Ma-le'l Dunes Cooperative Management Area Public Access Plan

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Acronym List

ACEC	Area of Critical Environmental Concern
ADA	Americans with Disabilities Act
ATV	All Terrain Vehicle
BLM	United States Department of Interior-Bureau of Land Management
CalDAG	California Disabled Accessibility Guidebook
CCC	California Conservation Corps
CCP	Comprehensive Conservation Plan
CCT	California Coastal Trail
CDC	California Department of Corrections
CAL FIRE	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CMA	Cooperative Management Area
CNLM	Center for Natural Lands Management
CNPS	California Native Plant Society
EA	Environmental Assessment
EEM	Environmental Enhancement and Mitigation
FOD	Friends of the Dunes
FONSI	Finding Of No Significant Impact
GIS	Geographic Information System
HAF	Humboldt Area Foundation
HBMWD	Humboldt Bay Municipal Water District
HCBDMP	Humboldt County Beach and Dunes Management Plan
HDO	High-Density Overlay Plywood
HSU	Humboldt State University
IS	Initial Study
LP	Louisiana Pacific
LWCF	Land and Water Conservation Fund
MHHW	Mean Higher High Water
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NOAA	National Oceanographic Atmospheric Association
NWRC	National Wildlife Refuge Complex
OHV	Off-Highway Vehicle
PG&E	Pacific Gas and Electric
RCAA	Redwood Community Action Agency
RGC	Redwood Gun Club
SCC	State Coastal Conservancy
SHPO	State Historic Preservation Office
SPI	Sierra Pacific Industries
TBR	Table Bluff Reservation
TNC	The Nature Conservancy
USACOE	United States Army Corps Of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

Executive Summary

The dynamic nature of the dune system can clearly be seen at the slip face of moving dunes.

This Ma-le'l Dunes Public Access (Plan) was prepared for the State Coastal Conservancy (SCC) in order to facilitate the cooperative development of the proposed Ma-le'l Dunes Cooperative Management Area (CMA) for the Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS). This area consists of approximately 444 acres of public land owned by the two agencies along a mile and a half of coastline within the Humboldt Bay dune system. It contains significant cultural resources and a unique association of coastal dune, wetland and estuarine ecosystems and it is bordered by a number of different land uses, including a public shooting range and an active timber mill.

The entire Ma-le'l Dunes CMA will be open for hiking and associated activities, including scenic and wildlife viewing and photography. Ma-le'l South, owned by BLM and occupying 154 acres, is also open to the public for horseback riding and dog walking, as well as seasonal vegetation gathering and traditional gathering by special permit. Ma-le'l North, owned by USFWS and occupying 290 acres, will also be open to the public for traditional gathering. Off-highway vehicle use and firearms, except for legal waterfowl hunting, will continue to be prohibited throughout the CMA.

This document contains an evaluation of existing access facilities throughout the proposed Ma-le'l Dunes CMA, including recent improvements on Ma-le'l South. It also presents a series of recommendations to improve safe and orderly public access throughout the area. The recommendations address the installation and/or upgrade of roads and parking areas, coastal access trails and trail amenities, informational and interpretive signing, and publications. The recommendations will serve as the basis for construction drawings, a signing program, educational and interpretive publications, interagency collaboration, and future funding requests. Subsequent to a completed environmental review process and the receipt of the required permits from appropriate agencies, public safety components of the Plan will be implemented first, as Phase One improvements. Phase Two improvements will enhance the experience of visitors to the area and will be implemented as funding allows.

To facilitate cooperation and coordinated management for public access between BLM and USFWS, the agencies will need to enter into one or more interagency agreements. Separate cooperative agreements may be necessary to delineate services between the two agencies and the large landholding entities adjacent to the CMA.

Revisions to the Plan

In February 2007, and again in March 2008, the California State Coastal Conservancy, Lead State Agency for this project under the California Environmental Quality Act (CEQA), circulated for a 30-day public review and comment period the Draft Access Plan for the Ma-le'l Dunes Cooperative Management Area, and the Initial Study/Environmental Assessment (IS/EA), prepared as a joint State and Federal environmental impact review document under CEQA and the National Environmental Policy Act (NEPA). As a result of public comments received, some changes were made to the Draft Access Plan and to Alternative A, The Proposed Plan in the Draft IS/EA. Responses to public comments received during the comment period are included in the Revised IS/EA as an addendum.

The most significant change to the plan consists of allowing vehicular access to the Ma-le'l North parking area only Friday through Monday. From Tuesday through Thursday, pedestrian access will continue to be allowed, however visitors will need to park at the Ma-le'l South parking area (or ride a bicycle to the Ma-le'l North parking area). This change was incorporated in response to the significant level of public comment requesting a more solitary, wilderness experience during some parts of the week. It is expected that this change will result in decreased use of the Ma-le'l North area compared with the original proposed alternative.

Another change to the plan is the elimination of a proposed kayak and canoe ramp. This was due to strong concerns by the local aquaculture community about water quality impacts.

A third significant change to the plan consists of the decommissioning of a portion of the Viqhul Trail in Ma-le'l North. This portion of trail traverses a forest area of high cultural and biological sensitivity. Following consultation with the Wiyot Tribe this section of the trail was eliminated.

Signage regarding the importance of protecting water quality in the slough has been incorporated into the signage plan for Ma-le'l North. This change was made partly in response to shellfish growers working in the slough who expressed that increased public use of the area could lead to water quality degradation.

The dune view deck has also been eliminated as the project was determined not feasible with respect to erosion as the dunes were deemed too unstable for the viewdeck to be maintained in the proposed location. Additionally, concerns about vandalism influenced the decision.

Other minor changes have been made to partially accommodate traditional overwater hunting uses within the Mad River Slough.

Many individuals and user groups responded to the draft plan and IS/EA, representing a continuum of interests including pedestrian use, dog access, equestrian use, hunting access, and boating access. The agencies made a sincere attempt to strike a balance between the many desired uses of the site.

1.0 Introduction

Photo by Andrea Pickart

As the dunes move, they bury old forests creating a landscape of "skeleton trees."

Funded through a contract with the State Coastal Conservancy (SCC), HWR Engineering and Science conducted an assessment of the existing access facilities and created this Ma-le'l Dunes Cooperative Management Area Public Access Plan (Plan) in order to recommend improvements that will assist the BLM and USFWS in cooperatively developing and managing their respective properties within the project area for public access. This Plan presents the proposed improvements as a coordinated, cooperative plan that reflects the goals, priorities, and timelines of each agency.

At the heart of this project is a desire by the local community, the agency landholders, and the SCC to have the public experience the unique natural diversity contained within the project area and to appreciate the cultural heritage of the local Wiyot Indian people who have inhabited the Humboldt Bay region for over a thousand years. It is hoped that by experiencing the area and learning about it, the local community and other visitors will become good stewards of the area and will help to preserve its unique diversity for generations of north coast residents to enjoy.

1.1 Project Goals and Objectives

The BLM and USFWS have similar goals for the area, which are to protect the natural and cultural resources of the area and provide public access for recreation, education and research activities. These goals are consistent with the goals of the SCC, which are to "protect, restore and enhance coastal resources and to provide access to the shore."

The goal of this Plan is to propose actions that will accommodate safe and orderly public access throughout the 444 acre Ma-le'l Dunes CMA and a range of recreational opportunities that minimize to the extent practicable any adverse impacts to the natural and cultural resources of the area. To realize this goal, the Plan has the following objectives:

- Recommend public access facility improvements necessary to support recreational activities such as hiking, sightseeing, wildlife viewing, picnicking, dog walking, horseback riding, and ADA accessibility.
- Incorporate provisions for the safety and well being of visitors to the area.
- Minimize impacts to native dune plant communities, coastal wetland habitat, salt marsh habitat, populations of endangered Humboldt Bay wallflower ((*Erysimum menziesii* ssp. *eurekense*) and beach layia (*Layia carnosa*), and cultural resources.

Open sands will have unrestricted pedestrian access.

- Recommend interpretive and informational signing, so that visitors will have a unique experience when visiting the BLM and USFWS properties
- Recommend 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

1.2 Project Scope

Aside from the 42-acre BLM Buggy Club/Khoaghali parcel and the areas of open sand where off road vehicles were previously permitted, the area contained within the proposed Ma-le'l Dunes CMA is approximately the same area previously known as the Mad River Slough and Dunes CMA, which was open from 1990 to 1994. During that time, the area was managed for public pedestrian access, public education, and resource protection. Access elements included an access road, a parking area, a caretaker, public trails, a trail brochure and educational programs. Public access was based on the agreement between The Nature Conservancy (TNC), Louisiana–Pacific (LP), and BLM. The recreational public use levels, programs, and activities that are proposed for the Ma-le'l Dunes CMA are very similar to these pre-existing uses of the area.

Recommendations contained within this Plan are in many cases a result of deferred maintenance to the roads and trails that were used when the area was previously open. In some cases the recommendations are intended to increase public access throughout the area, or to enhance the infrastructure already in place. The recommendations are conceptual with detail adequate to begin construction drawings, initiate the permit process, or begin graphic layout. A topographic survey was conducted and topographic map produced to assist in the design and implementation phase of work.

1.2.1 Project Area

The Ma-le'l Dunes CMA is located approximately 1 mile north of the unincorporated town of Manila, in Humboldt County, California, on the North Spit of Humboldt Bay (also known as the Samoa Peninsula). It is approximately 3 miles west of the City of Arcata and 5 miles north of Eureka. It is west of the Mad River Slough, generally north of the Mad River Slough Bridge on Hwy 255, and south of the Lanphere Dunes Unit of the Humboldt Bay National Wildlife Refuge (NWR). Adjacent properties are occupied by Sierra Pacific Industries (SPI), which is an active timber mill, the Redwood Gun Club (RGC), which is a private shooting range, and a group of residential properties. The project site location map is illustrated in Figure 1-1. The Ma-le'l Dunes CMA is illustrated in Figure 1-2.

The CMA comprises 444 acres along approximately one and a half miles of coastline and contains areas owned by two federal agencies. BLM owns and manages the southern 154 acres of the Ma-le'l Dunes CMA. This portion is known throughout this document as Ma-le'l South; it consists of the 112-acre Manila Dunes Area of Critical Environmental Concern (ACEC) and a 42-acre property formerly owned by the Humboldt Buggy and ATV Association (a.k.a. Buggy Club) which was formerly known as the Khoaghali parcel. USFWS owns and manages the northern 290 acres of the Ma-le'l Dunes CMA. This portion is known throughout this document as Ma-le'l North, and includes the newly created Ma-le'l Dunes Unit of the Humboldt Bay National Wildlife Refuge (Humboldt Bay NWR). It is comprised of the 130-acre Fernstrom-Root property, (formerly part of the Lanphere Dunes Unit of Humboldt Bay NWRC), a 160-acre property formerly owned by the Buggy Club, and includes a 1-mile stretch of roadway.

The project area includes those contiguous tracts of land on the North Spit of Humboldt Bay comprising the CMA, and does not include the islands that are under USFWS ownership situated within the Mad River Slough.

1.2.2 Plan Content and Organization

Chapter 2 describes the setting of the planning area, including the site conditions, land use history, legal aspects and other local plans affecting the area. Chapter 3 describes the existing uses and the status of existing infrastructure throughout the area. Chapter 4 contains a brief description of the estimated levels of use the area is expected to receive and then describes the recreational uses or land use allocations that will be allowed for the area

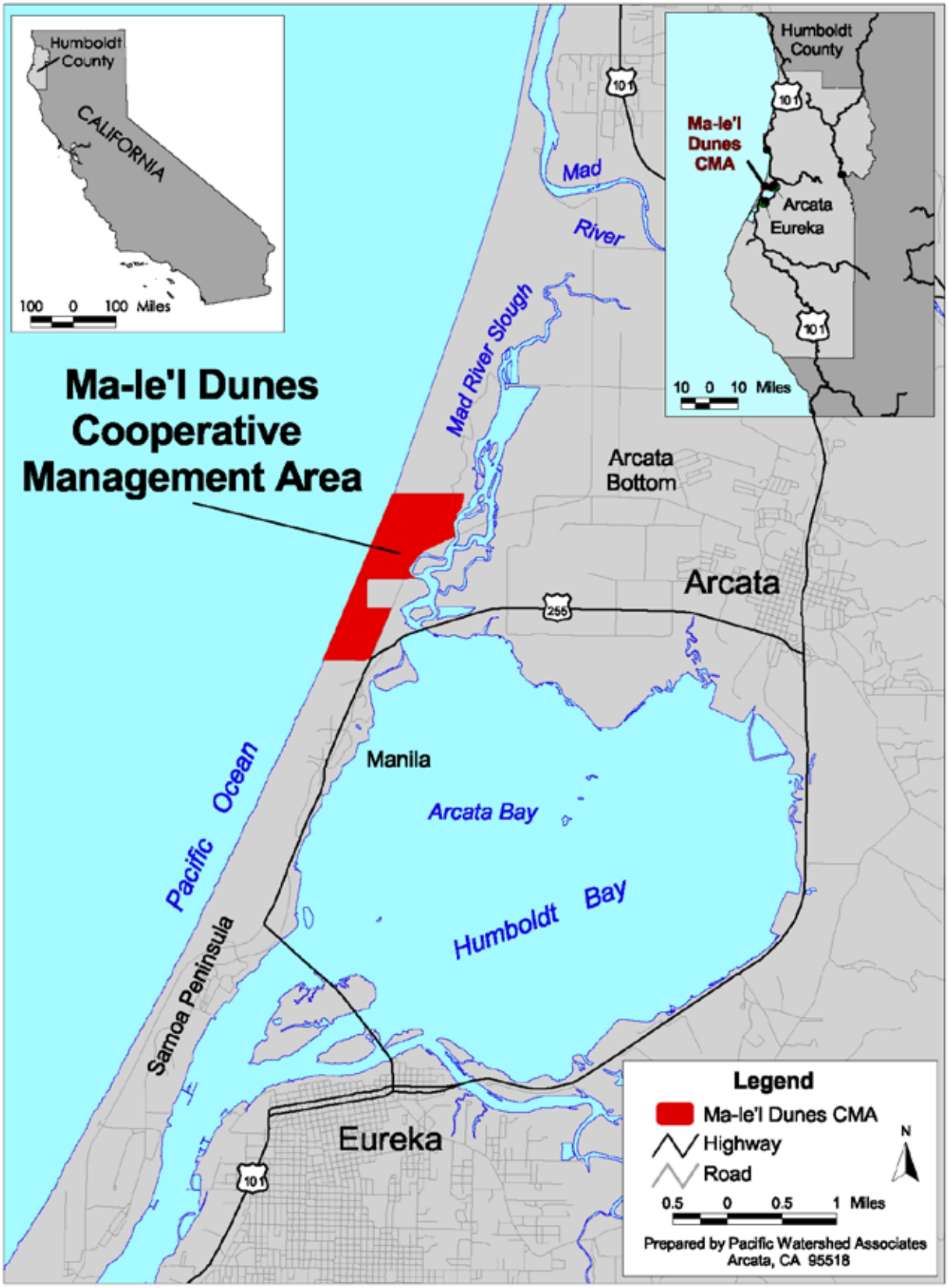


Figure 1-1. Site Location Map

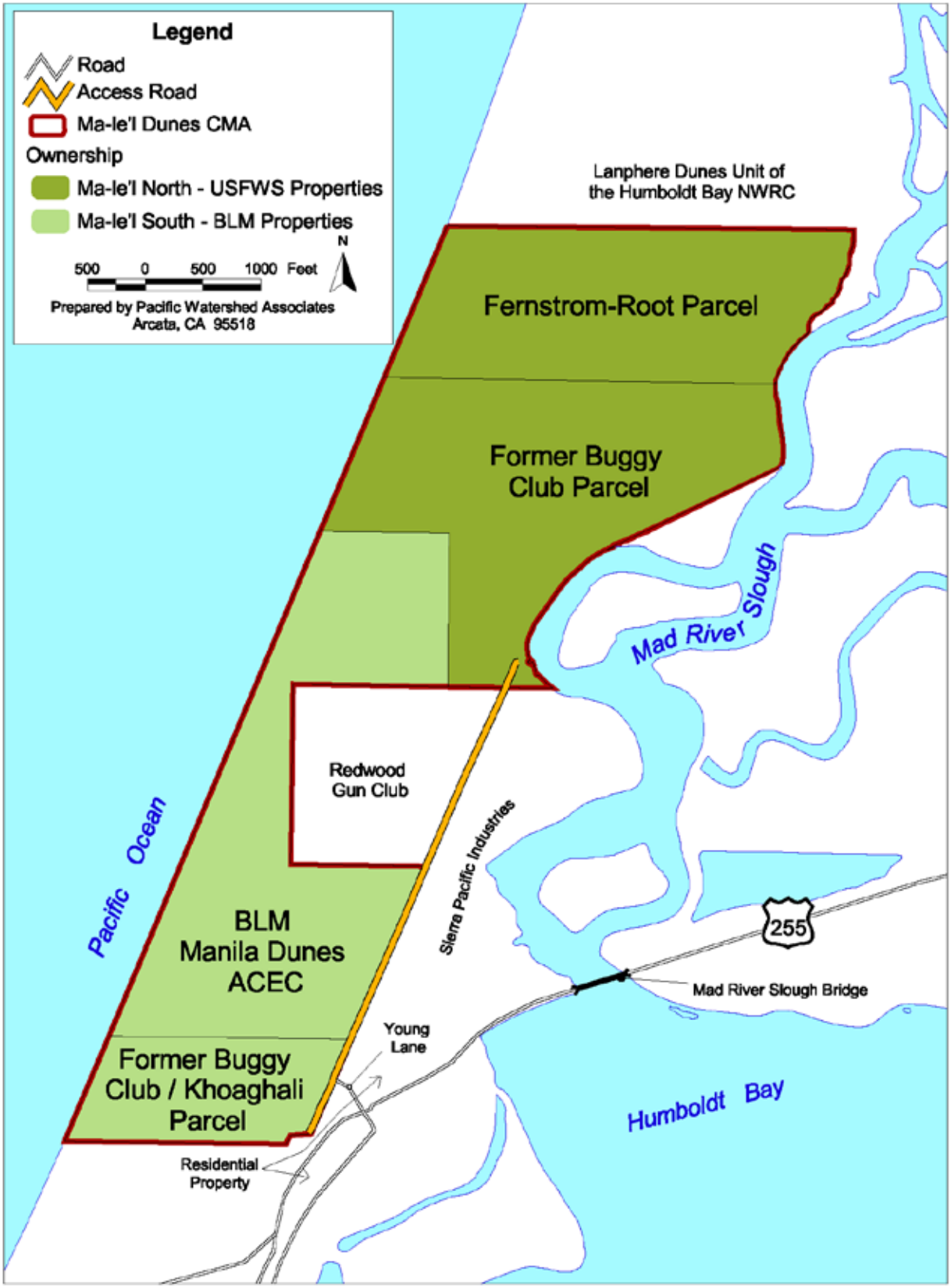


Figure 1-2. Ma-le'l Dunes CMA Map

and the access improvements to accommodate such use. Chapter 5 presents operations and management strategies for managing public access, including interagency and private partner coordination and interagency agreements, visitor management, security and enforcement, maintenance responsibilities, and other considerations. Chapter 6 describes phased implementation strategies and includes a schedule, and a list of potential funding sources.

