded.

Inter-agency breeding season (March-September) surveys conducted approximately once per month since 1997 on the north spit of Humboldt Bay, including the beaches (but not the back dunes) within the CMA, have not detected snowy plovers. Annual winter surveys of the same areas have also failed to record plovers. However, Ron LeValley reported the observation of a non-breeding individual in the vicinity in 1996, south of the Mad River Slough and Dunes CMA on the adjacent BLM property (LeValley, pers. comm.). More recently, five snowy plovers were observed on 17 December 2005 during the Arcata Christmas Bird Count. These birds were recorded on the north spit just west of the Fairhaven Electric building, approximately 6 miles south of the Ma-le'l Dunes CMA (Kerry Ross, pers. comm.). Currently the closest known breeding locations for plovers in relation to the CMA are at Mad River Beach, approximately 4.5 miles north of the action area and at the south spit of Humboldt Bay, approximately 8 miles south of the action area (Colwell et al. 2006).

Although the beach at the Ma-le'l Dunes CMA appears too narrow to support breeding western snowy plover, the back dunes do represent suitable breeding habitat. Plovers are known to nest in back dune areas from a number of coastal locations in Oregon and southern California, including beaches backed by steep dunes such as at Oceano Dunes State Vehicular Restoration Area. Locally, plovers are known to nest in back dunes at Clam Beach.

California Brown Pelican

Federal Status: Endangered (1970)

The brown pelican is a large waterbird of temperate and subtropical North American marine and estuarine waters. Truly inland occurrences in California (away from the vicinity of the Salton Sea) are unusual, particularly so in the northern portion of the state.

The species breeds along the Atlantic Coast from Chesapeake Bay (recently) south through the Gulf of Mexico and into coastal South America and on the Pacific Coast from southern California southward along the west Mexican coast into South America (Galapagos Islands). Along temperate North American coasts, birds annually move northward following the breeding season. Along the West coast, large numbers occur from mid-summer through fall northward to southwestern Washington and sparingly to Puget Sound and southwestern British Columbia.

Brown pelicans reach the northern limit of their breeding range on the Pacific Coast along the southern half of the California coast. Historically, breeding populations of these birds in southern California have fluctuated in response to environmental conditions. Current thought suggests that these populations increase during periods of ocean warming (Baldrige 1973, Anderson and Anderson 1976). The brown pelican breeds regularly in California only on West Anacapa Island and has nested only rarely elsewhere in the Channel Islands, specifically on Prince Island, Santa Cruz Island, and Santa Barbara Island. Adding evidence to the case for continued resurgence of the species were hundreds of brown pelicans that initiated nesting at Pt. Lobos State Reserve, Monterey County during April and May 2000 (Terrill et al. 2000). The previous successful nesting there was in 1959 and the most recent attempt was in 1966. The possibilities exist that the species may re-establish small breeding colonies along the central California coast or colonize previously unutilized sites.

Nesting habitat consists of coastal islands just outside the surf line. A colonial nester, the brown pelican typically nests on small-to moderately sized islands to avoid predation by ground-dwelling species.

In the late 1960s and early 1970s, the reproductive success of brown pelicans declined considerably in California and northern Mexico. From 1969 to 1971, only 12 chicks fledged out of 2,368 nesting attempts (Gress et al. 1973, Anderson and Anderson 1976). The breeding failures of pelicans during this period were related to the high levels of DDE, the principal metabolite of DDT, in the marine environment (Schreiber and DeLong 1969, Schreiber and Riseborough 1972, Jehl 1973, and Anderson 1976).

Reproductive success of brown pelicans can vary markedly from year to year. Changes in oceanographic conditions and in the distribution and abundance of forage fish are two interrelated factors that may account for this fluctuation.

Critical Habitat has not been designated for brown pelican.

Brown pelican uses the near-shore Pacific Ocean and the offshore rocks and islands of the California coast for roosting and loafing sites and nests offshore. Nesting habitat consists of coastal islands just outside the surf line. A colonial nester, the brown pelican, typically nests on small-to moderately sized islands to avoid predation by ground-dwelling species.

Brown pelican uses Humboldt Bay extensively during the non-breeding season for foraging, loafing, and roosting habitat. However, no nest sites for the species are known north of Monterey Bay.

Effects of the Proposed Action

Endangered Plants

The Ma-le'l Dunes CMA contains important habitat for both Humboldt Bay Wallflower and beach layia. Activities associated with the proposed action that have the potential to adversely affect these species include any activity that may cause ground disturbance within endangered plant areas. This includes the expansion of the existing trail system within the nearshore dunes and the anticipated increase in foot traffic in these areas upon implementation of the access plan, construction of the foot

bridge over the seasonal wetland, and the installation of signs within or adjacent to endangered plant areas.