1.3 Project Stakeholders

The Ma-le'l Dunes CMA is associated with various entities that own or manage property or programs immediately adjacent to it, or who utilize the resources for activities such as sport hunting or oyster harvesting, and therefore have a vested interest in the management and use of the area. In addition to BLM and USFWS, these entities include the Wiyot Tribe, Friends of the Dunes (FOD), Sierra Pacific Industries (SPI), Redwood Gun Club (RGC), Humboldt Bay Municipal Water District (HBMWD), adjacent residents, and other users including sport hunters and oyster farmers. Below is a discussion of each entity and its relationship to the cooperative access planning process.

1.3.1 Land Holding Agencies

Bureau of Land Management (BLM)

The Ma-le'l Dunes CMA properties fall within the BLM Samoa Peninsula Management Area under the guidance of the BLM Arcata Resource Management Plan. It is the agency's over arching mission to sustain the health, diversity and productivity of the public lands for the use and enjoyment of present and future generations. The BLM-owned parcels of the Ma-le'l Dunes CMA will allow for limited recreational activities as defined in their Arcata Resource Management Plan and subsequent amendments, and on the uses outlined in this Plan.

U.S. Fish & Wildlife Service-Humboldt Bay National Wildlife Refuge (USFWS-Humboldt Bay NWR)

The USFWS–Humboldt Bay NWR was established with the mission 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, Humboldt Bay NWR helps this area remain one of the key points for the millions of migratory birds that rely on the Pacific Flyway. The

refuge includes the Lanphere Dunes Unit which is immediately north of the Ma-le'l Dunes CMA. It 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. With the recent transfer of the adjoining former Humboldt Buggy parcel to the south by the Center for Natural Lands Management, the USFWS-Humboldt Bay NWR has been expanded by 160 acres. This 160 acres is being combined with 130 acres of dune and forested dune habitat that was previously managed as part of the Lanphere Unit. Combined, the 290 acres are being managed as the USFWS-Humboldt Bay NWR Ma-le'l Dunes Unit and are synonymous with the Ma-le'l North properties of the Ma-le'l Dunes CMA. Public use of the new unit is based on a pre-aquisition compatibility determination (discussed further in section 2.3.1) and the uses outlined in this Plan. The USFWS reviewed compatibility of uses, including hunting, for the Ma-le'l Dunes CMA Unit under the CCP process, a public process which includes a public review component (USFWS 2009).

1.3.2 Other Stakeholders

Wiyot Tribe

The Ma-le'l Dunes CMA is located within the ancestral territory of the Wiyot Tribe, whose people and ancestors have inhabited the Humboldt Bay region for over a thousand years. Within their large coastal territory, which historically extended from Little River to Bear River, and inland to the first set of mountains, the Wiyot were able to hunt and gather a wide variety of plant and animal resources. Today, the Wiyot people continue to live throughout the Humboldt Bay region and continue to fish and gather materials here. The Wiyot Tribe has over 500 members, over 60 of which live on the Table Bluff Reservation located in Loleta, along the shores of southern Humboldt Bay. Many of the other local tribes have members of mixed Wiyot ancestry.

Several Wiyot villages are known to have existed along the northern spit of Humboldt Bay. Therefore, the Ma-le'l Dunes CMA vicinity has cultural and historical significance to the Wiyot Tribe. The Tribe would like to ensure the protection of the cultural resources that exist within the area and maintain their right to access and gather plant resources traditionally used for food, fiber, and medicine.

Friends of the Dunes (FOD)

FOD is a local non-profit organization dedicated to conserving the natural diversity of coastal bay and dune environments through community -supported education and stewardship programs. Their stewardship program consists of involving community volunteers in restoring coastal dune habitats; creating cooperative relations with coastal landowners, conservation organizations, and management agencies to promote the implementation and development of ecologically sound management practices; and advocating for coastal land use that is consistent with the ecological values of native coastal dune systems. In addition, FOD now serves as a land trust, able to receive donations of coastal properties and conservation easements. FOD plays a lead role in dune-related environmental education and awareness and is actively involved in restoration and education programs at the Ma-le'l Dunes CMA. FOD has also provided extensive planning assistance in the development of this Plan.

Redwood Gun Club (RGC)

RGC is a non-profit, private range facility where local community members can learn proper firearms handling, hunter safety, firearms marksmanship, and practice the various competitive shooting disciplines in a safe and organized environment. The RGC owns property that is situated on the west side of the Ma-le'l Dunes access road between Ma-le'l North and Ma-le'l South. The club will share the access road with Ma-le'l Dunes visitors and has been actively engaged in access planning in order to promote public safety and awareness, as well as roadway maintenance.

Sierra Pacific Industries (SPI)

SPI Arcata Division Sawmill is located on New Navy Base Road (Highway 255) at the northwest end of Arcata Bay and to the west of Mad River Slough. The facility stores, manufactures, and distributes wood products that are manufactured from logs harvested from various domestic timberlands in the coastal region. The site was undeveloped land, consisting of sand dunes and mud flats, until approximately 1950 when SPI converted it into a lumber mill. The mill site was expanded in 1971 and operations continue today. Log decks line the western boundary of the mill site and lie adjacent to a significant stretch of the USFWS-owned access road, across from RGC property. Safety and trespassing issues in relation to recreational visitors is a concern for SPI.

Humboldt Bay Municipal Water District (HBMWD)

HBMWD is a wholesale water agency that serves the greater Humboldt Bay area including the cities of Eureka, Arcata and Blue Lake, as well as Community Service Districts serving unincorporated areas such as McKinleyville, Cutten, Fairhaven, Fieldbrook, Glendale, and Manila. The HBMWD operates an underground industrial pipeline that runs north-south along the Samoa Peninsula, through a portion of the Ma-le'l Dunes CMA, and terminates at the Trusdale Pump Station on the east side of Humboldt Bay. The pipeline carries filtered water that serves as an alternate water supply for the City of Eureka. HBMWD staff access the pipeline easement within the Ma-le'l Dunes CMA for monthly maintenance inspections. District staff regularly access the easement via the RGC property. HBMWD has an interest in preserving the integrity of the pipeline from potential impacts associated with recreational use at Ma-le'l Dunes CMA.

Adjacent Residents/Landowners

The Ma-le'l Dunes CMA lies in the community services district of the unincorporated town of Manila. Approximately ten private residences are situated immediately adjacent to the CMA along Young Lane and the Ma-le'l Dunes access road. Any changes in recreational use levels and patterns will have a direct impact on this residential neighborhood. Resident concerns were paramount in addressing safety and visitor access flow in the Plan.

Other Users - Sport Hunters and Shellfish Industry

Sport hunters utilize the slough and the salt marsh islands for hunting a variety of waterfowl, and the slough is used by the shellfish industry for oyster farming. Representatives of both these groups have provided valuable comments to this plan, and their input has been considered in the revisions herein. Specific concerns as relate to the use and management of the salt marsh islands for sport hunting will be addressed by the USFWS during the CCP process that is currently under public review as of February 2009 for its Ma-le'l Dunes Unit. As the slough waters are not owned or managed by USFWS or BLM, but are adjacent to lands owned by USFWS, communication will remain open and active with the shellfish industry representatives.

1.4 Planning Process for the Public Access Plan

In 2004, the SCC allocated funds to prepare a Ma-le'l Dunes CMA public access plan that would evaluate past and current uses of the properties within the project area and make recommendations for future access and improvements to support such access. In October 2004, HWR Engineering and Science with FOD were engaged by the SCC and began collaborating with BLM and USFWS staff and local stakeholders. The planning effort included the following steps:

- Tours of respective properties with agencies and subsequent meetings with agency staff to identify cooperative management opportunities, expectations, and issues
- Inventory of opportunities and constraints; evaluation of existing infrastructure via several site visits; compilation of biological data, and review of existing educational brochures and applicable regional planning documents
- Outreach to various stakeholder groups including: 1) Dunes Forum members (which included members of the Humboldt Coastal Coalition and other citizen groups) via representation at Dunes Forum regular meetings; 2) representatives of the Wiyot Tribe; 3) "large" adjacent land owners (RGC, HBMWD, SPI) via a special meeting; and 4) residents living adjacent to or along Young Lane via a special meeting. During the outreach efforts and meetings, handouts and maps describing the project area were distributed, access plan process and goals were reviewed, and stakeholder concerns were solicited and recorded.
- Follow-up telephone interviews and written correspondence with members of stakeholder groups
- Coordination of a topographic survey and production of topographic and GIS maps of the area
- Consultations with regulatory agencies, including USFWS, California Department of Fish and Game, and the California Coastal Commission
- Creation of draft recommendations and, where appropriate, conceptual specifications
- Review of public access plan recommendations by BLM, USFWS and the SCC
- Public meeting and review comment period to receive public input to the Plan
- Follow up meeting with waterfowl hunters and discussions with shellfish industry representatives

1.5 Environmental Compliance

Several environmental compliance requirements already have been fully or partially completed for the project. These include the Ma-le'l Dunes Access Improvements Environmental Assessment (BLM 2004a) and the Biological Assessment for the Ma-le'l Dunes Access Improvements for Interim Management (BLM 2004b), which were completed in July 2004 as part of the establishment of a parking and day use picnic area in the Ma-le'l South portion of the CMA. The documents evaluated the improvements listed below and found that they would not have any significant adverse impacts to the human or physical environment. These improvements are considered *existing conditions* within this plan.

- Improved access route
- New entrance gate
- Day use picnic area
- Picnic tables
- Grills
- Vault toilet
- Information kiosk
- Signs
- Delineating existing hiking trails
- Delineating existing equestrian trails
- Horse access on designated trails only
- Prohibition of OHV, firearms
- Removing old pavilion, fences

In order to meet state and federal environmental review requirements, a joint California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) document has been prepared and is a companion document to this Plan. It evaluates and discloses potential environmental impacts of the proposed improvements and is entitled the Ma-le'l Dunes Initial Study (IS)/Environmental Assessment (EA).

The continued operation of the existing access improvements and land use allocations at Ma-le'l South, including those listed above, will undergo environmental review along with the actions proposed in this Plan. The implementation of this Plan has been designed to avoid any unmitigatable significant impacts, as defined under CEQA and NEPA. It is anticipated that environmental impacts will be addressed within a joint Mitigated Negative Declaration (MND) prepared pursuant to CEQA and a Finding of No Significant Impact (FONSI) prepared pursuant to NEPA.

Specific permits, authorizations, and notifications anticipated to be required for implementation of this Plan may include the following:

- Biological Opinion from USFWS under Section 7 of the Endangered Species Act
- Consistency Determination from California Department of Fish and Game (CDFG) under Section 2080.1 of the California Endangered Species Act
- Federal Migratory Bird Treaty Act consultation
- Section 305 Consultation concurrent with Section 7 with National Marine Fisheries Service
- Fish & Game Code Sections 3503 and 3503.5 Bird Nest Protection such as osprey consultation with the CDFG
- Fish & Game Code Sections 3511, 4700, 5050 and 5515 fully protected animals consultation with the CDFG
- Consistency Determination from the California Coastal Commission (covers State and Federal requirements) for projects located within the Coastal Zone
- Nationwide 36 permit from the U.S. Army Corps of Engineers
- Section 106 consultation for record search and field surveys with the State and Tribal Preservation Office

2.0 Setting

The Ma-le'l Dunes CMA contains unique natural, visual, and cultural resources and a number of valuable features that present opportunities for developing an outstanding public access area. Features include a unique association of coastal dune, wetland, and estuarine ecosystems that host eleven different plant habitats within a relatively small area, historic beach and dune trails, an access road, the adjacent Mad River Slough, and the proximity of urban and suburban communities. These features are also largely responsible for the area's unique land use history. This chapter presents background information about the geomorphic and biological conditions of the site and its pre-historic, historic and current land use.

2.1 Existing Site Conditions

The following section describes the existing physical and biological conditions at the Ma-le'l Dunes project site. Biological and cultural resources are addressed here only as they specifically affect planned activities and access improvements. For a more thorough discussion, refer to the companion IS/EA document.

2.1.1 Land Form and Climate

The Ma-le'l Dunes CMA consists of a portion of the dune-slough ecosystem that comprises the upper Samoa Peninsula, or North Spit. The Samoa Peninsula is a roughly 20-mile sand spit that extends from the jetty to the mouth of the Mad River, effectively enclosing the northern portion of Humboldt Bay. The North Spit is a relatively mature dune system that contains a diversity of landforms. Typically, the dune system begins at the beach strand with a foredune, which is the first rise of sand parallel with the beach above the mean high tide. Behind the foredune is a series of dune ridges and swales that are oriented parallel to prevailing wind direction. Collectively, the foredune, ridges, and swales are referred to as the nearshore dunes. East of the nearshore dunes is a deflation plain, which grades into large parabolic moving dunes (Pickart and Barbour 2007). 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 marsh in the low lying wetlands. The marshes, mudflats and open channels of the Mad River Slough occupy the far east of the site. Figure 2-1; Site Topographic Map, illustrates the diverse topography of the project area.

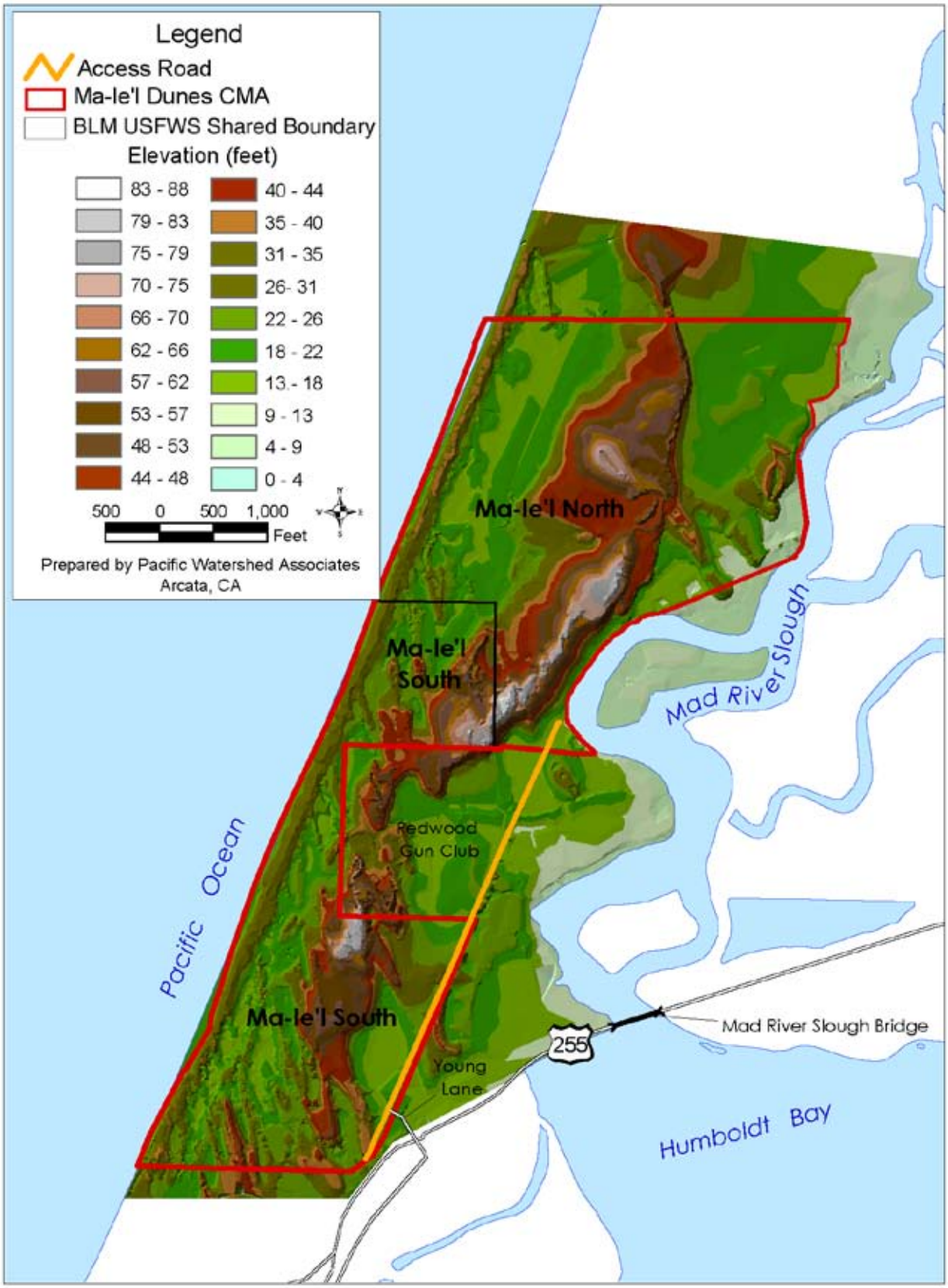


Figure 2-1 Shaded Relief Topographic Map

The Mad River Slough is a narrow extension of the bay that separates the project site from the mainland and the Arcata Bottoms. The northern portion of Ma-le'l North is adjacent to the main stem of the Mad River Slough channel, while the southern portion is bordered by a branch of the slough that is inundated only at high tide. The mouth of the slough is adjacent to the Ma-le'l South portion of the project area.