Approximately 354 linear feet of new trail will pass through or immediately adjacent to (within 50 feet) endangered plant areas. Most of this “new trail” represents existing casual trails that pass through areas that support beach layia. Beach layia is locally abundant within the dune mat vegetation type on the North Spit, but it is also known to occur in lower densities within open sand areas such as the proposed trail alignment within the nearshore dunes of the CMA. Foot traffic in these areas has the potential to damage or destroy seed and/or reproductive individuals that occur in these locations or that may colonize in the future. Given the relatively high density of beach layia within the Humboldt Bay dunes, and on the North Spit in particular, adverse impacts to individuals that may inhabit the trail are not considered significant for the population as a whole.

The proposed trail alignment avoids all known occurrences of Humboldt Bay wallflower, however, it passes immediately adjacent to one significant occurrence of wallflower near the Ki-mak Trail at Ma-le’l North, and two smaller areas near the Latkak Trail at Ma-le’l South. The distribution map (Figure 4) shows the trail alignment abutting these locations; however, for clarification it should be noted that the trail directs foot traffic around these occurrences, and at Ma-le’l North, is positioned within a swale at the base of the dune that supports wallflower on its upland flanks.

Direct impacts to wallflower could result from pedestrians leaving the trail corridor and walking within areas where this species occurs, potentially crushing vegetative rosettes, seed, or reproductive individuals. Ground disturbance associated with off-trail foot traffic may also indirectly affect wallflower by causing degradation of suitable habitat areas (i.e. dune mat). The wallflower and beach layia may also establish near or within new or existing trails where an increase in ground disturbance associated with foot traffic may create open areas suitable for the establishment of these species, thus increasing the chance of mortality for those individuals. In addition, potential unauthorized pedestrian/equestrian access from the CMA to adjacent properties, including the Lanphere Unit of HBNWR, may have indirect impacts on rare plants that occur offsite.

The proposed alignment of the trail is considered the least damaging alternative to the Humboldt Bay wallflower, beach layia and associated dune mat habitat while providing consideration for the protection of sensitive cultural resources that also occur within the CMA. The areas where Humboldt Bay wallflower was observed growing near the proposed trail, and elsewhere throughout the CMA, are considered excellent habitat for the species. At Ma-le’l South, there are no known habitat limitations for the expansion of the wallflower on nearshore dunes, although it currently is not found there (pers. comm. Jennifer Wheeler June 16, 2006). Habitat limitations for the wallflower at Ma-le’l North include areas infested by invasive exotic species; however, these limitations would presumably be lifted once restoration activities are complete. The potential for individuals and seed of these species to be adversely impacted from the proposed action or the project alternatives, including the no action alternative, will continue to exist, and may increase as the populations increase in number and distribution within the CMA as a result of on-going restoration and resource management activities.

Although the proposed action is expected to result in an increase in public use of the beach and nearshore dunes, the action also provides for the consolidation of foot traffic by establishing a designated trail system through these sensitive habitat areas. The use of regulatory, boundary and directional trail signs, the decommissioning of various casual trails currently in use, and the monitoring of compliance of public use activities through caretaker presence, law enforcement patrols, and BLM/USFWS staff field visits, is expected to limit public access to endangered plant areas located within the CMA and the adjacent Lanphere Dunes Unit of HBNWR, thereby minimizing impacts to existing populations of Humboldt Bay wallflower and beach layia within the CMA and on

adjacent properties. In addition, through the monitoring of CMA resources and public use activities, BLM and USFWS resource managers will be able to identify where adaptive management strategies may be implemented to protect sensitive resources. This may include installing additional signage or decommissioning trails in areas where damage to natural resources is occurring because of authorized uses or unauthorized access to adjacent properties. Additional protections such as fencing was considered but was felt to be too difficult to maintain in the dune environment and was not compatible with the objectives of the public access plan, which was to minimize fencing throughout the area in order to retain the natural look of the area.

Potential impacts to rare plants from proposed construction activities will be avoided or minimized by incorporating the following measures: 1) oversight of all construction activities occurring within or adjacent to endangered plant areas by a CMA resource manager, 2) timing construction activities such as initial sign installation or bridge construction outside of the beach layia growing season to avoid impacting reproductive individuals, and 3) flagging all occurrences of Humboldt Bay wallflower rosettes located near construction areas prior to commencement of work, and the documentation of all adversely affected individuals by a CMA resource manager.

Furthermore, the USFWS shall implement a conservation measure for Humboldt Bay wallflower that involves seed collection and subsequent dispersal within newly restored areas of the Fernstrom-Root parcel. This measure is designed to facilitate the expansion of the wallflower within the CMA and mitigate for potential adverse impacts from off-trail foot traffic.