Huckleberry (*Vaccinium ovatum*) are quite plentiful along the forest trails throughout the area.

The maritime climate of coastal Humboldt County is characterized by high relative humidity the entire year, and is maintained throughout the dry season, May through September, by fog and clouds. The annual average precipitation from 1971 to 2000 at the Eureka, CA, weather station was 38.32 inches. Approximately 90% of annual precipitation falls during the rainy season, which begins in October and continues through April. Temperatures on the coast remain mild and moderate throughout the year. The mean annual temperature for 1971 to 2000 was 52.9°F, with a maximum and minimum annual temperature of 59.3°F and 46.4°F, respectively (NOAA 2005).

2.1.2 Biological Resources

The diversity in landforms at the Ma-le'l Dunes CMA supports a complex of unique coastal dune, wetland, and estuarine communities within a relatively small area. The area contains 11 habitat types: foredune and dune ridges, dune swales, moving dunes, freshwater marsh and swamp, riparian forest, coniferous forest, brackish marsh, salt marsh, intertidal mudflats and subtidal channel.

Vegetation Types

Native Vegetation Types

The nearshore dunes located within the Ma-le'l Dunes CMA support three broadly defined native vegetation types: Native Foredune grassland, Dune mat, and Dune swale (Pickart and Sawyer 1998). Foredune grassland is recognized by the California Department of Fish and Game Natural Diversity Database as globally endangered, meaning fewer than 2,000 acres of the community exist worldwide. Dune mat vegetation within the CMA occurs on dune ridges and locally elevated areas of inter-dune swales and the deflation plain. East of the open sand of the moving dunes, stabilized dunes are characterized by Coniferous forest, Deciduous swamp, and Freshwater marsh. Along the east border of Ma-le'l North Brackish marsh and Northern coastal salt marsh occur. The Northern coastal salt marsh is globally threatened. Locally, Humboldt Bay has lost 90% of its historic salt marsh.

Andrea Pickart

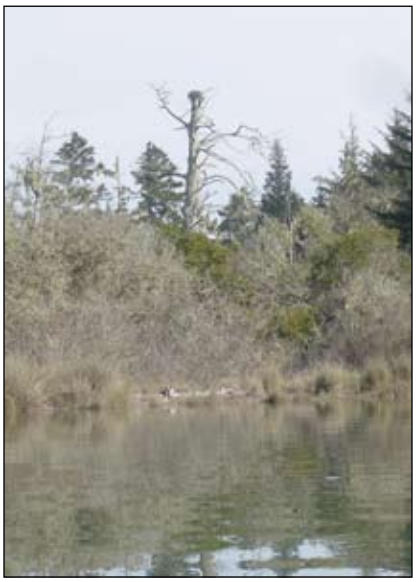
The herbaceous community commonly known as dune mat is an association of low-growing native plants. It dominates the nearshore dune ridges, providing a diverse floral display from April through September.

Non-native Invasive Plant Species

Invasive plants not native to the Humboldt Bay region but occurring at the Ma-le'l Dunes CMA include European beachgrass (***Ammophila arenaria***), Yellow bush lupine (***Lupinus arboreus***), English Ivy (***Hedera helix***), iceplant (***Carpobrotus*** spp.), purple ragwort (***Senecio elegans***), pampas grass (***Cortaderia jubata***) (BLM 2004a, EDAW 2005), and a suite of invasive annual grasses. All of these species except English ivy occur in the nearshore dunes where they displace native foredune grassland and dune mat vegetation. English ivy occurs in the Coniferous forest. Efforts to eradicate non-native species from the nearshore dunes, swales, and forest have been underway for many years on the BLM Manila Dunes and the USFWS Fernstrom-Root parcels, and have been very successful. For the past 4 years the agencies have focused restoration efforts on their new respective acquisitions (i.e., the two former Buggy Club parcels). This work is the subject of agency specific restoration plans and species recovery plans.

Wildlife Resources

The diverse dune habitats of the Ma-le'l Dunes CMA support a faunal assemblage, including small mammals and birds, invertebrates, reptiles, and amphibians. Terrestrial mammals that can be found in the area are gray foxes, raccoons, weasels, skunks, voles, wood rats, mice (deer, harvest and jumping), shrews, moles, brush rabbits, jackrabbits, and the introduced opossum and feral cat. Flying mammals in the area include the big brown bat, ***California myotis,*** and ***Yuma myotis*** (BLM 2004a).



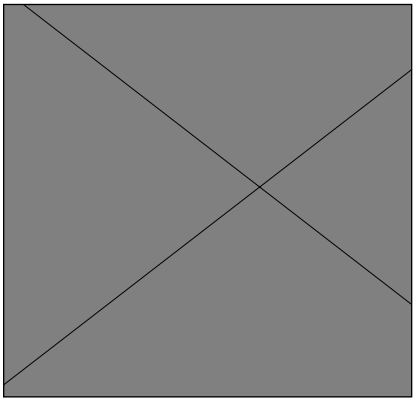
An osprey nest sits atop of a snag on Ma-le'l North.

The Ma-le'l Dunes are rich with bird life. A wide variety of shorebirds occupy the beaches, including sanderlings, killdeer, whimbrel, dunlin, gulls, and western and least sandpipers, as well as Caspian tern. Birds of prey such as Northern harriers and white-tailed kites often can be seen above the dune area. A variety of songbirds have also been observed in nearby dunes including American goldfinches, Swainson's thrush, and a variety of sparrow and chickadee species (Ralph et al. 1998).

Osprey have been observed nesting in up to three locations in the vicinity of the coniferous forest of the Ma-le'l North portion of the CMA. The birds alternate between nests from year to year and have also constructed new nests. One nest tree is easily visible from the Ma-le'l North parking area and is immediately adjacent (within 50 feet) to the railroad berm trail and existing wetland view deck.

Approximately 40 species of bees occur in the Humboldt Bay Dunes, some of which are unique to coastal dunes (Nyoka 2004). These bees are important

pollinators of native Dune mat species (Gordon 1984). Many bee-nesting colonies occur throughout the Ma-le'l Dunes CMA.



Rob Irwin

Approximately 40 species of bees occur in the Humboldt Bay Dunes, some of which are unique to the dunes (Nyoka 2005).

Plant and Animal Species of Concern

Plants

Two Federal- and State-listed endangered plants, Humboldt Bay wallflower (***Erysimum mensiesii*** ssp. ***eurekense***) and beach layia (***Layia carnosa***) occur within the Ma-le'l Dunes CMA. Both species occur primarily in the dune mat community, and are described further below. In addition, four California Native Plant Society (CNPS) List 1B species occur within the area: dark-eyed gilia (***Gilia millefoliata***) and pink sand-verbena (***Abronia umbellata*** ssp. ***breviflora***), both of which occur in the nearshore dunes, and Humboldt Bay owl's-clover (***Castilleja ambigua*** ssp. ***humboldtiensis***) and Point Reyes bird's-beak (***Cordylanthus martimus*** ssp. ***palustris***), both of which occur in the high salt marsh adjacent to the Mad River Slough.

The plants on the CNPS list 1B and 2 are considered rare, endangered, and threatened plants pursuant to Section 15380 of CEQA. The plants on these lists meet the definitions under the Native Plant Protection Act and/or the California Endangered Species Act of the CDFG Code and are eligible for state listing. CDFG requests the inclusion of List 1 and List 2 species in environmental documents. CNPS List 1B and 2 species known to occur or with potential for occurrence within the CMA will therefore be addressed in the companion IS/EA document. In addition to the Federal- and State-listed and CNPS special status species there are a number of sensitive mycotrophic species that exist along the trails and parking area of Ma-le'l North.

Humboldt Bay Wallflower

The Humboldt Bay wallflower became listed as endangered under the Federal Endangered Species Act in March 1992 and is included in the ***Recovery Plan for Seven Coastal Plants and the Myrtle's Silverspot Butterfly*** (USFWS 1998a). Its range extends north of the Lanphere Dunes to a very small isolated population on the South Spit of Humboldt Bay.

Photo by Emily Walter

Humboldt Bay Wallflower (*Erysimum mensiesii* ssp. *eurekense*) is a monocarpic perennial that lives in a vegetative stage for an average of 3 years before reproducing and dying. It occurs in sparsely vegetated, semi-stabilized, nutrient poor sand dunes where plant competition is low.

A member of the mustard family (Brassicaceae), the wallflower occurs in sparsely vegetated, semi-stabilized, nutrient poor sand dunes where plant competition is low. The wallflower is a monocarpic perennial that lives an average of three years, blooming and producing fruit only once. It does not have a persistent seed bank, but instead relies on a "bank of rosettes, which remain vegetative until a critical size is achieved, after which they reproduce and die" (Berg 1986). Germination occurs with the start of the rainy season

and although the species produce numerous seeds, survivorship is very low (less than 1%). Locally the wallflower is attacked by a fungal pathogen that causes crucifer white rust. Disease symptoms are greatest near reproduction and may reduce or prevent seed set (Pickart and Sawyer 1998).

photo by Andrea Pickart

Beach layia (*Layia carnosa*) is a pioneering annual that prefers bare to semi-stabilized sand dunes along the edges of stable vegetation (Dubendorfer, 1992).

Beach Layia

The beach layia became listed as endangered under the Federal Endangered Species Act in March of 1992 and is included in the ***1998 Recovery Plan for Seven Coastal Plants and the Myrtle's Silverspot Butterfly.*** The species range reaches from Santa Barbara northward to Freshwater Lagoon in Humboldt County. Locally, its range includes Freshwater Spit, North and South Spits of Humboldt Bay, and Eel River Spits.

A member of the Asteraceae family, the beach layia is a pioneering annual that prefers semi-stabilized dunes within the dune mat community, and along the margins of stable vegetation (Duebendorfer 1992). Beach layia germinates in the winter during the rainy season and blooms from March to May, completing its life cycle in the late spring. Populations of layia are subject to large fluctuations in size and dynamic changes in local distribution, consistent with shifts in dune blowout, remobilization, and natural dune stabilization that occur in the coastal dune ecosystem. The number of seed heads on individual plants varies with plant size, ranging from unbranched, short, erect plants on dry, exposed sites with a single head to highly branched plants in moist hollows in dunes with over 100 heads (USFWS 1998b, Basor 2002). Seeds are dispersed by wind mostly during the summer months.

Animals

Western Snowy Plover

The Pacific coast breeding population of the western snowy plover (***Charadrius alexandrinus nivosus)*** was federally listed as threatened in March of 1993 (BLM 2004b). Locally, the breeding season for the western snowy plover extends from early March to late September. Plover nesting has never been documented in the vicinity of the Ma-le'l Dunes CMA. The nearest nesting sites are approximately 5 miles to the north at Clam Beach and 7 miles to the south at the South Spit. However, individual plovers have been seen on the beaches within the Ma-le'l Dunes CMA (Ron LeValley pers. comm. 2005).

Brown Pelican

The brown pelican (*Pelecanus occidentalis*) was recently delisted as an endangered species, but is still a species of concern. Its range consists of a population that occurs along the southeastern and Gulf coasts of the U.S., and a population that occurs along the west coast of the U.S., Mexico, the Gulf of California, and down to Central America. Along the west coast, brown pelicans breed as far north as Monterey CA, and during the non-nesting season range as far as Vancouver Island, BC. Locally, brown pelicans use the near-shore Pacific Ocean, the Humboldt Bay jetty, and Humboldt Bay. The birds feed on bait fish in the near-shore waters and in the Humboldt Bay near its entrance. Offshore rocks and sea stacks are used as roosting and loafing sites as are the oyster racks and bay docks in Humboldt Bay. To date, pelicans have only been observed flying offshore in a north-south direction, parallel to the beach. In summer 2004 surveys were conducted to determine pelican use of the Samoa peninsula (BLM 2004a). The greatest number of individuals observed in one survey visit was 75. Individuals were observed loafing more than any other activity during the surveys and immatures were observed more often than adults (BLM 2004a).

2.1.3 Cultural Resources

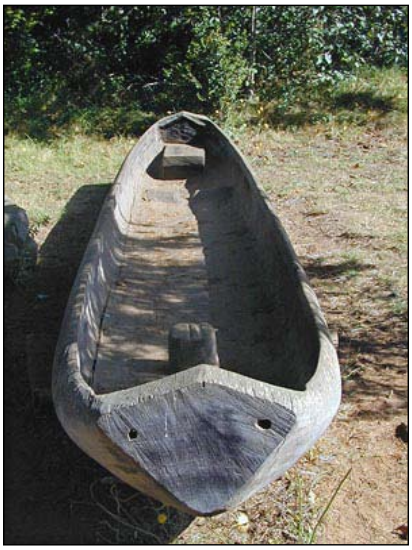
In 1913, Llewelyn Loud spent 4 months in the Humboldt Bay region, and attempted to chart Native American cultural sites. Five prehistoric sites were recorded by Loud that are within the Ma-le'l Dunes CMA (Loud 1918). Archaeological field investigations in recent years have re-confirmed these sites and recorded additional sites. (Angeloff et al. 2004; BLM 1988, 1991, 1992, 2004a).

2.2 Land Use History of the Cooperative Management Area

The area's rich cultural and natural resources, unique land-use history, and history of public involvement has strongly influenced the development of this current Public Access Plan.

2.2.1 Pre-settlement History

Prior to Euro-American settlement, the Wiyot Indians inhabited numerous settlements along the shores of Humboldt Bay and near the mouths of the Mad and the Eel rivers. The Wiyot used the network of rivers and sloughs



Dugout redwood canoe. The Wiyot used the network of rivers and sloughs around the bay to travel by canoe between villages and to access hunting and gathering areas.

around the bay to travel by canoe between villages and to access hunting and gathering areas. The Wiyot also used ocean going canoes for resource extraction. Using the villages as their base, the Wiyot took advantage of the abundant resources around the bay and along the adjacent coastline. The slough, dunes, and beaches within and around the Ma-le'l Dunes CMA were used extensively for gathering berries, weaving materials and mollusks, as well as for surf fishing, waterfowl hunting and fish drying.

Stranded whales and sea lions also provided important food sources as did the anadromous fish runs on the Mad and Eel rivers (Angeloff et al. 2004).

2.2.2 Euro-American Settlement

From 1850 to 1865, Wiyot territory became the center for the largest concentration of Europeans in California north of San Francisco. The Euro-American intrusion nearly annihilated the Wiyot people through displacement, disease and murder. By the 1870s, Euro-American settlers had claimed nearly all the land in the area. As Euro-Americans settled the area, they diked and drained much of the marshlands around the bay to make way for farming and dairy ranches. However, the vicinity of the Ma-le'l Dunes CMA developed much more slowly due to the windy conditions, sandy soils and natural barriers including the freshwater marshes, slough, bay and Mad River. The Wiyot continued to return to the area now known as Ma-le'l until the early 1900's (Marnie Atkins pers. comm. 2005).

The timber industry had a significant impact on the Mad River Slough area. In 1854, the Mad River Canal Company incorporated to build a canal from the mouth of the Mad River to the north end of the Mad River Slough. The slough was then used to transport logs to mills in Arcata and along the Peninsula. The canal was enlarged in 1871 to accommodate larger logs but was plagued by operational problems and winter flood damage and was ordered closed in 1888. As transportation of logs shifted from waterways to railroads, rail lines were constructed near the Mad River Slough to provide better access to the lumber companies (Angeloff et al. 2004). The current access road into the Ma-le'l Dunes CMA and existing trail in Ma-le'l North are built upon the former Humboldt Northern Line of the Hammond Lumber Company Railroad, which was originally built in 1905. The line was abandoned in the 1950's and dismantled in the mid-1960s.

2.2.3 Conservation History

Lanphere Dunes

Interest in the conservation of the area's unique natural resources began in the mid 1940's, when Hortense and Bill Lanphere purchased acreage between the Mad River Slough and the ocean, directly north of the Ma-le'l Dunes CMA. After Bill's death, Hortense became involved in efforts to protect the dunes on her property from encroachment by dune buggies. In 1973, she gave The Nature Conservancy (TNC) a conservation easement (and later donated title) of over 133 acres of dunes. The following year, TNC acquired a 50-acre parcel from Darrell Christensen and established the Lanphere-Christensen Dunes Preserve (TNC 1997). TNC continued to expand the Preserve with the goal of protecting one of the most pristine examples of coastal dunes remaining in the Pacific Northwest. TNC limited access to the Preserve to docent-led tours or by permit only. In 1980, TNC added the 30-acre Hunt parcel, and in 1985, with funding from the SCC, TNC added the 129-acre Hutton Parcel. In 1987, the SCC again provided funding to TNC to acquire an additional 113-acre parcel known as the Fernstrom-Root parcel, with the condition that public access be allowed without a permit or docent. The 17-acre Long parcel was added in 1990. Meanwhile, the BLM created the nearby 112-acre Manila Dunes Area of Critical Environmental Concern (ACEC) in 1987.