In summary, implementation of the proposed project is **likely to adversely affect** individuals and/or seed of beach layia and Humboldt Bay wallflower; however, with the incorporation of minimization and conservation measures, the proposed project is not likely to adversely affect the range-wide populations of beach layia or Humboldt Bay wallflower or existing colonies within the Action Area.

Western Snowy Plover

Although the status of western snowy plover within the CMA is unknown due to inadequate survey effort, suitable breeding habitat for plovers does occur in the back dunes. In addition, it is possible that current restoration and European beachgrass eradication activities will increase open sand in the nearshore dunes near the project area and may improve the habitat for western snowy plover.

Therefore, the proposed project **may affect but is not likely to adversely affect** western snowy plover. Should monitoring efforts reveal the presence of plovers in the CMA during the breeding season, BLM and HBNWR will immediately coordinate with USFWS to determine appropriate protection measures, which would utilize the most current methodologies for plover protection. BLM and HBNWR will also reinitiate consultation if ongoing activities may affect the species.

California Brown Pelican

Suitable breeding habitat for California brown pelican does not occur within the Ma-le'l Dunes CMA and the species is not known to nest anywhere north of Monterey Bay. Therefore, activities associated with the proposed Ma-le'l Dunes Public Access Plan will have **no effect** on California brown pelican.

Cumulative Effects

An undetermined number of future state, Tribal, local or private actions not subject to federal authorization or funding could alter the habitat for and/or increase incidental take of Humboldt Bay wallflower, beach layia, and western snowy plover.

Current and future projects reasonably certain to occur within the action area include restoration activities that are subject to federal authorization or funding and would therefore be covered under an HCP or subject to Section 7 consultation. Both the BLM and the USFWS plan to continue restoration work and weed eradication efforts within the CMA with the assistance of contracted labor, such as the California Conservation Corps and Friends of the Dunes restoration programs. In addition, USFWS will implement restoration activities throughout the nearshore dunes and forest at Ma-le'l North over the next five years with funding from the California Department of Corrections. These projects would not be considered in the cumulative effects analysis; however, activities associated with these projects are not expected to adversely impact listed species. In contrast, they are likely to have a beneficial effect to listed species by restoring essential habitat.

Analysis of Alternative Actions

Alternative B: Multi-Use Throughout and Additional Improvements

Alternative B is similar to the proposed action (Alternative A) in allowing public use throughout the Ma-le'l Dunes CMA, but it would also provide the following additional improvements:

Public Uses:

- Continued and increased off-leash dog walking would be allowed at Ma-le'l North (in addition to Ma-le'l South).
- Equestrian use would also be allowed on the northern portion of the proposed Latkak trail.
- Bicycling riding would be allowed throughout the Ma-le'l Dunes CMA.
- Off-trail pedestrian use would be allowed at Ma-le'l South.
- Off-trail vegetative gathering would be allowed at Ma-le'l South.

Access Infrastructure:

- A pedestrian trail connecting the Ma-le'l South and Ma-le'l North properties through the nearshore dunes would be delineated and marked.
- The access road and parking areas (Ma-le'l South and Ma-le'l North) would be paved with asphalt.

Analysis of Alternative B

The additional public uses associated with this alternative are likely to result in greater impacts to sensitive biological resources within the nearshore dunes compared to the preferred action. In allowing off-leash dog walking at Ma-le'l North, ground disturbance from foot traffic within sensitive habitat areas is likely to be greater since unleashed dogs are not as easily controlled or directed as leashed dogs, and pedestrians may find it necessary to venture outside of the trail corridor to retrieve wandering companions. Opening the northern portion of the Latkak Trail on Ma-le'l south for equestrian use may similarly result in an increase in ground disturbance within the nearshore dunes by establishing a wider trail corridor to accommodate the horses. Extending the equestrian trail also reduces the buffer between existing equestrian use areas and sensitive habitat areas further north where this activity does not occur.

Connecting Ma-le’l South and Ma-le’l North with a pedestrian trail through the nearshore dunes would likely result in greater impacts to endangered plant populations and native dune mat habitat as opposed to the preferred action, which directs pedestrians to walk northward along the wave slope from the end of the Latkak Trail at Ma-le’l South to access the Ki’mak Trail at Ma-le’l North (or visa versa). By directing pedestrians to use the wave slope as opposed to the nearshore dunes, ground disturbance associated with foot traffic is diverted away from habitats that support endangered plant populations. Similarly, allowing off-trail pedestrian use and off-trail vegetation gathering at Ma-le’l South is likely to increase ground disturbance in the sensitive nearshore dune habitats where the rare plants occur.

Alternative C: Protection and Restoration

Alternative C would have the common features of the Plan Alternatives but would limit public use throughout the entire Ma-le’l Dunes CMA to pedestrian use only with permit and via docent-led tours and restoration workdays. Specifically, the proposed actions of Alternative C would include the following:

Public Use

- The day use/picnic area located at Ma-le’l South and trails currently designated as beach hiking trails at Ma-le’l South would continue to be open to the public for pedestrian use. Forest hiking trails and beach trails currently used for equestrians and dog walking at Ma-le’l South would be closed to these uses and would be only available for pedestrian use by permit and via docent-led tours and field trips. Ma-le’l North would only be open for docent-led pedestrian use, tours, and field trips.
- The gates to Ma-le’l North would be locked at all times, and accessible only by key for authorized activities (e.g., guided walks, restoration activities, and gathering by the Wiyot).

Access Infrastructure

- A maintenance plan for the access road would be prepared and implemented but the road would not be improved.
- A coordinated signing program limited to the provision of an entry, boundary/no trespassing, and regulatory signage would be designed and implemented.

Analysis of Alternative C

No adverse impacts to federally listed species were identified under Alternative C. Limited public access allowed by special permit and via docent-led tours and field trips is expected to provide for the protection of biological resources by ensuring that visitors to the CMA avoid endangered plant populations and sensitive habitat areas. Limiting public access, along with continued management of the CMA through habitat restoration, is expected to benefit populations of Humboldt Bay wallflower and beach layia more than the preferred action.

Alternative D: No Action

In the No Action alternative the current situation as described under Site History and Current Uses in the Access Plan would continue. Specifically, interim improvements and management at Ma-le’l South would continue and pedestrian trails and beach access through the nearshore dunes would not

be extended. Access to Ma-le'l North would continue to be limited to monthly walks by special permit and restoration workdays. In addition, pedestrian trails and beach access throughout the nearshore dunes of Ma-le'l North (where biological species of concern and cultural resources are present) would not be delineated or marked. Parking at the Pacific, Gas & Electric power tower trail would continue to pose potential pedestrian–vehicular conflicts. The access road to Ma-le'l North and associated parking lot would not be improved and signage would not be installed. Trails throughout the forest and to beach access points would remain unmarked and unsigned.

Analysis of Alternative D

The No Action Alternative was considered and analyzed but determined to be inconsistent with cooperative management goals identified by the BLM and USFWS for the Ma-le'l Dunes CMA, which are to protect the natural and cultural resources of the area and provide safe public access throughout the CMA.

Under Alternative D sensitive habitat areas and endangered plant populations located within Ma-le'l North would not be afforded the same protection because the signing program, fencing, decommissioning of casual, monitoring of compliance through caretaker presence proposed under Alternative A would not be implemented. Illegal entry to Ma-le'l North would continue to pose a potentially significant threat to biological resources because illegal visitors would continue to use a vast network of casual trails throughout the CMA and encourage further "trail blazing" throughout the site by visitors. This is an unmitigated potentially significant impact. Existing public uses at Ma-le'l South would continue, however, biological resources would be less protected because of the lack of caretaker presence.

Conclusions and Determinations

Humboldt Bay Wallflower

The project activities associated with the Ma-le'l Dunes Public Access Plan are **likely to adversely affect** individuals of Humboldt Bay wallflower; however, project activities are not likely to adversely affect the CMA or range-wide population of Humboldt Bay wallflower with incorporation of minimization and conservation measures. The State Coastal Conservancy will request concurrence from the U.S. Fish and Wildlife Service.

Beach Layia

The project activities associated with the Ma-le'l Dunes Public Access Plan are **likely to adversely affect** individuals of beach layia; however, project activities are not likely to adversely affect the CMA or range-wide population of beach layia with the incorporation of minimization measures.

Western Snowy Plover

The project activities associated with the Ma-le'l Dunes Public Access Plan are **not likely to adversely affect** western snowy plover.

California Brown Pelican

The project activities associated with the Ma-le'l Dunes Public Access Plan will have **no effect** on California brown pelican.

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APPENDIX C: MITIGATION AND MONITORING PROGRAM

INTRODUCTION

This Mitigation Monitoring Program was developed for the Mitigated Negative Declaration which was prepared for the Ma-le'l Dunes Cooperative Management Area Public Access Project pursuant to the California Environmental Quality Act (CEQA).

Section 15097 of the Guidelines for CEQA requires a program for mitigation monitoring or reporting when a public agency adopts a mitigated negative declaration in conjunction with approving a project. The purpose of the Mitigation Monitoring Program is to ensure that the mitigation measured outlined in the Initial Study for avoiding potential significant impacts are implemented.

The landowners and managers, the Bureau of Land Management and the Fish and Wildlife Service will monitor project implementation to ensure that mitigation measures are being incorporated.