Mad River Slough and Dunes Cooperative Management Area

In order to provide public access to the Fernstrom-Root parcel while protecting the natural resources of the area, TNC pursued a cooperative management agreement with the Louisiana-Pacific Corporation (LP) and the BLM, the owners of the adjacent properties to the south. The agreement, signed in 1988 and encompassing 385 acres, included the TNC's Fernstrom-Root parcel, the 160-acre LP property (known more recently as the former Buggy Club parcel), and the BLM Manila Dunes ACEC. The open sand areas of the BLM and LP properties were excluded from the cooperative management agreement because off-highway vehicle (OHV) use was allowed there. The agreement called for the preparation of a cooperative management plan, which was adopted in May 1990 (Pickart 1990). The preparation of the management plan involved coordination between the three land owners, as well as the RGC, Sierra Pacific Industries, Humboldt Bay Municipal Water District, the residents of Young Lane and Manila, organized OHV clubs, the SCC, Humboldt County and others. The management plan presented three management objectives for the area: public pedestrian access, public

View to the east overlooking the Mad River Slough from the dunes.

education, and resource protection. A Memorandum of Agreement between the cooperating parties (BLM, LP, and TNC) and the RGC was included as an appendix to the management plan.

Upon adoption of the management plan, the Mad River Slough and Dunes Cooperative Management Area was dedicated to public use in 1990. FOD, at that time a volunteer arm of TNC, began leading public guided walks on the property. The area was a very popular coastal access point from 1992 to 1994. Use was approximately 2,000 visitors per year at the former Mad River Slough and Dunes Cooperative Management Area but is expected to be higher at the new CMA based on use figures from adjoining BLM property. Improvements for public access included a gravel parking lot, a composting toilet, signage, and several hiking trails.

Beach and Dunes Management Plan

The development of the Humboldt Beach and Dunes Management Plan (HBDMP) had a significant impact on public use of coastal dunes in the Humboldt Bay area, including the dunes of the Ma-le'l Dunes CMA. In 1989, the Humboldt County Board of Supervisors established a Beach and Dunes Advisory Committee charged with resolving the conflicts between OHVs and pedestrians, and improving resource protection on both the north and south spits in Humboldt County (Humboldt County Planning Department 1993). The Beach and Dunes Advisory Committee, working together with the Humboldt County Planning Department, played a critical role in the development of the HBDMP. Both the SCC and the Off Highway Motor Vehicle Recreation Commission provided funding for the plan. Input for the plan came from local user groups and a series of informational meetings of the Beach and Dunes Citizens' Advisory Committee, as well as numerous surveys and inventories focusing on a myriad of issues. During that time, the Humboldt Coastal Coalition, a community action group, was formed to help bring public attention and input to the plan. The plan presented priorities for resource protection and enhancement, designated specific use areas and use restrictions, and recommended access improvements. In 1992, the Humboldt County Planning Department staff, together with the Advisory Committee members, submitted the HBDMP to the Humboldt County Planning Commission. In late 1993, after a series of public hearings, the Humboldt County Board of Supervisors approved the HBDMP that restricted recreational riding to the Samoa Dunes Recreation Area at the south end of the North Spit and at the Khoaghali property, which was being leased to the Humboldt Buggy and ATV Association, Inc. (a.k.a Buggy Club).

Project Area Ownership 1994-1999

The Buggy Club purchased the LP property in March of 1994. After the sale of the land to the Buggy Club, the Mad River Slough and Dunes cooperative management agreement between BLM, LP, and TNC was terminated and the area was closed to the general public. After the closure, the TNC's Fernstrom-Root parcel went back to being managed as part of the Lanphere-Christensen Dunes Preserve, again requiring a permit or docent for public access.

In July of 1994, the California Coastal Commission certified the HBDMP. A vehicle use ordinance (County Code section 917 et seq.) that restricted recreational riding in the dunes took effect when the HBDMP was adopted (Tom Hofweber pers. comm. 2005). From 1994-1999 there was considerable controversy regarding OHV riding on Buggy Club property. Some members of the Buggy Club continued to ride after the HBDMP was adopted by the County. Members of citizen action groups such as the Humboldt Coastal Coalition and Beach and Dunes Stewards monitored riding on the property and put pressure on the County to enforce the ordinance.

In 1997, TNC donated fee title of the Lanphere-Christensen Dunes Preserve to the USFWS. The SCC grant agreement language pertaining to the public access stipulations of TNC's Fernstrom-Root parcel were transferred to a Memorandum of Agreement between the SCC and the USFWS. The property transfer was finalized in 1998, which in turn created the Lanphere Dunes Unit of the USFWS NWR.

In 1998, the Buggy Club submitted an application for a General Plan Amendment to allow riding on their property purchased from LP. That same year, the club purchased the Khoaghali parcel, which they had leased up to that time (State Coastal Conservancy 2002). In March of 1999, the County denied the Buggy Club's application for a General Plan Amendment and the Buggy Club became interested in selling both the 42-acre Buggy Club/ Khoaghali parcel (adjacent to BLM lands) and the 160-acre former L-P parcel (adjacent to USFWS land).

Sale and Transfer of Lands to BLM and USFWS

When it became apparent that the Buggy Club was interested in selling their property, the agencies immediately adjacent to each parcel began working to acquire them. In 2002, the SCC approved funding of both state and federal origin for the Buggy Club parcels to be purchased and in 2003 they were conveyed to the Center for Natural Lands Management (CNLM) for interim management. The provisions relating to public access and natural resource conservation were maintained with the land.

In July of 2004, the CNLM transferred the Buggy Club/Khoaghali parcel to the BLM. Since that time BLM has been managing the property consistent with its Arcata Resource Management Plan, which, when amended, will address new issues, concerns, and management actions outlined in this document. The CNLM transferred title of the 160-acre former L-P/ Buggy Club parcel land to the USFWS in August 2005. Upon transfer, the USFWS entered into a Memorandum of Understanding with the SCC that reflects original terms and public access stipulations.

When BLM and USFWS began planning to acquire their respective Buggy Club properties, they envisioned a cooperatively managed area and consulted the Wiyot Tribal staff for an appropriate Wiyot name. As a result, both properties were named for the Ma-le'l village site. The 42-acre former Buggy Club/Khoaghali property came to be known as the BLM Ma-le'l Dunes. Similarly, the USFWS made plans to combine the 160-acre former Buggy Club property with the Fernstrom-Root property and manage it as the Ma-le'l Dunes Unit of the Humboldt Bay NWR.

In order to facilitate the efficient use of financial resources, provide a common visitor experience, and protect the natural resources of the area, BLM and USFWS committed to work together to cooperatively manage the properties within their jurisdiction. A cooperative management framework will be developed as recommended in this Plan to allow for coordinated management of the resources and public access.

2.3 Legal Aspects/Regulatory Setting

2.3.1 Zoning, Relevant Applicable Land Use Plans

The Ma-le'l Dunes CMA is located within the coastal zone, which means it is subject to the coastal resources planning and management policies set forth in the California Coastal Act. The Humboldt County land use designation throughout the cooperative management area is Natural Resources.

The project area lies within the planning area of a number of local planning documents namely, the *Humboldt Bay Area Plan of the Humboldt County Local Coastal Program* (Humboldt County Planning Department 1989), the *Humboldt County Beach and Dunes Management Plan* (Humboldt County Planning Department 1993), and the *Humboldt Bay Management Plan* (Humboldt Bay Harbor, Recreation and Conservation District 2007). In addition, the *Resource Management Plan and Environmental Impact*

Statement for the Arcata Planning Area (BLM 1989), and the *Conceptual Management Plan for the Lanphere Dunes Unit* (USFWS 1997) are land use guidance documents for the areas respectively owned by each agency. The project area is also included in the planning area of Recovery Unit 1 of the western snowy plover Pacific Coast Population Draft Recovery Plan (USFWS 2001), and the *Recovery Plan for Seven Coastal Plants and the Myrtle's Siliverspot Butterfly* (USFWS 1998a). These documents address the area contained within the Ma-le'l Dunes CMA minimally or in a way that is unrelated to the context of this Plan.

Planning documents that are relevant to the Ma-le'l Dunes CMA include the *Environmental Assessment and Land Use Decision Amendment for the Samoa Peninsula Management Area*, *Arcata Resource Area* (BLM 1995), the *Restoration Plan for Humboldt Bay NWR Ma-le'l Dunes* (Pickart 2005), and the *Humboldt Bay Trails Feasibility Study* (Redwood Community Action Agency 2001). These documents are discussed briefly below, as is the *Final Compatibility Determinations and Pre-Acquisition Compatibility Determinations for Lanphere Dunes Unit Modification and the Proposed Ma-le'l Dunes Addition, Humboldt Bay National Wildlife Refuge* (USFWS 2004), which is a public planning document required by the USFWS. The *Ma-le'l Dunes Access Improvement Environmental Assessment* (BLM 2004a) and associated *Biological Assessment for the Ma-le'l Dunes Access Improvement for Interim Management* (BLM 2004b) are discussed under Section 1.6 Environmental Compliance.

BLM Environmental Assessment and Land Use Decision Amendment for the Samoa Peninsula Management Area, Arcata Resource Area

The BLM Land Use Amendment for the Samoa Peninsula incorporated the BLM Manila Dunes parcel as an Area of Critical Environmental Concern, and closed the area to OHV use in order to protect threatened and endangered plants and animal species, restore native dune plant habitat, formations and processes of dune habitat, and protect prehistoric and historic cultural sites. Under this mandate, BLM has worked with the California Conservation Corps (CCC) since 1994 to remove invasive exotic plant species and plant native dune grass *(Leymus mollis)*. As a result of this work, the nearshore dunes of Ma-le'l South have been successfully treated and resprout "sweeps" occur regularly (Jennifer Wheeler pers. comm. 2005).

Restoration Plan for Humboldt Bay NWR, Ma-le'l Dunes

In February 2005, EDAW, a consulting firm based in Sacramento, California, completed an environmental restoration plan in collaboration with HBNWR staff for the new Ma-le'l addition (a portion of Ma-le'l North). This plan is a component of the Habitat Conservation Plan for the California Department of Corrections (CDC) Statewide Electrified Fence Project, which was developed to minimize wildlife take and compensate for unavoidable wildlife mortality. The plan addresses 129 acres of the 290 acres of Ma-le'l North, upon which USFWS has conducted CDC-funded restoration and enhancement activities, including removal of invasive nonnative vegetation and restoration of degraded coastal forest habitat. In addition, CDC funded a restoration manager position, half time for 5 years. This restoration funding runs out in 2010, after which USFWS will continue restoration using agency and grant funding.

RCAA Humboldt Bay Trails Feasibility Study

The Humboldt Bay Trails Feasibility Study was prepared by the Natural Resources Services Division of RCAA in August 2002. This document researches opportunities for non-motorized access to and around Humboldt Bay, and makes some references to the trail system contained with the Ma-le'l Dunes area relative to the California Coastal Trail and Hammond Trails.

California Coastal Trail/Hammond Trail

The RCAA trail study describes the California Coastal Trail (CCT) as a broad vision to provide public access along the California coastline. The trail is envisioned as a contiguous corridor for multiple uses along or near the state's coastline, from the Oregon border to Mexico. Many segments exist, while others are in the planning stages.

Within Humboldt County, the best-known and most developed segment of the CCT is the Hammond Trail in western McKinleyville. The RCAA trail study noted that the Hammond Trail should be extended southward through Arcata. Beginning at the Hammond Bridge, the preferred route discussed in the study would follow the abandoned Hammond railroad corridor crossing Lanphere Road, and intersecting with an abandoned spur of the railroad eastward, and enter the Arcata city limits near the intersection of Foster and Alliance Road. From Arcata the trails study recommends the Coastal Trail follow Old Arcata Road/Myrtle Avenue into Eureka. In addition, the Humboldt County Local Coastal Plan (Humboldt County Planning Department 1983) recommended that the CCT route from the Hammond Bridge continue through the City of Arcata to connect with and follow Old

Arcata Road to Eureka thereby excluding the Samoa Peninsula and Ma-le'l Dunes planning area from the current design of the CCT.

The RCAA trails study did consider a westward spur of Coastal Trail/ Hammond Trail that would follow the rail corridor into Manila via the railroad berm that serves as a trail and the access road to the Ma-le'l Dunes CMA. However, there are several additional constraints associated with this route, which include: much of the proposed corridor is private property; remnant trestles of the Mad River slough would need complete reconstruction; and potential coastal forest and dune habitat impact issues.

The southwest portion of the Mad River Slough, which borders the Ma-le'l Dunes CMA to the east, was listed in the Humboldt Bay Trails Feasibility Study as a priority water trail implementation project if the site became designated or managed for public access.

USFWS Final Pre-Acquisition Compatibility Determinations

USFWS completed a Compatibility Determination and Pre-acquisition Compatibility Determination for the proposed Ma-le'l Dunes Unit of the USFWS-Humboldt Bay NWR in August 2004. The document was prepared as part of the USFWS acquisition and land planning process, and it considered the potential impact of wildlife observation, photography, environmental education and interpretation, kayak and canoe landing/launching, boater-only camping, dog walking, and tribal access and gathering at the USFWS-Humboldt Bay NWR, Ma-le'l Dunes Unit. The compatibility determination concluded that all but kayak and canoe landing/launching, boater-only camping, and dog walking were compatible uses for the area.

2.3.2 Public Access, Prescriptive Rights and Easements

The California Coastal Act, passed in 1976, states that one of its basic goals is to:

> Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources, conservation principles and constitutionally protected rights of private property owners.

The California Coastal Commission, as well as the SCC, work to implement and support public coastal access for the length of California's coastline. A property is deemed to have public access when the general public has the ability and the right to get to the property. The BLM and USFWS will ensure that the general public will have this right and ability to access the beaches

upon the adoption of this Plan and implementation of the improvements described herein.

Public prescriptive access rights apply to private property and do not apply to public coastal lands because publicly owned coastal land must by law maintain the public's right to access these lands (with some exceptions for military reservations). Since the land within the Ma-le'l Dunes CMA is public land, there can be no claims for prescriptive access rights to them.

An easement is the right to use the real property of another for a specific purpose. The easement is itself a real property interest, but the original owner retains legal title to the underlying land for all other purposes. The BLM portions of the Ma-le'l Dunes CMA maintains easements for right of way and access, including the HBMWD, Pacific Gas and Electric Company, and the Humboldt Bay Wastewater Authority for the right to construct, reconstruct, and otherwise maintain their respective utility service and related infrastructure, which lies or passes over the property.

2.3.3 Existing Interagency Agreements

Interagency and inter-organization agreements, such as Memorandums of Understanding (MOU) and cooperative agreements, can help to facilitate communication, coordinate management activities, establish shared enforcement, synchronize projects, and maximize resources.

There are several existing agreements that are relevant to the Ma-le'l Dunes project area, and/or to the project partners.

- MOU between USFWS-Humboldt Bay NWR and FOD in order that FOD support the Humboldt Bay NWR educational and interpretation at the Ma-le'l Dunes Unit and the Lanphere Dunes Unit. Under the terms of this document, both parties collaborate to secure funding for furthering their mutual goals. FOD acts as the lead support group in providing public education and outreach at the Lanphere and Ma-le'l Units of Humboldt Bay NWR; Humboldt Bay NWR provides technical assistance and staff support to FOD as appropriate.
- MOU between BLM and the Wiyot Tribe in order to provide increased cooperation between parties to develop opportunities for subsistence activities and to further management goals on the South Spit relating to traditional cultural Wiyot practices

- MOU between USDA-Six Rivers National Forest, BLM, and the Wiyot Tribe that formalizes their government-to government relationship and recognizes the need to formalize communication and government protocol. The document designates staff and hierarchy for communication and it establishes that the parties will meet once a year and share documents and equipment to the extent that it aids the management of public lands. It defers all fiscal matters to subsequent agreements.
- Supplemental Agreement between BLM and USFWS that prescribes the procedures and guidelines for designating law enforcement authority. Parties to the document mutually agree to cross-designate law enforcement officers on neighboring lands and share radios and equipment such that it is mutually beneficial, economical, and advantageous to both. Such services will be provided upon written request. Cross-designated personnel will be provided with four hours training on the laws and regulations by the requesting agency.
- Humboldt Coastal Dunes Cooperative Agreement for Coordinated Ecosystem Management between many local, state and federal governmental and local non-governmental entities to create a framework that promotes cooperation on coordinated ecosystem management relevant to the beach and dunes areas of Humboldt County
- MOU between USFWS Humboldt Bay NWR and Humboldt State University (HSU) in order that Lanphere Dunes is accessible to HSU researchers, that HSU provides enforcement, and that HSU and USFWS cooperate on educational ventures of mutual benefit
- Agreement between the State Coastal Conservancy (SCC), USFWS and the Center for Natural Lands Management (CNLM) in order that the former Buggy Club parcel located in the Ma-le'l North and the access roadway be held and used consistent with the purposes of coastal resource enhancement, public access, and open space preservation, and that any transfer of the property be subject to such restrictions

3.0 Existing Use and Access Infrastructure

This chapter describes the current public use of the Ma-le'l Dunes CMA properties and the condition of existing access infrastructure located throughout the area. Infrastructure located in Ma-le'l South and Ma-le'l North are discussed separately.

The first trail head at Ma-le'l south directs equestrians to the beach and the old "waterline trail".

3.1 Existing Public Uses

3.1.1 Ma-le'l South

Owned by BLM, Ma-le'l South is currently open to the public daily from sunrise to 1 hour after sunset to non-motorized recreational uses, with the following restrictions:

- Equestrian use is allowed only on designated trails and the wave slope.
- Pedestrian use is allowed only on designated trails, open sandy areas and the waveslope.
- Dogs must be leashed in the developed recreation sites (parking/picnic area); otherwise dogs are allowed off-leash consistent with Humboldt County ordinance.
- Organized group camping for special events may be approved on a case-by case basis.
- Vegetation gathering on designated trails for personal use is allowed from May to November.
- Fires are allowed in designated sites only.
- General overnight camping is prohibited.
- Fishing is allowed subject to CDFG.
- Firearm and crossbow/bow shooting, mineral sales, and livestock permits and leases are prohibited.

The second trail head at Ma-le'l South leads pedestrians to the beach through dune swales and along the base of moving dunes. The trail joins the equestrian "water line" trail as it crosses primary dune ridges to the beach.

3.1.2 Ma-le'l North

Ma-le'l North has had restricted public access since 1994. A permit can be obtained to the Fernstrom-Root parcel by contacting the USFWS Humboldt Bay NWR or FOD. Public access to the southern portion of Ma-le'l North is limited to monthly guided walks by FOD.

Rocket-style information kiosk located at the Ma-le'l South parking and day use area.

3.2 Existing Access Infrastructure

Vehicle, bicycle, and pedestrian access to the Ma-le'l Dunes CMA is from Samoa Boulevard/State Highway 255 via Young Lane. Young Lane is an approximately 400-foot long, paved two-lane road that terminates at the unnamed gravel access road that runs in a north-south direction on top of the decommissioned Humboldt Northern line of the Hammond Lumber Company Railroad. This road provides access to the gravel parking areas of Ma-le'l North and Ma-le'l South, and is known as Ma-le'l Road throughout this Plan.

The existing Ma-le'l Dunes CMA entry sign at the intersection of Young Lane and Ma-le'l Road directs visitors to the south entrance. It was installed by BLM in June 2005.

Currently, there are over 3 miles of foot trails within the CMA that traverse forest, open dunes, and swales. The foot trails are earthen paths clustered in the far southern and far northern portions of the CMA. The trails in the south are marked; the trails in the north are not. Trails are considered moderate to strenuous due to the varied topography and range of hiking duration offered. Some trails can be completed in less than 30 minutes, while others offer 1 to 4 hours of hiking. Figure 3-1 illustrates the existing infrastructure throughout the area.

3.2.1 Ma-le'l South

Amenities that support public use within the Ma-le'l South area consist of a recently improved access route, entrance signing, graveled parking lot and day use area with picnic tables, temporary toilet, trash receptacles, information kiosks, and trail markers along dune and forest footpaths. These are described in more detail below.

Access

The Ma-le'l South trailhead parking area is accessed by turning south at the intersection of Young Lane and Ma-le'l Road. This portion of Ma-le'l Road has been recently regraded and improved with new gravel. The road is discussed further in the Ma-le'l North Access section.

At the intersection of Young Lane and Ma-le'l Road, members of the Redwood Gun Club are directed north.

Signing

At the intersection of Young Lane and Ma-le'l Road there is an interim entry sign which was installed by BLM. It is an inverted, truncated triangle welcome sign approximately 6' wide by 3' high and is constructed out of medium density overlay plywood with a brown background and white lettering. It reads, "Ma-le'l Dunes Cooperative Management Area" and directs visitors to the Ma-le'l South parking area. Adjacent to the welcome sign is a sign that directs members of the RGC north.

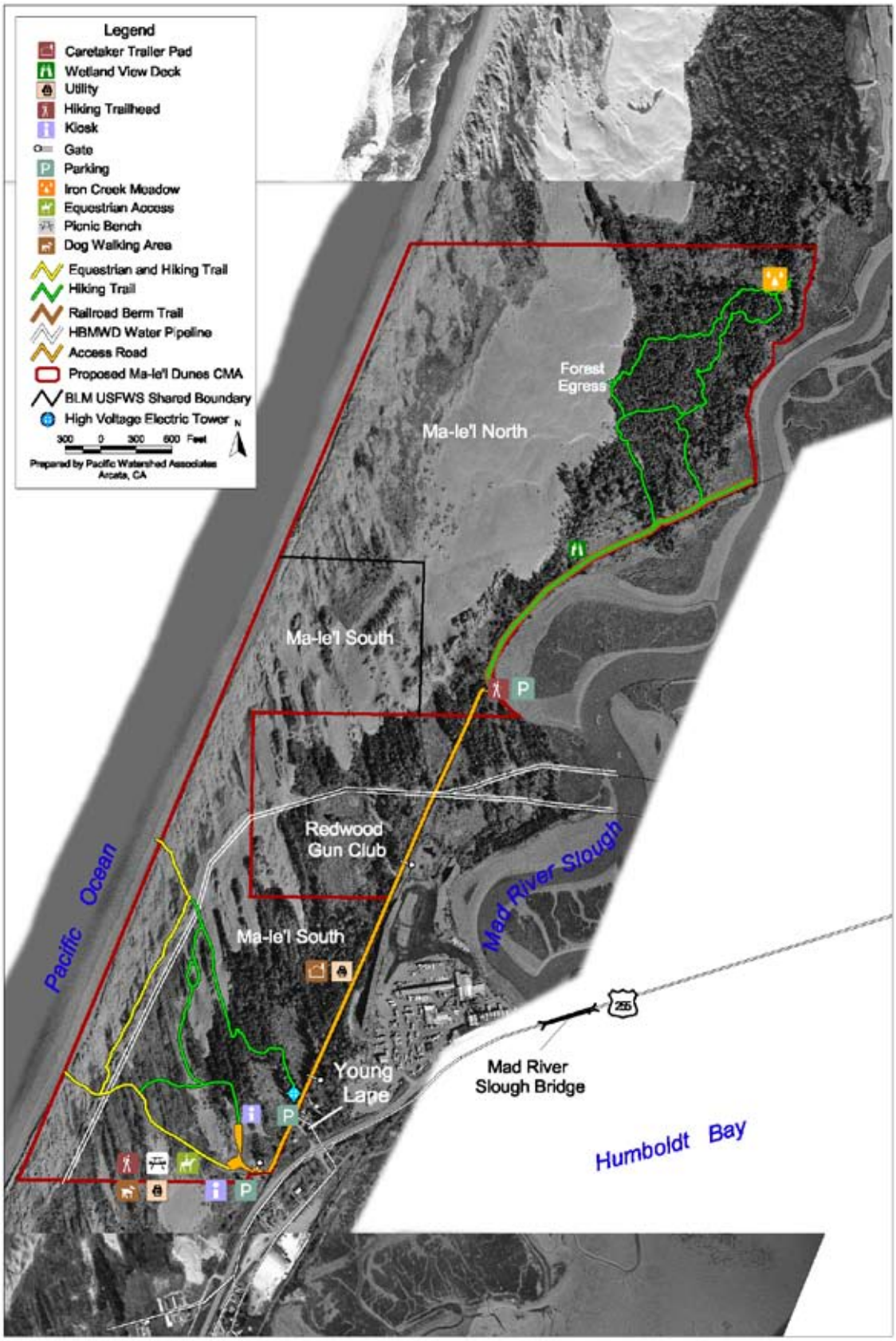


Figure 3-1. Existing Features Map

Ma-le'l South parking area entrance.

At the entrance to the Ma-le'l South parking area, there is another inverted, triangle sign that reads, "Ma-le'l Dunes Cooperative Management Area, South Entrance." Directional signs located at the parking area trailheads have universal symbols to indicate trail uses.

Gates and Fencing

There is one steel access gate at the entrance to Ma-le'l South that is padlocked from 1 hour after sunset to sunrise. A new board fence was recently installed along the property boundary between BLM and the adjacent private residence.

A post and wire fence exists along approximately 2,000 feet of nearshore dunes along the western edge of the Ma-le'l South property line. Dilapidated wooden post and wire fences also exist along Ma-le'l Road north and south of the caretaker site. These are discussed further in subsequent sections. The Ma-le'l South - Ma-le'l North property line is delineated by 2,400 feet of metal post and wire fencing.

Fence between Ma-le'l South and Ma-le'l North, is 2,400 feet long.

Parking and Day Use Area

Currently, there are two vehicle-parking areas along Ma-le'l Road that provide access to Ma-le'l South. One is the large, main gravel lot at the southern end of Ma-le'l Road, and the other is a small pullout a short distance north of Young Lane, also on Ma-le'l Road, under a Pacific Gas & Electric high voltage transmission line/tower.

The main Ma-le'l South gravel parking lot is about 20,000 sq. ft. and designed to serve approximately 15 vehicles, including buses and horse trailers. In February 2005, RCAA resurfaced this parking area with base material gravel and installed a perimeter fence of peeler core posts and cable. Three new concrete picnic tables and four trash receptacles were installed and native shore pines were planted to create a vegetative buffer between the parking area and the residence to the south.

Private property fencing along Ma-le'l Road. Upon turning north along Ma-le'l Road, the power tower parking area is visible as are the signs and gate to RGC and the USFWS property beyond.

The pullout parking area beneath the Pacific Gas & Electric high voltage transmission line/tower has room for approximately five vehicles. Many people use this parking area to access the trailhead located here and walk through the forest to the beach.

Trails and Trail Amenities

Two trailheads with rocket-style information kiosks exist at the Ma-le'l South parking area. One is for equestrians and the other for pedestrians.

The equestrian trail begins as a compacted dirt roadway that, after a short distance, passes through an open area that was used by previous owners for special events. A well-defined, marked trail leads north from the open area through a hollow and into the nearshore dunes. At a well-defined intersection the trail splits, with one trail leading west to the beach and another heading north along the HBMWD pipeline, or "waterline trail." The "waterline trail" continues north until it intersects with other foot trails (discussed below) and turns west through the nearshore dunes to the beach. Large 5-foot diameter concrete standpipes protrude from the dunes at approximately 200-foot intervals along the HBMWD pipeline. This trail is used by HBMWD for regular pipeline maintenance inspections. Portions of an exposed wooden sand drift fence, which was installed by the HBMWD to prevent the uncovering of their pipeline, exist at the intersection with other foot trails.

Power tower parking area holds about five cars and is used frequently by hikers and dog walkers.

The pedestrian foot trail departs the north end of the Ma-le'l South parking area. It leads briefly through forested dunes and then through a series of dune swales along a poorly defined foot trail in a northerly direction. The foot trail meets an open moving dune and joins a trail from the forest in route to the equestrian trail mentioned above, where it continues to the beach.

One of the more commonly used foot trails in Ma-le'l South extends west from the small pullout parking area adjacent to the high voltage transmission line/tower discussed above. The trail is well defined and passes through forested dunes toward the open dunes and beach. Some of the trail is difficult to traverse due to steep slopes and seasonal standing water and mud. There are several locations where casual trails branch off into the forest, and are likely associated with unauthorized plant material gathering and illegal camping. Once out of the forest, the trail passes over and down the center of the moving dunes. This path through the dunes is somewhat obscured by moving sand; however, the lay of the land makes the path identifiable. At the foot of the moving dune/deflation plain there is the well-defined intersection mentioned above, where it joins the equestrian and foot trails from the Ma-le'l South parking area.

Caretaker Site

At approximately 750 feet north along Ma-le'l Road there is a gravel spur onto BLM property that leads to a 2,500 square foot clearing and gravel pad where a trailer and caretaker of the former Mad River Slough and Dunes CMA was located. The site has power, telephone and water, and also contains a 10' x 6' wooden storage shed in disrepair.

Utilities

Where they exist, water, power, and telephone lines are approximately 3 feet beneath ground surface.

USFWS Humboldt Bay NWR boundary signs exist along the western and southern boundaries, at 500-ft intervals.

Water

Potable water service is supplied to two locations within the plan area: the Ma-le'l South parking area and the caretaker site. Meters are located adjacent to the board fence that delineates the Ma-le'l South parking area and at the intersection of Young Lane and Ma-le'l Road.

Power

The only location in the plan area served with electricity is the caretaker site. This location is metered by Pacific Gas & Electric. However, it is unknown if the service is operational. The electrical line is buried along the west side of Ma-le'l Road.

Telephone

The only location in the Plan area served by telephone service is the caretaker site. It is assumed there is no operational account at this time since the site is vacant. The RGC is also serviced by telephone and is currently operational.

A padlocked gate closes the entrance to the HBMWD. No signage exists on the gate.

Sewer

Although there is no sewer service to the plan area, Manila Community Services District provides service to the adjacent residential properties to the south and east of the CMA.

3.2.2 Ma-le'l North

Amenities that support public use within Ma-le'l North consist of Ma-le'l Road, a gravel parking lot, and unmarked footpaths. Two empty kiosks in addition to boundary signs that mark the southern Fernstrom-Root property line exist in the area.

Access

Ma-le'l North is accessed by Ma-le'l Road, a single lane gravel access road that extends from Young Lane to the USFWS parking area. Ma-le'l Road is approximately 4,400 feet long and centered on a 60-foot wide right of way owned by USFWS. It is built on the remnants of the old Hammond Lumber Company logging railroad that used to extend from Samoa, through the

Plan area, and across the Mad River Slough to Crannell Road. The railroad operated in this area until it was abandoned in approximately the 1950s. The Hammond Lumber Company removed the rails, ties, and some of the rock ballast in the late 1960s, after which the portion of the railroad berm within the CMA was converted to a gravel roadway (Bob Fallis pers. comm. 2005).

Ma-le'l Road lies upon the Humboldt Northern line of the Hammond Lumber Company rail road and was originally built in 1905. It is a single lane gravel road.

RGC was responsible for maintenance of Ma-le'l Road, from Young Lane to the club's entrance, since establishment of the club in the early 1970s until USFWS assumed ownership in 1997. From 1992-1994 when the Mad River Slough and Dunes CMA was open to the public, the Ma-le'l Road experienced accelerated degradation due to increased public traffic. After the CMA was terminated the TNC repaired Ma-le'l Road under the direction of the RGC. The club assumed responsibility of road maintenance, with some minor exceptions (Bob Fallis pers. comm. 2005) until 1998 when USFWS began maintaining the road with refuge equipment operated by refuge staff. The current road maintenance method and schedule is outlined in Appendix A.

On the west side of Ma-le'l Road, before the first gate (discussed below), is the small pullout parking area of Ma-le'l South previously discussed. North of the first gate, heading toward the RGC property, Ma-le'l Road mostly cuts through a large forested sand dune, which gives away to wetlands in some areas.

Just past the RGC entrance and the second gate (also discussed below), Ma-le'l Road narrows as it passes through a wetland area before the HBMWD easement crosses the road. North of the HBMWD easement the road cuts into another forested dune area as it nears the new Ma-le'l North property boundary. This roadway surface of the final section of Ma-le'l Road has received minimal maintenance. The road here is narrow and dense vegetation exists on either side.

Signing

Very little directional signing exists throughout Ma-le'l North. A set of antiquated signs exists near the intersection of Young Lane and Ma-le'l Road that directs traffic north to the RGC and lists RGC hours of operation. There is also a large "No Trespassing" sign. Boundary signing exists in only a few locations along Ma-le'l Road just north of the RGC entrance. It reads "Danger Shooting Range Keep Out." USFWS Humboldt Bay NWR boundary posts and signs exist along the western and southern property boundary of the Fernstrom-Root at approximately 500-foot intervals. There are currently no signs (no trespassing or other use) associated with the HBMWD easement that crosses Ma-le'l Road.

Redwood Gun Club boundary signs are posted along Ma-le'l Road in only a few locations.

Gates and Fencing

There are two access gates along northern portion of Ma-le'l Road:

1. A gate near the high voltage tower north of Young Lane. This gate is open for the RGC Saturday and Sunday 10 am to 4 pm. There is a RGC sign and a private property/no trespassing sign located at this gate.
2. A gate located north of the RGC entrance, approximately a half-mile north of Young Lane. It can only be accessed by HBMWD, USFWS and FOD.

Wooden post and wire fencing also exists around the entirety of the RGC property, including along Ma-le'l Road. Much of the fencing along Ma-le'l Road was installed through a grant from the CDFG in 1989, to facilitate access for the Mad River Slough CMA. However, along the southern boundary of the club's property there are two locations where repair is required. Except for some signing on the club's fence that borders Ma-le'l Road, signing around the rest of the club's property boundary is completely lacking. There is also a chain link fence with locking gates on the west side of Ma-le'l Road where the HBMWD easement crosses the road.

There is no fencing along the east side of Ma-le'l Road, except for a series of fences that border several residences and encroach into the road right-of-way. The fences here do not provide privacy to the residents or a feeling of safety to recreational visitors. In lieu of a fence along Ma-le'l Road/SPI property line, there is a ditch and a berm vegetated with shore pine and undergrowth. There is also a 5-foot high locked metal gate on the east side of the road where the HBMWD easement crosses the road

The old Mad River Slough and Dunes parking area is gravel and can accommodate approximately ten vehicles.

Parking and Day Use Area

At the northern terminus of Ma-le'l Road is a gravel clearing adjacent to the Mad River Slough that serves as a parking area and was previously used as the parking area for the Mad River Slough and Dunes CMA. The clearing is approximately one-third of an acre in size and can accommodate about 10 vehicles. The clearing is bordered by a narrow strip of salt marsh to the northeast and a low-lying wire fence to the south, beyond which a casual trail leads through a grassy area with scattered shrubs and beach pines and a picnic table. Around the rest of the perimeter are beach pines and brush. Two simple benches are located on the edge of the parking area overlooking the slough channel. At the northern edge of the area, there is a wooden entry sign demarcating the parking area of the Mad River Slough and Dunes CMA, a metal bike rack, and an iron ranger that demarcates the trailhead.

Kayak and Canoe Launching and Landing

Kayak and canoe enthusiasts use the Mad River Slough extensively. Boat launching into the slough commonly occurs beneath the Mad River Slough Bridge on Highway 255 where a concrete ramp is located, and on the Lanphere Road bridge, where a rock abutment to the bridge is located. The existing parking area of Ma-le'l North is adjacent to an intertidal channel of the Mad River Slough that was a popular boat-landing site during high tides. Due to the presence of salt marsh habitat and trampling that has occurred from boaters, CNLM established symbolic fencing to discourage boat landing.