Mitigation Measure 1:

Planned improvements would occur during the dry season in seasonal wetlands and would incorporate Best Management Practices (BMPs) to control sediment transport, such as conducting work during low tide, and use of silt fencing if necessary.

Timing for Implementation/ Compliance: During construction phase

Person/ Agency Responsible for Monitoring: Contractor, USFWS, BLM

Monitoring Frequency: Continuous during period of construction

Evidence of Compliance: Lack of turbidity in adjacent waters upon visual inspection

Mitigation Measure 2:

During the breeding season for birds likely to breed in the Ma-le'l Dunes Cooperative Management Area (CMA) (February 15 to August 15), construction activities and routine maintenance would utilize only non-mechanized equipment. Only hand tools and clippers would be allowed during this period, except to address emergency and/or public safety conditions when mechanized equipment would be allowed. The use of mechanized equipment within the breeding season for birds likely to breed in the Ma-le'l Dunes CMA to address emergency conditions would be conducted at the discretion of the Ma-le'l Dunes CMA managers.

Timing for Implementation/ Compliance: During breeding period February 15 to August 15.

Person/ Agency Responsible for Monitoring: Contractor, USFWS, BLM

Monitoring Frequency: Prior to scheduling of construction activities or routine maintenance.

Evidence of Compliance: Log of activities and maintenance conducted, date, and type equipment used.

Mitigation Measure 3:

The USFWS will implement Humboldt Bay wallflower seed collection from existing populations on the adjacent Lanphere Dunes Unit, and subsequent dispersal within newly restored areas of the Fernstrom-Root and Ma-le'1 parcels. This measure is designed to facilitate the expansion of the wallflower within the CMA and mitigate for potential adverse impacts from off-trail foot traffic. The refuge will obtain a recovery permit.

Timing for Implementation/ Compliance: During the first season of operation of the CMA.

Person/ Agency Responsible for Monitoring: USFWS

Monitoring Frequency: To be determined by USFWS

Evidence of Compliance: To be determined by USFWS

Mitigation Measure 4:

All construction activities occurring within or adjacent to endangered plant areas would be supervised by Ma-le'1 Dunes CMA resource managers and would take place outside of the growing season to avoid impacts to reproductive individuals. In addition, before the commencement of work and when species are clearly visible all occurrences of Humboldt Bay wallflower rosettes (reproductive season is approximately March 1 through the end of the summer), beach layia (reproductive season is March to May), Humboldt Bay owl's-clover (reproductive season is May through July), Point Reyes bird's-beak (reproductive season is approximately June 1 through end of summer), and other rare plant species located near construction areas would be flagged and the CMA resource managers would document any adversely affected individuals.

Timing for Implementation/ Compliance: Prior to commencement of construction activities

Person/ Agency Responsible for Monitoring: USFWS, BLM

Monitoring Frequency: Prior to initiation of any construction activity

Evidence of Compliance: Visual or written verification that no endangered species were disturbed.

Mitigation Measures 5:

One hundred seventy-five square feet (175 sf) of high salt marsh habitat (6.4 to 8.9 feet above mean-low-low-water) that is dominated by dense-flowered cordgrass (*Spartina densiflora*) would be restored with pickleweed (*Salicornia virginica*) and saltmarsh (*Distichlis spicata*) and maintained as such as mitigation for the installation of the canoe/kayak landing/launching ramp.

Timing for Implementation/ Compliance: Mitigation for loss of wetland habitat would begin immediately following the construction of the ramp.

Person/ Agency Responsible for Monitoring: USFWS

Monitoring Frequency: Prior to, upon completion of construction activities

Evidence of Compliance: One hundred and seventy five sf of high salt marsh dominated by pickleweed and saltgrass.

Mitigation Measures 6:

The development of a maintenance program for the forest trails in Ma-le’l North to ensure that routine vegetation clearing does not adversely affect locally rare plants identified by the CMA resource managers.

Timing for Implementation/ Compliance: Prior to the commencement of any vegetation clearing along the trails or routine maintenance.

Person/ Agency Responsible for Monitoring: USFWS

Monitoring Frequency: Annually, when routine maintenance along forest trails occurs.

Evidence of Compliance: Visual inspection that no rare plants were disturbed.

Mitigation Measure 7:

In the event any undiscovered paleontological, archaeological, ethnic, or religious resources are encountered during grading or construction-related activities, in compliance with the state and federal law, all work within 100 feet of the resources shall be halted, the archaeologist for the land managing agency will be contacted, and the Plan applicants shall consult with a registered professional archaeologist and designated representatives of the Wiyot Tribal Governments to assess the significance of the find and formulate further mitigation. This would include coordination with the Native American Heritage Commission. The Native American Heritage Commission would contact the Wiyot Tribal Governments, as deemed necessary, to assist in assessing the significance of any find. If any find is determined to be of significance, the USDI-BLM and , FWS, and an appropriate representatives of the Wiyot Tribal Governments qualified archaeologist would meet to determine the appropriate necessary course of action. Pursuant to the California Health and Safety Code Section 7050.5, if human remains are encountered, all work would cease and the County coroner would be contacted. The county coroner and Native American Heritage Commission would be charged with determining if the human remains are of Native American origin.

Timing for Implementation/ Compliance: During all ground disturbing activities and/or during course of operation of the CMA.

Person/ Agency Responsible for Monitoring: USFWS, BLM, Wiyot Tribe

Monitoring Frequency: Continuous during grading and ground disturbing construction related activities.

Evidence of Compliance: Visual or written verification that no cultural resources were found and/or disturbed.

Mitigation Measure 8:

Cultural monitors will be present during initial, native soil disturbance activities that occur at locations mutually agreed upon by the Wiyot Tribal Governments, USFWS, and BLM (as necessary) as areas of the greatest concern as determined through the process outlined in Mitigation Measure 10. Pursuant to Section 106 of the NHPA, potential impacts to cultural resources will be considered for all future ground disturbing activities associated with management of the CMA on a project-by-project basis.

Timing for Implementation/ Compliance: During all such ground disturbing activities and/or during course of operation of the CMA.

Person/ Agency Responsible for Monitoring: USFWS, BLM, Wiyot Tribe

Monitoring Frequency: Continuous during such grading and/or ground disturbing construction-related activities.

Evidence of Compliance: Visual or written verification that cultural monitors were present during such ground disturbing activities.

Mitigation Measure 9:

Regulatory signing would state that in accordance to federal and state laws, destruction, and defacement of historical objects (Penal Code 655-1/2 and Antiquities Act)) and removal of human remains (California Public Resources Code (PRC) 5097.5, PRC 70550.5, California Code of Regulations (CCR) Section 15064.5(e) and Archaeological Resources Protection Act (ARPA) at 43 CFR 7, Native American Graves Protection and Repatriation Act (NAGPRA at 43 CFR 10) is a punishable crime. Undesignated canoe and kayak landings located on the slough and within the project boundary would be re-vegetated and signed “No Landing/Re-vegetation in Progress.”

Timing for Implementation/ Compliance: Prior to opening the area for public access.

Person/ Agency Responsible for Monitoring: USFWS, BLM, Wiyot Tribe

Monitoring Frequency: Once to review draft sign language; once upon completion to assure compliance.

Evidence of Compliance: Signs referencing said state and federal laws are installed at CMA public access entry points and signs stating “No Landing/Re-vegetation in Progress” are installed at undesignated boat landings.

Mitigation Measure 10:

As necessary, USFWS, BLM and the Wiyot Tribal Governments would work collaboratively with a registered professional archaeologist to prepare a baseline review of the cultural resources that the Tribe and agency staff mutually agrees upon as the areas of greatest concern. Thereafter annual review with a registered professional archaeologist and designated representative of the Wiyot Tribal Governments would occur. Furthermore, Ma-le’l Dunes CMA managers would conduct regular monitoring to ensure against vandalism of cultural resources within mutually agreed upon areas of greatest concern. Results of cultural resources monitoring would be conveyed to the appropriate agencies and the Tribes.

Timing for Implementation/ Compliance: Prior to opening the area for public access.

Person/ Agency Responsible for Monitoring: USFWS, BLM, Wiyot Tribe

Monitoring Frequency: As agreed upon by federal agencies and Wiyot Tribe

Evidence of Compliance: Regular written verification that monitoring has been conducted and conveyance of results to Wiyot Tribe.

Appendix D
Summary of Public Comments and Agencies' Responses
Ma-le'l Dunes CMA Access Planning and Environmental Review

<i>Comments received on draft Plan</i>	<i>Document Revised</i>	<i>Agencies' Responses</i>
Comments to Plan		
<u>Bear River Band of Rohnerville Rancheria</u>		
The Tribe wants to participate in mitigation planning, if adverse affects to cultural resources	Yes	Built the request into Mitigation 10.
The Tribe wants to be included consulted in annual assessments of archaeological sites.	Yes	Built the request into Mitigation 10.
The Tribe supports alternative A	No	
The Tribe wants to be included as an interested Tribal group throughout the document where appropriate. And want to be consulted on the plan and other activities in the area.	Yes	Tribes were contacted for preferred language to use when referencing each Tribe.
Insert in 2.2.1 Par.2 Line 2: That Wiyot used ocean going canoes for resource extraction.	Yes	Information added to Wiyot cultural description
<u>Waterfowl Hunters</u>		
Concerns over prohibition of guns throughout the CMA.	Yes	Have revised the Executive Summary and Section 4.1 to exclude legal waterfowl hunting from prohibition.
Section 1.2: Inadequate listing of recreational uses for which improvements are recommended.	Yes	Added passive boating list of recreational activities.
Section 1.3.1: Project area definition should include hunt area.	No	Hunting issues are being addressed in the USFWS' Comprehensive Conservation Planning (CCP) Process, a separate federal public process allowing for public comment.
Section 1.4.1: What is BLM Arcata Resource Management Plan	No	A plan that addresses goals and objectives for BLM land under management by the Arcata BLM Field Office.
Section 1.4.1 USFWS-HBNWRC: Waterfowl hunting needs to be addressed as pre-existing use.	Yes	Section revised to state that hunting issues are being addressed in the USFWS' Comprehensive Conservation Planning (CCP) Process, a separate federal public process allowing for public comment.
Section 1.6 Environmental	No	The discussion in document