Canoe and kayakers have historically used the Ma-le'l North parking area for boat landing. Unmanaged, this use has caused trampling of the adjacent salt marsh and erosion.

Trails and Trail Amenities

Railroad Berm Trail

A well-defined, flat footpath varying from 2 to 6 feet in width extends from the north end of the parking area. It follows the railroad berm in a northeasterly direction for a distance of approximately 2,800 feet along the edge of the slough to where an abandoned railroad trestle is located. Following the edge of the slough, most of the trail is 5 feet above the mean high high water (MHHW) line, and overgrown with vegetation in many locations. This trail was improved for ADA use by BLM and TNC staff and volunteers in 1990 as part of the Keep California Beautiful Campaign. There are two forest trails branching off of this trail (discussed below). There is one simple wooden bench (approximately 500 feet north of the parking lot) along the trail facing east over the slough.

The main trail into Ma-le'l North follows the old railroad berm along the Mad River Slough.

Erosion and slumping along the slough side of the railroad berm is evident in many locations and is likely due to wind wave processes. However, the rate of shoreline loss is unknown. There is evidence of efforts to mitigate this effect by placing brush cuttings and fill material along the bank, including a boxcar imbedded into the berm at one location.

An abandoned railroad trestle crosses Mad River Slough at the north end of railroad berm trail.

Dune Overlook Trail

A short distance from the parking area along the railroad berm trail, a spur trail extends west 80 feet up to a vantage point atop a dune at an elevation of approximately 90 feet above mean sea level. From this location one has a 360-degree view of the Pacific Ocean, landforms of the dune and forest complex, the Mad River Slough, the Arcata Bottoms, the coastal foothills and Humboldt Bay. This point is known as the "dune overlook." The steep trail up the dune is comprised of loose sand and has an approximate grade of 35%.

The view north from the Dune Overlook Trail at Ma-le'l North.

Restoration crews use this spur trail as an access to the nearshore dunes below, and an obscure trail across the sand leads steeply down the face of the dune and beyond. European beachgrass populates the dunes in this area and wherever it is absent, sand frequently alters the shape of the top of the dune. The BLM Ma-le'l South and USFWS Fernstrom-Root boundary fence is clearly visible from the dune overlook.

Forest Loop Trails

There are two trails that depart from the main railroad berm trail and lead into the forested dunes. Combined, these two trails create a loop through the forest towards a clearing adjacent to Iron Creek, a fresh water stream. Approximately halfway along the length of the forest trails there is a shortcut that creates a shorter loop. The northeast portion of the large loop trail will be decommissioned due to cultural concerns. The trails are generally well defined and approximately 2 to 4 feet in width. In a few places the trail route becomes poorly defined and there is evidence of a number of casual trails. There is a path from the clearing towards the creek and some erosion of the bank is visible here. Along a portion of forest trail there is a dilapidated wooden staircase with rail, and a bench in good condition located at a vantage point of the slough and Arcata Bottoms.

Dune Trail to the Beach

Where the forest loop trail is closest to the dunes there is a weathered but intact kiosk and a trail that leads out of the forest and up to the open, moving dune system. The moving dunes have been steadily encroaching towards the kiosk, which will need to be moved. The trail up the dune is steep and in loose sand. Once on top of the dune, the trail appears to follow the Humboldt Bay NWR posts and signs along the Fernstrom-Root southern boundary to navigate to the beach. Moving sand across the dune often obscures most evidence of any dominant foot trail. A tangle of wire and metal posts is periodically exposed near the dune deflation plain. At the back/leeward side of the foredune a poorly defined footpath is visible to the beach.

A wetland view deck is located along the railroad berm trail.

Wetland View Deck

Approximately 0.25 miles north of the parking area, on the west side of the railroad berm trail, there is a 10 ft x 10 ft wooden view deck and memorial bench cantilevered over a marsh area. The view deck was originally constructed in 1993 and, although it is still intact and stable, it appears to be weathering.

4.0 Recommended Public Use and Access Improvements

This chapter describes recreational land use allocations and improvements that will be completed or installed in order to accommodate safe and orderly public access at the Ma-le'l Dunes CMA. This information is presented in the following sections:

4.1 Types of Recreational Use
4.2 Estimated Use Levels
4.3 Access and Circulation
4.4 Access Infrastructure
4.5 Signing, Interpretation, and Information

4.1 Types of Recreational Use

The entire Ma-le'l Dunes CMA will be open to non-motorized recreation uses with the following restrictions (discussed in more detail below):

- Pedestrian use and associated activities are allowed only on designated trails, open sandy areas, and the waveslope.
- Equestrian use is allowed only on designated trails in Ma-le'l South and on the waveslope.
- Bicycling beyond the parking areas is prohibited.
- Dogs are allowed off leash on designated trails and open sands throughout Ma-le'l South and along the waveslope of the Ma-le'l Dunes CMA consistent with Humboldt County ordinances and guidelines. Dogs must be leashed in the Ma-le'l South parking/picnic area. Dogs are prohibited at Ma-le'l North.
- Overnight camping is prohibited.
- Organized group camping for special events may be approved on a case-by-case basis at Ma-le'l South only.
- Vegetation gathering for personal use is allowed from May to November along designated trails at Ma-le'l South and otherwise by special permit, and at Ma-le'l North by special permit.
- Fires are allowed only in designated sites at Ma-le'l South.
- Canoe and kayak launching and landing is prohibited.
- Motorized vehicles, firearms (except for legal waterfowl hunting), crossbow/bow shooting, mineral sales, and livestock permits and leases are prohibited throughout the CMA.

Horseback riding will be allowed on two designated trails in Ma-le'l South.

Dog walking will be allowed on designated trails in Ma-le'l South as well as on the waveslope throughout the CMA.

Footprints and paw prints in the sand.

The infrastructure to support these uses is discussed in Section 4.4.

4.1.1 Pedestrian Use

Pedestrian use and associated activities will be allowed on designated trails within the forest and nearshore dunes, on the waveslope, and throughout the open dunes of the Ma-le'l Dunes CMA.

4.1.2 Horseback Riding

Horseback riding will be allowed on two designated trails within the nearshore dunes of Ma-le'l South and along the waveslope of the entire Ma-le'l Dunes CMA. The BLM will monitor equestrian use of the area to ensure that riding is contained within designated areas. The BLM will also monitor equestrian trails for the potential introduction of invasive weed species that might fall out of horse trailers or be produced from manure. New infestations that might arise from such use will be removed.

4.1.3 Dog Walking

Walking unleashed dogs will be allowed on designated trails and the open dunes within Ma-le'l South and along the waveslope of the Ma-le'l Dunes CMA. Dogs must be leashed in the parking and picnic areas of Ma-le'l South.

Humboldt County ordinance requires dogs to be under the control of the owner at all times when away from the owners premises (County Ordinance 541-21). The Humboldt County Parks Department guidelines for activities at Humboldt County Parks states that "control" means that the dog is within view and voice range of the owner and the dog comes at first calling and that it is not allowed to approach people in a threatening manner or in anyway harass people or wildlife, or other dogs or horses (Humboldt County Parks 2003).

Dogs are not allowed within Ma-le'l North, including the Ma-le'l North parking area, with the exception of aid dogs for disabled persons and on the waveslope . This policy was derived from a determination by USFWS that dog walking in this area would likely result in adverse impacts to sensitive ecological and cultural resources (USFWS 2004).

4.1.4 Camping and Nighttime Use

Camping and nighttime use will not be allowed within the Ma-le'l Dunes CMA except by special permit at Ma-le'l South. USFWS found that such use

would likely result in adverse impacts to sensitive and cultural resources and that the costs to develop and staff facilities to accommodate these activities are beyond the resources currently available or expected to be available in the future.

4.1.5 Group Camping Events

Group camping events may be allowed on a case-by-case basis at Ma-le'l South with a special recreation permit from BLM. Criteria for determining permit issuance includes: 1) size of group, 2) number of permits per month, and 3) purpose of event and if it benefits the overall community in some way. Additional criteria may be developed as an adaptive management measure.

4.1.6 Plant Gathering

Gathering plants and plant material, including mushrooms and berries for personal use from designated trails, will be allowed from May to November in Ma-le'l South only. Off-trail collection of vegetative material will require a permit during the same time period at Ma-le'l South only. Ma-le'l North will be closed year-round to gathering of plants and plant material, including mushrooms and berries, except by special permit.

Acorn mush basket, United Indian Health Services permanent collection. Spruce roots are most often used for cooking and eating baskets because they swell up and make the basket water tight.

4.1.7 Traditional Resource Gathering

Traditional resource gathering by local Native American tribal members, including vegetative material gathering for personal use, will be allowed throughout the Ma-le'l Dunes CMA in accordance with a Memorandum of Agreement with the Wiyot Tribe.

4.1.8 Kayak and Canoe Launching & Landing

Non-motorized public boat launching into Mad River Slough and boat landing from the slough will not be permitted within the Ma-le'l Dunes CMA. This is due to potential erosion and adverse impacts to sensitive species, and concerns from local aquaculture over potential water quality impacts of boats in the area.

Boater-only camping was found to be beyond the resources available to the USFWS currently or in the future. In addition, boat-only camping and access at locations not specifically designed for ingress/egress was found to likely result in adverse impacts to sensitive ecological and cultural resources (USFWS 2004).

The Mad River Slough is a popular canoeing and kayaking destination.

4.1.9 Fishing

Fishing will be allowed within the Ma-le'l Dunes CMA consistent with CDFG regulations at the Ma-le'l North parking area and at the end of the railroad berm.

4.1.10 Motorized Vehicle and Bicycle Use

The use of motorized vehicles and bicycles beyond the parking areas within the CMA will not be allowed except in an emergency or for authorized maintenance, construction, restoration, or research purposes.

On-going restoration activities will continue in the dunes and in the forest throughout the Ma-le'l Dunes CMA.

4.1.11 Restoration Activities

On-going environmental restoration activities will continue in the dunes and forests of the CMA. Both BLM and USFWS will continue to eradicate European beachgrass, ice plant, yellow bush lupine, English ivy, and other invasive plant species on their respective properties in order to benefit the native plant communities. BLM and USFWS will conduct restoration work and weed eradication efforts with agency staff and contractors, the CCC, CAL FIRE, and FOD restoration programs. In addition, USFWS will implement CDC funded restoration activities throughout the nearshore dunes and forest at Ma-le'l North through 2010 (EDAW 2005).

4.1.12 Educational Activities

Access for educational field trips related to natural resources, sciences, and native culture by local schools, non-profits, and tribes will be allowed, and is expected to occur regularly. Coordination and scheduling of group tours is expected to be facilitated with the assistance of FOD.

4.1.13 Access for People with Disabilities

Access for people with disabilities will be provided at the following locations:

- Ma-le'l South parking, picnic area, and restroom
- Ma-le'l North parking area, picnic area, restroom, and Tsoutsgish Trail

To the extent feasible and compatible with agency objectives, these areas will meet the guidelines of the *California Disabled Accessibility Guidebook* (Gibbens 2009).

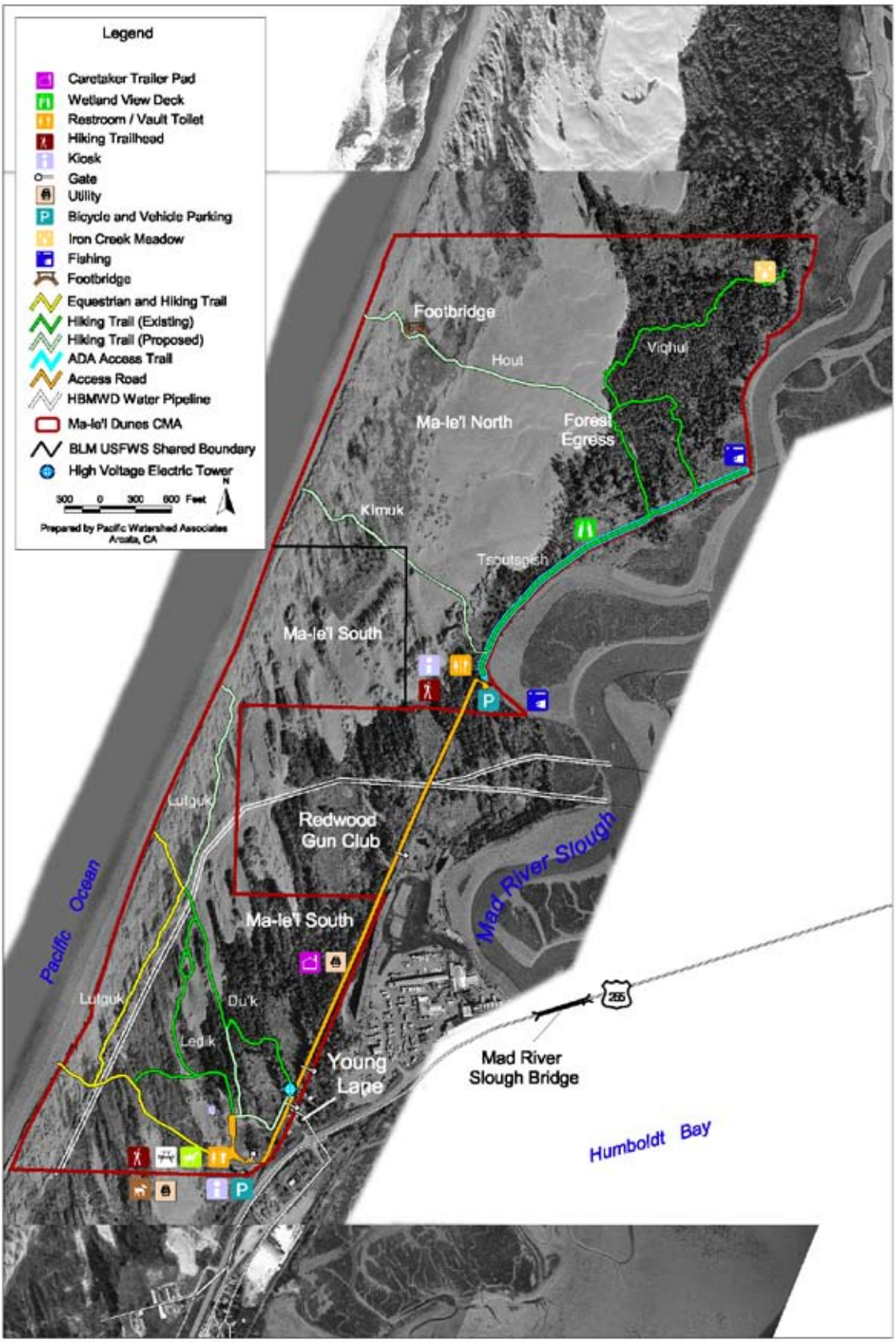


Figure 4-1. Proposed Access Improvements Map

4.2 Estimated Use Levels

The recommendations contained in this Plan are derived from estimated use levels based on USFWS and BLM staff experience with similar sites, as well as use levels observed when the CMA was managed as the Mad River Slough and Dunes CMA from 1990 to 1994. Use was approximately 2,000 visitors per year at the former Mad River Slough and Dunes CMA but is expected to be higher at the Ma-le'l Dunes CMA based on use figures from adjoining BLM property (up to 6,000 visitors per year). User surveys were not conducted.

Visitors to the Ma-le'l South and Ma-le'l North areas are expected to total approximately 45 and 22 persons per day, respectively (Bruce Cann and Andrea Pickart pers. comm. 2005). However, as motorized vehicle access to the Ma-le'l North parking area will be prohibited from Tuesday through Thursday, the average number of visitors will be lower on those days. Use levels for traditional resource gathering are expected to be low, perhaps five visits per year by one or a few tribal members. At Ma-le'l North, organized group outings are limited to 50 people. No more than one organized group outing can occur in a single day, and no more than six organized group outings may occur in a month. USFWS will monitor use and impacts, and may modify access provisions based on monitoring results, as required in their Compatibility Determination (USFWS 2004).

It is expected that most visitors to the Ma-le'l Dunes CMA will arrive by private vehicle. Field trip classes, volunteers and work crews are expected to arrive at the site by bus and/or by van. Equestrians will arrive at Ma-le'l South with horse trailers or on horseback from the waveslope. Many visitors to Ma-le'l North will arrive by bicycle or on foot.

Improvements to the access road are described in the next section, and are followed by a description of improvements to the parking areas, the caretaker site, trails, trail amenities, fences, and signing.

4.3 Access and Circulation

This section describes vehicular and pedestrian access to the Ma-le'l Dunes CMA. Signing along access routes is discussed in Section 4.5.

4.3.1 Motorized Vehicle Use

Vehicles will access the designated parking areas via Ma-le'l Road. Ma-le'l North will be open to vehicular traffic Friday through Monday, and open to bicycles and pedestrians seven days per week. Vehicles will be prohibited everywhere else including on the HBMWD pipeline easement except for authorized maintenance, restoration activities, or emergencies. To the extent possible, Ma-le'l Road, designated parking areas, and the caretaker site, will be improved and resurfaced with gravel to support the expected increase in traffic. Ma-le'l Road will remain single lane at 16 to 20 feet in width. Improvements for road safety, drainage and durability are expected to include:

- The construction of pull outs in areas where no fill in wetlands or bank cuts are required
- A 50-foot-wide turning radius at the Young Lane/Ma-le'l Road intersection to accommodate a vehicle turn-around
- Elevation of the roadbed prism so the crown area is at least 1 full foot over a 1-foot depth base layer
- Alteration of the longitudinal profile to provide for passive drainage away from the confined sections to open areas so water can drain to the side
- Construction of a gutter section along the roadway edge where needed
- Construction using only well-compacted, well-graded crushed crusher run rock or quarry shale
- Coordination with representatives of the Redwood Gun Club to review and discuss construction methods and materials

4.3.2 Bicycle Access

No separate bicycle paths or lanes along Ma-le'l Road will be developed. Bicyclists entering the CMA will be expected to use caution when travelling the road and parking areas and will be made aware of the one-lane, gravel nature of the road. Signs will be used to alert motorists of the presence of bicyclists. Bicyclists will not be allowed on trails. Bike racks will be provided at both parking areas.