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<i>Comments received on draft Plan</i>	<i>Document Revised</i>	<i>Agencies' Responses</i>
Compliance: Delete firearms except shotguns during waterfowl season.		pertains to Ma-le'l South, owned by BLM, where firearms are prohibited.
Section 2.2.1: Plan acknowledges waterfowl hunting; Section 2.2.2 makes no mention of consumptive waterfowl use, though it is included in Section 2.2.1.	No	Comment noted
Section 2.2.3: What is coordinated management	No	Coordinated efforts between the owner land managers (BLM and USFWS) to ensure continuum of experience over whole CMA. (
Section 2.2.3: Fifth Para. : Why would Resource Management Area for the Arcata Planning Area have any impact on federal reserve?	Yes.	BLM and USFWS are adjacent landowners of the Ma-le'l CMA. Therefore, cooperative management is necessary to protect resource values and provide for appropriate public uses. Paragraph modified to correct timeline for CCP and provide for an agreement (MOU changed to Agreement) between USFWS and BLM for [added language] allowable activities.
Section 4.0 General comments as relate to waterfowl hunting (dogs off leash, kayak/boat launching and landing locations, designated pedestrian trail use)	No.	Hunting issues are being addressed in the USFWS' Comprehensive Conservation Planning (CCP) Process, a separate federal public process allowing for public comment.
Section 4.1.8 first paragraph, last sentence	Yes	Sentence changed to read "Due to potential erosion and adverse impacts to sensitive species, boat access and landing will be limited to a designated site located at Ma-le'l North parking area."
Section 4.5.1 Regulatory Signing Bullet 3	Yes	"Prohibition" has been replaced with "restrictions".
Section 4.5.1 Regulatory Signing Bullet 5	Yes	Bullet deleted.
<u>Humboldt Bay Oyster Company</u>		
Page 4-33: "prohibition of boating" or	Yes	"Prohibition" has been replaced

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<i>Comments received on draft Plan</i>	<i>Document Revised</i>	<i>Agencies' Responses</i>
"permitted boating speed" should be eliminated from Plan.		with "restrictions". Bullet referring to boating speed deleted.
There should be signage about dog waste disposal. Consider providing bags for dog waste disposal.	No	Signage will be developed to address appropriate use of areas and potential impacts from those uses. A caretaker will be onsite, and regular patrolling/monitoring should help to address this concern.
CMA maps in Plan and onsite at Ma-le'l South reflect inconsistent property boundaries.	No	Comment noted.
<i>Comments received on draft IS/EA</i>	<i>Document Revised</i>	<i>Agencies' Responses</i>
Comments to IS/EA		
Mitigations 7-10. Want the Bear River Band of the Rohnerville Rancheria to be informed, consulted and play a role in any mitigation for cultural resources and would cooperate in monitoring of the resources.	Yes	Language revised to include all three Wiyot tribes.
Blue Lake Rancheria		
Water development at Ma-le'l South should mention that the water is potable at beginning of document. Important for Tribe to have potable water for cultural use of basket materials.	Yes	Potable water is mentioned at the beginning of document. Potable water will be added in Phase two.
Want the mitigation # 10 to include a tribal representative not just an archaeologist.	Yes	Mitigation language changed.
Mitigation #10 should state that the results of the cultural resources monitoring will also be conveyed to the tribes.	Yes	Mitigation #10 changed to include Tribes
Wants the wording throughout the document to include all three local tribes. All three tribes should be included at all levels of consultation.	Yes	Wording in document changed to include three Wiyot tribes. Tribes contacted for further consultation.
Tribe supports Alternative A	No	
Ma-le'l North Road Access		
There were a number of comments requesting that vehicle access to Ma-	Yes	Plan was revised to limit vehicular access to Friday

Appendix D
Summary of Public Comments and Agencies' Responses
Ma-le'l Dunes CMA Access Planning and Environmental Review