4.3.3 Gates and Gateway

The Ma-le'l South gate will remain as it currently exists. Improvements to the other gates include:

- The Ma-le'l North gate located near the high voltage tower will be moved approximately 80 feet south, closer to the Young Lane/Ma-le'l Road intersection.
- The USFWS northern gate will be locked open.

The relocation of the gate near the high voltage tower will eliminate the existing roadside parking area that nearby residents have stated is a nuisance due to cars parking there at night after the gates are closed.

Relocation of the Ma-le'l South gate to the Young Lane/Ma-le'l Road intersection was considered as a means to eliminate road traffic when the CMA is closed. However, this alternative was determined infeasible because it would eliminate access to the private driveway located adjacent to the existing Ma-le'l South gate.

4.3.4 Pedestrian Access

Improvements to accommodate pedestrian access to the parking areas will not be provided. However, walking throughout the CMA will be accommodated along trails discussed further in section 4.4.5 Trails Routes.

4.4 Access Infrastructure

This section describes proposed access improvements to the Ma-le'l Dunes CMA that will accommodate the recreational uses and use levels discussed in section 4.1 and 4.2. Figure 4.1 illustrates the proposed access improvements.

4.4.1 Parking Areas and Amenities

Ma-le'l South

The Ma-le'l South parking area was recently improved with the installation of access route amenities, including a re-surfaced gravel parking area, post and cable fencing, a metal entrance gate, and day use picnic amenities, including picnic tables, trash receptacles, a vault toilet, two information kiosks, and directional signs.

In addition, this Plan recommends that the following new improvements to the Ma-le'l South parking area include:

- Drinking water for both pedestrians and horses
- A bicycle rack
- Post and cable fencing along the access road that will serve as a pedestrian safety corridor along Ma-le'l Road from the PG& E high voltage tower to a trail that crosses the dune and leads to the Ma-le'l South parking area
- Possible reconfiguration of the existing parking area to provide additional parking spaces if visitor use and demand increase beyond estimates

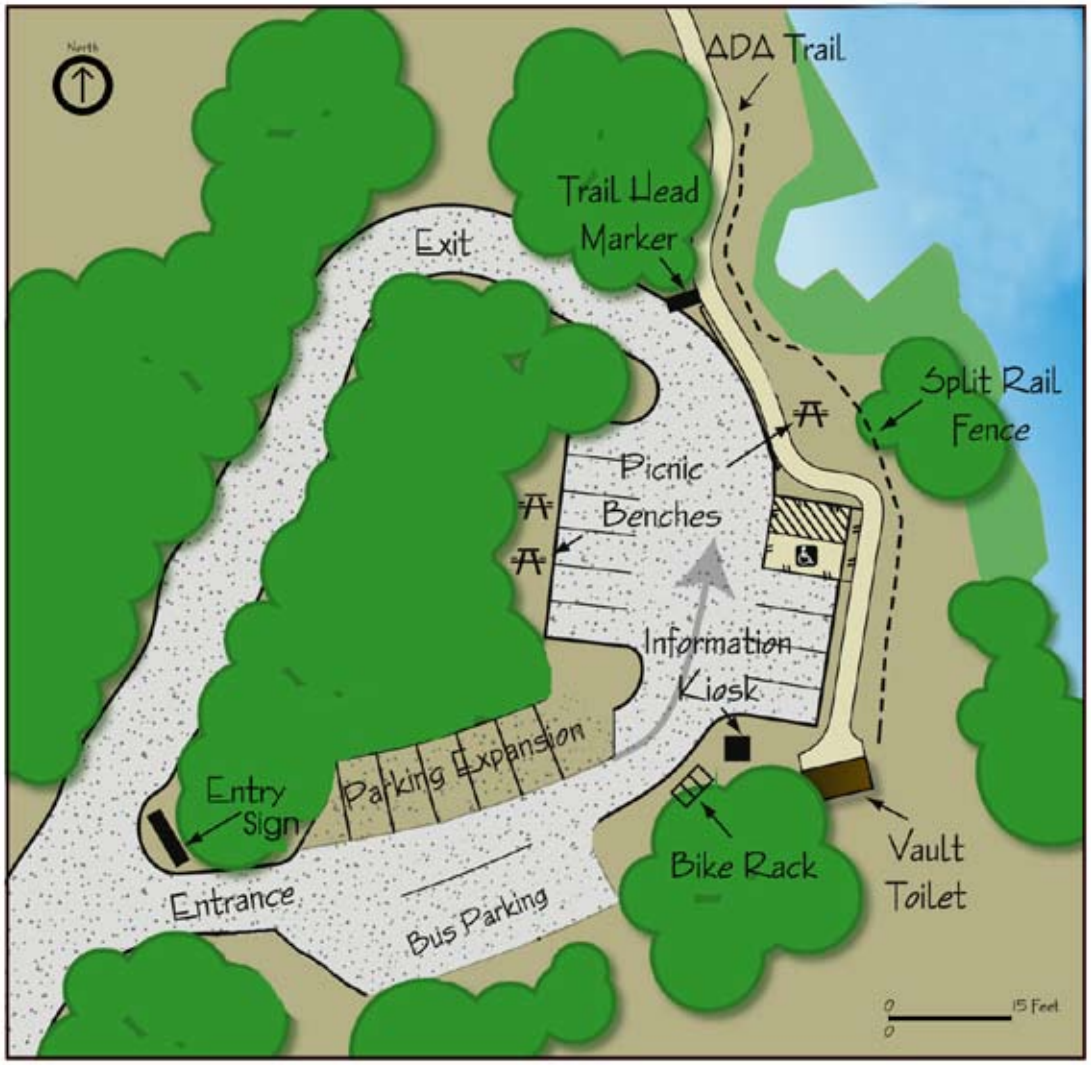


Figure 4-2. Proposed Improvements to the Ma-le'l North Parking Area.

Ma-le'l North

In order to accommodate expected use levels, the Ma-le'l North parking area will be re-oriented. Figure 4-2 illustrates the proposed layout of the Ma-le'l North parking area.

The access road and parking area will be re-surfaced with crushed gravel. The parking and day use area will be upgraded to include the following amenities:

- Ten motorized vehicle spaces and bus parking
- One ADA vehicle space
- Potential reconfiguration for nine additional motorized vehicle spaces
- ADA accessible vault toilet
- ADA accessible trailhead
- Bicycle rack
- Information kiosk
- Picnic tables
- Trash and recycling receptacles
- Split rail fence to keep visitors from walking to the edge of the slough and trampling sensitive vegetation and native bee and wasp-nesting habitat located there

The layout of the area has been designed to accommodate estimated use levels while minimizing impacts to the surrounding natural resources. The design also strived to minimize potential vehicle and pedestrian conflicts in a relatively small area. The parking lot will be gravel which is semipermeable, and "best management practices" will be employed to control runoff in accordance with the California Stormwater Quality Associations Best Management Practices Handbooks (2004).

4.4.2 Vault Toilets

A prefabricated vault toilet with the following features will be installed at the Ma-le'l North parking area:

- 1 door, 1 stall
- Wood or "rustic" motif
- 1,000 gallon vault capacity
- ADA-accessible

There are several suppliers of prefabricated vault toilets. Typical models and specifications can be viewed at *www.romtec.com* and *www.cxtinc.com*. Both USFWS and BLM have experience installing similar facilities in the region.

An example of a single vault toilet building purchased from CXT Incorporated.

4.4.3 Caretaker Site

The existing caretaker trailer pad and surrounding area will be upgraded to accommodate a new trailer and caretaker amenities. Upgrades will entail re-grading of the pad area, placement of road gravel, vegetation clearing, and potential sewer hookup. The storage shed and existing electrical components will be repaired or replaced as necessary.

4.4.4 Trail Routes

Two miles of new hiking trails will be added to the CMA's existing 3-mile network of hiking trails. Both hiking and equestrian trails will be improved, repaired, or re-aligned as necessary to protect both resources and visitors. Figure 4-4 illustrates the trail routes and their designated uses within the Ma-le'l Dunes CMA. Figure 4-5 depicts each trail by name.

All hiking trail upgrades, including paths, stairs, puncheon-style bridges, and other associated amenities will be constructed with reference to guidelines provided in the *Trails Handbook* (Resources Agency, Department of Parks and Recreation California State Parks) [1]. All hiking trails will be earthen except where ADA accessibility is a priority. Widths of trails will vary, depending on site conditions. As a general standard, hiking trails will be 3 to 6 feet wide, 8-foot high clearance, all-season accessible, and on native soils. Detailed discussions of improvements to specific hiking trails appear below.

All casual trails throughout the CMA will be decommissioned and re-vegetated with native plants and/or brushed with vegetative materials, including the trail which leads west from the caretaker site, the trails that branch off from designated forest trails in Ma-le'l North and Ma-le'l South, and particularly those trails that lead through areas populated by reindeer lichen.

Pedestrian trail from Ma-le'l South parking area to Ma-le'l Road.

Hiking trail improvement work in the forest and dunes will avoid impacts to sensitive and special species populations such as sugar stick (*Allotropa virgata*), and other unusual or rare plant occurrences and animal or insects sites such as ant, bee and wasp nests. Prior to trail work, USFWS will provide locations of these species so that they may be adequately protected.

[1] Available from North Coast Redwoods Headquarters, 600-A West Clark, Eureka, CA 95501, Telephone: (707) 445-6547

Figure 4-3. Trail Route Designated Uses Map

There may be an opportunity in the future to connect the Ma-le'l Dunes South trail system to additional public use areas to the south. Separate environmental analyses will be conducted if this opportunity arises.

Trail Names

In keeping with the primary interpretive theme of the Ma-le'l Dunes CMA project area (discussed further in Section 4.5.2), the Wiyot Tribe was asked to provide suggestions for trail names in the Wiyot language. A list of words suggested by the Tribe appears in Appendix B. Names were selected with pronunciation and relevance to the site in mind. The Cultural Resource Specialist for the Wiyot Tribe will be consulted regarding the final selection and spelling of the proposed trail names prior to their use on signs or in publications. A brief explanation of Wiyot pronunciation will be included in the publications where the trail map occurs.

Ma-le'l South

Equestrian Trail - Lutguk Trail

In August 2004, BLM delineated an equestrian and hiking trail through the foredunes of Ma-le'l South. This existing route provides equestrian access to the Ma-le'l Dunes CMA and will be called the Lutguk Trail, which means "sand" in the Wiyot language.

The equestrian trail begins at the south side of the Ma-le'l South parking area and heads west through the dunes. At the foredune, the trail veers north, following the east side of the foredune and the HBMWD underground pipeline. The trail contains two beach access points. Not including the waveslope, the Lutguk Trail is approximately 1 mile in length. The equestrian trail will be maintained with various widths up to 8 feet wide.

Hiking Trails

Lutguk Trail

A new extension of the existing Lutguk Trail will provide additional beach access from Ma-le'l South. The trail extends through the nearshore dunes north of where the Lutguk currently turns towards the beach and traverses over the primary dune to the beach strand. Visitors can access the Ma-le'l North trails by using this route and then walking along the beach approximately one-quarter mile north.

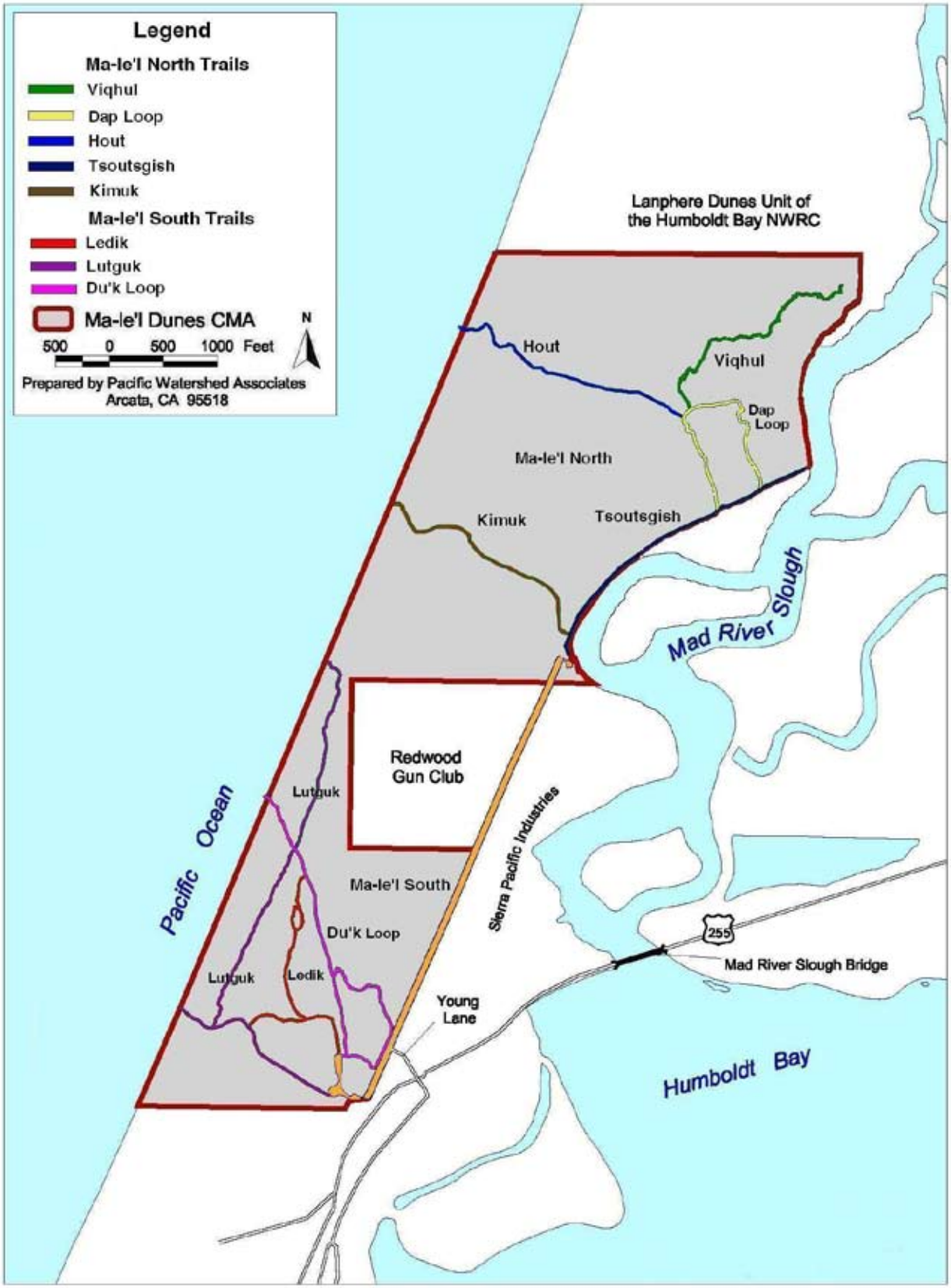


Figure 4-4. Trail Names

Du'k Trail

An existing hiking trail that leads visitors through the forest and dune loop with access to the beach was delineated by BLM in August 2004 (BLM 2004a). This forest-dune loop will be known as the Du'k Trail, which means "spruce tree" in Wiyot.

From the Ma-le'l South parking lot, visitors will exit the east side of the parking area by foot, cross a dune using an existing path to Ma-le'l Road, then walk a short distance to the forest trailhead along a pedestrian safety corridor. From this location, which is adjacent to the PG&E power tower, the Du'k Trail traverses forested dunes, descends open dunes, passes an intersection with the Ledik Trail (discussed below) and then joins the Lutguk Trail to the beach. In the future, BLM may develop a spur that will follow a forested ridge from the middle of the Du'k trail to the Ma-le'l South parking area.

The Du'k Trail will be repaired or improved in the following ways:

- The 100-foot section of stair and rail trail will be replaced.
- A 30-foot section of boardwalk will be installed over a seasonally muddy section of trail.
- Where feasible, the forest trail will be re-routed to avoid damage to trees roots and to minimize potential erosion. Existing casual trails, especially those prone to erosion, will be decommissioned by revegetation or natural barriers.
- A pedestrian safety corridor will consist of a physical barrier, such as bollards along the west side of the road. The bollards will be placed to avoid visual conflict with the Ma-le'l Dunes CMA entry sign.

Ledik Trail

The Ledik Trail, meaning "sunshine" in Wiyot, departs the northern end of the Ma-le'l South parking area and leads hikers through an old access gate and a series of nearshore dunes to join the Du'k Trail and Lutguk trail to the beach beyond.

Ma-le'l North

Hiking Trails

The existing railroad berm and forest trails in conjunction with two new hiking routes will provide two new beach access points.

Tsoutsgish Trail

The existing railroad berm trail will be known as the Tsoutsgish Trail, meaning "bird" in Wiyot. It extends 2,800 feet north from the Ma-le'l North parking area along the Mad River Slough to the dilapidated railroad trestle. It serves as the entry route to the forest loop and beach access trails throughout Ma-le'l North. Improvements along this trail will include:

- Preliminary upgrade which will include trail clearing and grubbing to a 3-foot minimum width, and an 8-foot overstory clearance
- ADA accessibility upgrade (discussed below)
- Installation of "bioengineered" erosion control measures to protect the berm and the installation of benches and a wetland view deck (discussed below)

ADA Accessibility

To accommodate ADA accessibility along the Tsoutsgish Trail, typical design requirements will be based on CalDAG 2009 and should include:

- 48 inch minimum trail width, which may be reduced to 36 inches in areas where significant site disruption would otherwise occur
- Minimum 60 inches by 60 inches passing/rest area at a minimum of 200 feet apart, or two rest areas for every 400 feet
- Hard surfaces such as asphalt, natural emulsion pavement or concrete
- Trail gradients with a maximum running slope of 5% and a cross gradient of 2%
- One ADA accessible parking space provided at the parking area
- Maintain 36-inch clearance between gates or bollards

Asphalt is a suitable surfacing material. However, if budget allows a natural emulsion pavement (e.g., Resinpave™) is a preferable surfacing material due to its low environmental impact and natural color. These high strength products are made of renewable resources, suitable for all weather and climate conditions, and can be applied at ambient temperatures.