<i>Comments received on draft Plan</i>	<i>Document Revised</i>	<i>Agencies' Responses</i>
le'l North is limited to a few days a week to protect native landscapes, limit wildlife disturbance, invasive species introductions and retain wilderness qualities.		through Monday.
Don't further develop parking area at Ma-le'l North.	No	Current condition inadequate for projected use.
Don't improve road leave potholes to slow drivers. Consider speed bumps to slow traffic.	Yes	Speed bumps will be placed along road.
Move parking lot closer to Gun Club.	No	Not feasible due to space limitations.
Make open/close/tow times the same as South Jetty for consistency of regulations.	No	We do not have surfers and there is not a compelling reason to open before sunrise. It would add burden to caretaker.
<u>Signage</u>		
USFWS posts refuge signs in navigable waters believes this is illegal and hazardous.	No	FWS will survey signs to make sure none are posted in navigable water.
No RV's or trailers at Ma-le'l North due to limited space.	Yes	Informational kiosk will inform public of parking limitations
Non-motorized boat launching only.	No	This is in plan.
Proposed signage of 250' too much/intrusive. Line of sight is preferred. Signage at Ma-le'l South has marred the area's beauty more than demarcated trails. Prefer Alternative D.	No	Signage will be as needed to meet enforcement needs around boundaries and at demarcation of management change. Signage may initially be spaced more closely until use patterns are established
More signage to prevent trespass on private property	No	See above.
New sign technology. More sign maintenance budget.	No	Funding is not available.
Shift boundary signs between Ma-le'l North and South from northwest corner of Gun Club.	No	BLM does not wish to close existing uses on its property.
RCG sign may be too vague. May need to say live ammunition is used		
<u>Canoe/Kayak Access</u>		
Increase launch points at Iron Creek and near lower Mad River Slough area.	No	Plan increases number of launch sites in area by adding formal launch site at Ma-le'l North parking area.

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<u>Vegetation Gathering</u>		
Advocate not allowing fungi gathering in Ma-le'l North. A compromise would be to rotate collecting trails from year to year. Restrict number of fruiting bodies a person can collect.	Yes	Vegetative and mushroom gathering will be allowed at Ma-le'l South only, from May – November on designated trails. No gathering will be allowed at Ma-le'l North.
<u>Dogs</u>		
Allow off-leash dogs at Ma-le'l North. Run free on wave slope. Leashed on all trails. Exclude dogs altogether.	No.	This is not an appropriate use at Ma-le'l North. Ma-le'l South allows off-leash dog use. To avoid dogs, use Ma-le'l North. The current plan allows for a continuum of recreational uses with the most restrictive to the north where the area is more pristine, and least restrictive to the south.
<u>Horses</u>		
Limit to wave slope.	No	To avoid horses, use Ma-le'l North.
<u>Camping</u>		
No camping - destructive to habitat and there are bathroom issues.	No	As noted in plan, camping is allowed only on a case by case basis at Ma-le'l South, which allows for control of impacts. Any camping would be near bathrooms.
<u>Bicycle Access</u>		
There will be the ongoing issue of bikes going on the trails.	No	We expect to need strong enforcement from caretaker to prevent this and similar situations.
<u>Trails</u>		
Standard width of 3 to 6 feet too wide. Should use the Class 4 trail designation used by DPR and CCC. Single tread.	No	The ADA trail will be 5 ft. all other trails will stay the present width.
Trail goes around seasonal wetland instead of over it. Or use logs from the beach.	No	Bridge will span wetlands (upland to upland). Logs not a safe option.
Plan for seamless trail on North Spit.		To the extent feasible, the trail system on the CMA integrates with other trail systems on the North Spit. The wave slope

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		provides a seamless trail along the north spit.
<u>View Decks</u>		
Railing height of 36" may be too short; 48" may be needed for liability reasons.	No	Comment noted.
On-ground viewing platform instead of structure.	Yes	The viewing platform on top of dune has been removed from plan. The wetland view deck is replacing an existing structure and will not have additional impacts other than temporary construction.
<u>Caretaker Issues</u>		
Towing issues related to caretaker position as a volunteer. Training is needed to deal with irate individual.	No	Comment noted.
Will FWS be billed for tow?	No	We will need to arrange for an intermediary to assist with this.
Who will carry out caretaker duties When she/he is out of town?	No	There will be volunteer or staff available to step in as back-up. The caretaker is not expected to be present on site 24-7.
<u>Gun Club</u>		
Mistakes in referencing gun club as private.	Yes	Gun Club status corrected.
Firearms etc prohibited, include that RCG members and guests can have on their property and while traversing the access road.	Yes	Gun Club status corrected.
<u>Other Comments</u>		
Recognize individuals that helped secure the Ma-le'l Dunes for public access.	No	There will be a plaque, and recognition will occur at the ceremony.