It is very important that all paving be installed on suitable subgrade that meets at minimum the following typical specifications:

- Organic material on the existing trail and in areas to be expanded will be removed and the existing trail base will be widened to 6 feet.
- Following compaction of the graded and widened subgrade, geotextile fabric will be installed.
- Following geo-textile fabric installation, a minimum of 0.4 feet of 5/8 inches minus crushed rock, fractured on all sides, will be installed in newly excavated areas and compacted to a 90% compaction using a mechanical roller or compactor.

Asphalt and/or natural emulsion pavement will be installed as per the manufacturer's specifications. It is important to note that the trail surface installation, erosion control and associated structures could be achieved with increased efficiency if the trail can be accessed by heavy equipment. Some equipment can require clearances of up to 12 feet in height and 9 feet in width plus additional area to maneuver. This could, at least temporarily, impact important aesthetic features of the trail related to the canopy and edge vegetation. Methods and equipment are available that allow for low impact construction in hard-to-reach locations. However, they can add significant cost to a project and are generally logistically challenging. It will be important for the USFWS to manage the design and construction of this trail closely to optimize cost effectiveness and minimize potential impact.

Erosion Control

There are many locations along the Tsoutsgish Trail where erosion and slumping will need to be addressed with various erosion control measures. Typically, this is addressed by back filling these areas with large quarry rock or concrete and/or asphalt construction debris (i.e., rip rap). This method is not likely to be ecologically or aesthetically appropriate in this area. A combination of hard armoring, geotextile, fill and native plantings may be adequate to address this problem. Any permanent revetment structure will need to be appropriately engineered to ensure suitability and strength. In order to accomplish this, a coastal engineer will be needed to provide design and specifications for a bioengineered revetment structure. Alternative technologies could include gabions, willow waddles, sheet piling, cellular confinement, geotextile layering, or a combination of any of these.

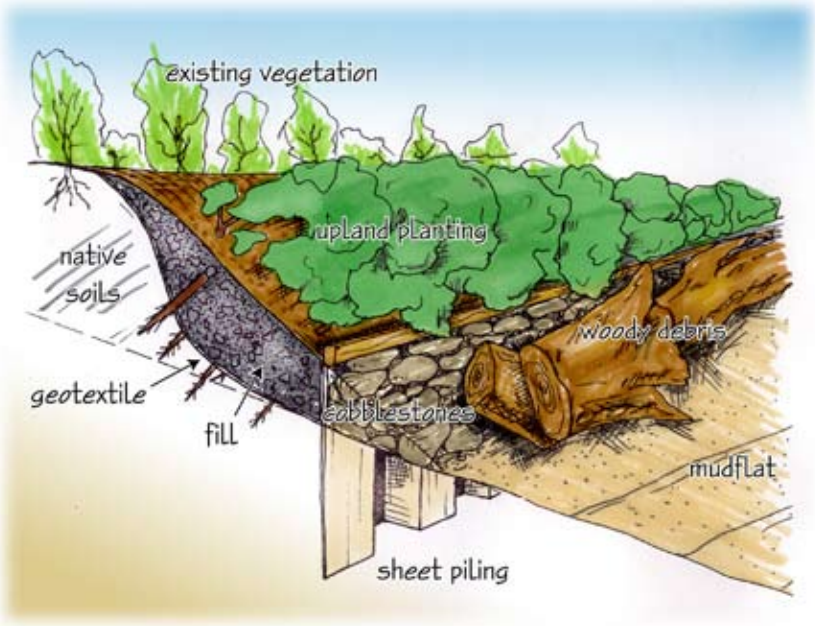


Figure 4-5. Cross-section of Erosion Control Along the Trails Adjacent to Mad River Slough.

Kimuk Trail

The Kimuk Trail, meaning "whale" in Wiyot, is a proposed new trail that will extend from the Tsoutsgish Trail up a large dune, over open sand and nearshore dunes, to the beach. It passes through the corner of Ma-le'l South, a portion of Humboldt Bay wallflower populations, and restored nearshore dunes.

Location of Kimuk Trail across nearshore dunes to the beach.

The Kimuk Trail will include the following improvements:

- Cable steps will be installed up the dune as per the Trails Handbook (California Department of Parks and Recreation 1990).
- The trail will be marked with trail markers at appropriate sight distances for clear trail delineation, as discussed in the signing section.

Dap Loop Trail

The Dap Loop Trail, meaning "spruce roots" in Wiyot, consists of portions of an existing trail through the forest that will loop northward from the Tsoutsgish Trail. The Dap Loop Trail will include the following improvements:

- At the trailhead, steps and a handrail will be installed to ease access and eliminate erosion potential.
- Further along the Dap Loop Trail, approximately 150 feet of steps and a handrail will be installed to replace a dilapidated wooden staircase.

Viqhul Trail

The Viqhul Trail, meaning "salal-berry" in Wiyot, is an existing spur trail extending from the Dap Loop Trail northwest to an open clearing next to the salt marsh. This trail traverses a section of beach pine forest that was subject to massive tree fall during the New Years Eve 2005 wind storm. The second half of the trail parallels a riparian forest along Iron Creek. The trail is relatively flat and no significant improvements are planned.

Location of proposed cable steps.

Hout Trail

The Hout Trail, meaning "surffish", will be an open dune trail to the beach that extends from the forested Dap Loop Trail. The trail will ascend a large moving dune, then descend to nearshore dunes, and cross a seasonal wetland where it will continue over the foredune to the beach. Hikers can return to the forest by following this trail in reverse or by walking south on the beach strand for approximately 1,000 feet to a marked trail that re-enters the foredunes and returns to the Ma-le'l North parking area via the Kimuk Trail. The set of trails could also be hiked in reverse by starting at the Kimuk Trail. The Hout Trail may include the following improvements:

- A new, less steep forest exit, or forest egress, will be delineated at the Hout trailhead and cable steps will be installed to enhance access up the dune and out of the forest (for detailed specifications see "Trails Handbook" mentioned above).
- The trail will be marked with trail markers at appropriate sight distances for clear trail delineation, as discussed in the signing section. In particular, a marker will be placed north of the large dune that is visible from the top of the forest dune egress steps.
- A small puncheon-style footbridge or bridges will be installed in the nearshore dunes across the seasonal wetland.

Location of Hout Trail through dune swale to the beach.

Location of new forest egress at the Hout trailhead.

4.4.5 Trail Amenities

Wooden Benches

Existing wooden benches along the trails will be replaced at the same locations to provide resting places for hikers. The City of Arcata purchases benches from the California Department of Forestry and Fire Protection's High Rock Camp.

Wetland View Deck

At a point approximately 1,200 feet along the Tsoutsgish Trail from the trailhead, the existing wetland view deck will be replaced with a structure of similar dimension. Figure 4-6 illustrates the conceptual drawing of the wetland view deck.

The structure will be appropriately engineered to ensure the safety of the user, and will be constructed with the following specifications:

- The deck will have a bench maximum floor clearance of 10 feet by 10 feet, which is the size of the current structure. Minimum floor clearance will be 5 feet by 5 feet to accommodate wheelchair access.
- Where appropriate, synthetic and/or treated construction materials will be used to reduce the opportunity for decay.
- If possible, the portion of the deck that extends out over the wetland will be supported by post piles. If it proves to be infeasible to install piles at this location, then a cantilever support system similar to the existing structure will be constructed.
- Work on the view deck will not occur during osprey nesting period, to eliminate impacts to the nearby nesting site.

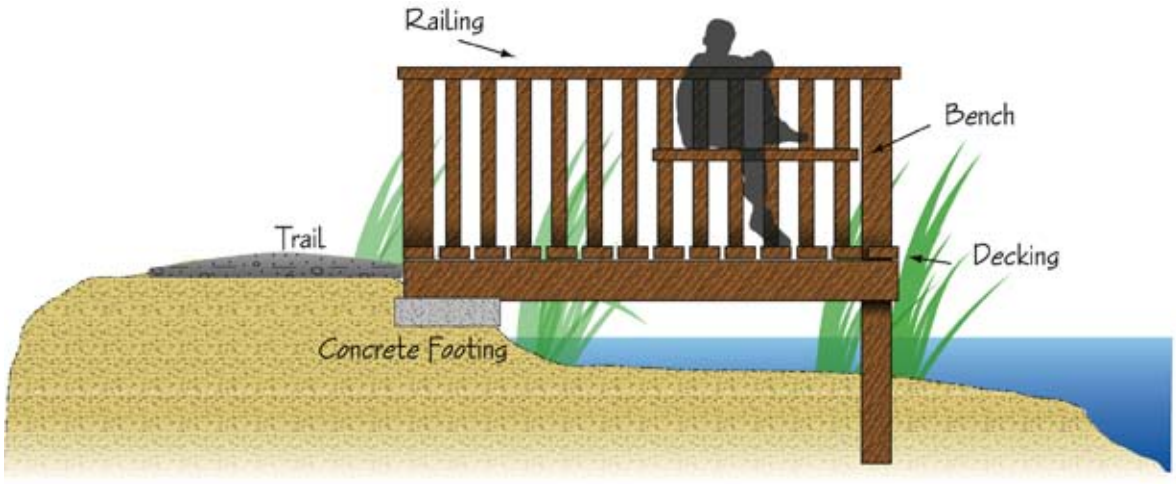


Figure 4-6. Wetland View Deck

4.4.6 Fencing

Fence Removal

An extensive system of remnant and unused post and wire fencing exists throughout the Ma-le'l Dunes CMA. To improve aesthetics and alleviate tripping hazards, fencing along the following locations will be removed:

Ma-le'l South

- Wooden post and wire, along the foredunes of Ma-le'l South and along the BLM/USFWS property boundary, will be removed.
- Wooden posts and wire that exists along the west side of Ma-le'l Road, north and south of the caretaker site on BLM property, will be removed.

Old post and wire fences lie along the southern boundary of the Fernstrom-Root property in Ma-le'l North.

Ma-le'l North

- Random post and wire fencing will be removed along the Fernstrom-Root/southern boundary of the property throughout the nearshore dunes.

New and Repaired Fencing

New fencing will be installed only where physical separation is necessary to increase safety, to delineate jurisdictional boundaries, and/or to preserve adjacent landowner privacy. With this in mind, new fencing will be installed at the following locations:

- Along the length of private property boundaries that border Ma-le'l Road. This fence will be approximately 300 feet long, 8 feet high, and made of wood frame and boards. A mixed border of native shrubs such as wax myrtle, flowering currant, and twinberry will be planted on the road side of the fence. The USFWS property boundary should be delineated as part of this process.
- Along the 2,000-foot length of SPI property where it borders Ma-le'l Road. This fence will be a live fence, consisting only of native trees, shrubs and including beach pine, sitka spruce, wax myrtle, flowering current, salmonberry, elderberry, thimbleberry and twinberry. The SPI property boundary will be further delineated by boundary signing as discussed in the signing section.
- A gate along the eastern border of the HBMWD easement and access road intersection will be repaired or replaced.

Dilapidated Structures and Kiosks

Several structures throughout the area will be demolished and the materials recycled or burned as appropriate. The structures include:

Ma-le'l South

- Storage container adjacent to the Ma-le'l South parking area

Ma-le'l North

- Kiosks located at the forest egress and at the end of the railroad berm
- Entry sign, bike rack, iron ranger

4.5 Signing, Interpretation, and Information

An example of a coastal access sign.

An information, interpretation, and signing program will enhance access to interpretive information about the natural and cultural features of the area. A successful interpretation program will foster appreciation and understanding, create an enjoyable experience, and inspire stewardship for the resources. In addition, an effective interpretive program will help minimize the need for law enforcement by communicating management goals and use regulations. This will be accomplished through publications, programs, and a signing plan with clearly identified themes and messages.

4.5.1 Signing Plan

Objectives

A coordinated signing plan for the Ma-le'l Dunes CMA will provide a consistent look and message for both management agencies within the Ma-le'l Dunes CMA. It is recommended that a Ma-le'l Dunes CMA logo be developed and used on appropriate signs. A well-designed logo will effectively communicate to the visitor the joint management while still allowing each agency to incorporate agency-specific signing that informs the visitor about differing uses and regulations. A joint logo will include both agency logos as well as a unifying design element, such as a Wiyot basket pattern, indicative of the cultural significance of the area.

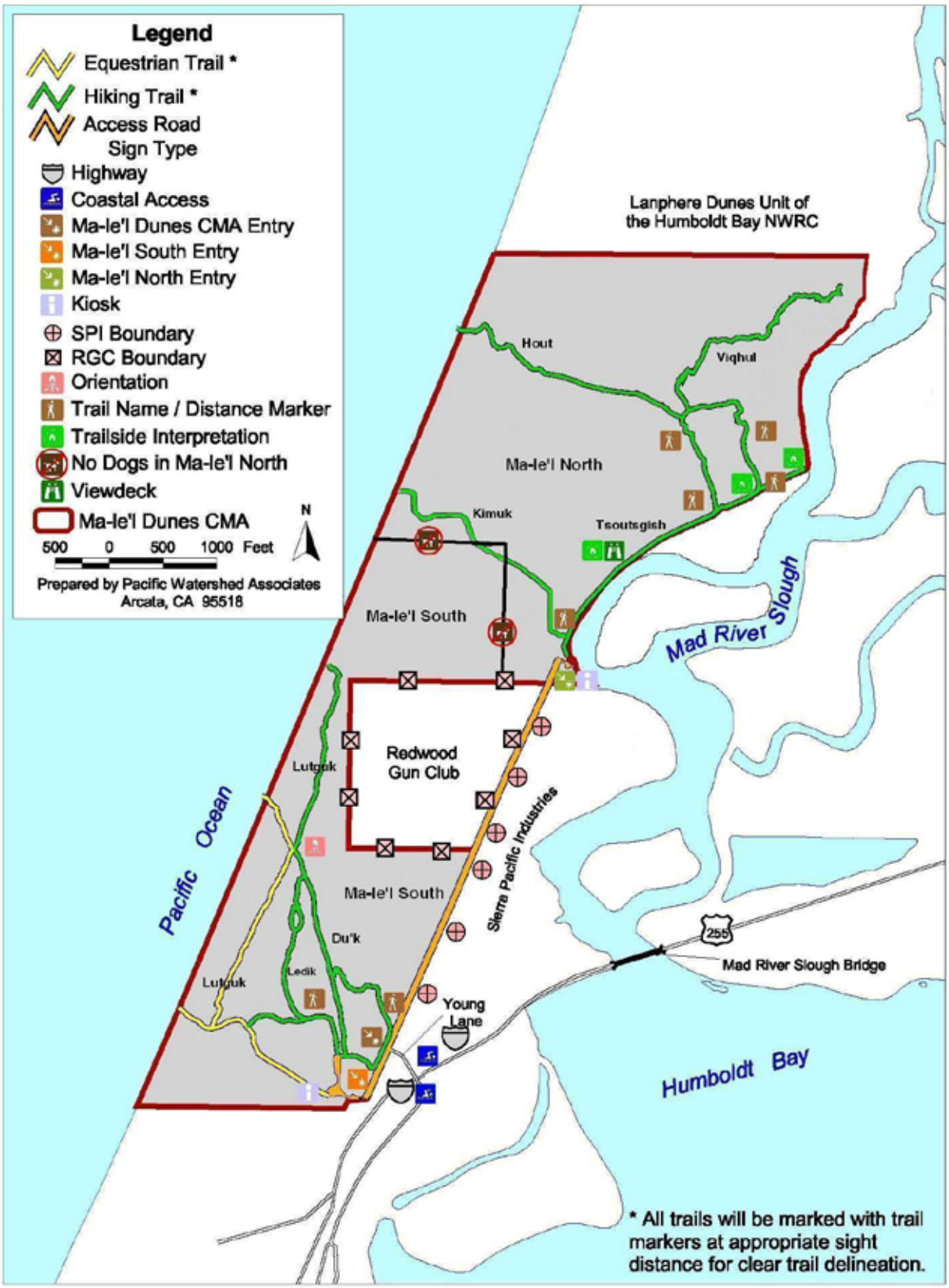


Figure 4-7. Ma-le'l Dunes CMA Signing Map

Guidelines for Development

The development of a signing program will be consistent with the Humboldt Bay Interpretive Signing Manual developed by the Natural Resources Division of the RCAA (Redwood Community Action Agency 2003). The Signing Manual outlines the step-by-step process from planning to installation of interpretive wayside signs and welcome signs for public access sites around Humboldt Bay. The manual also provides sign templates depicting the area's natural history including the Mad River Slough and dune habitats. This signing program for the greater Humboldt Bay area is designed to promote attractive, informative and consistent signing made of durable materials and aimed at establishing the bay as an accessible destination for locals and visitors from out of the area.

Signing guidelines exist for both the BLM and the USFWS. In creating a signing plan for signs on USFWS property, some guidance may be found in the USFWS Signing Manual, and subsequent updates. The USFWS Region 1 Signing Coordinator is available to review custom signing plans for the USFWS portions of the Ma-le'l Dunes CMA. Generally, USFWS has a flexible signing policy that recognizes the differing management needs for individual refuges. USFWS may order signs from the Region 3 Sign Shop by contacting the Region 1 signing coordinator. For signs on the BLM property, the 2001 draft Sign Handbook, chapter 4 addendum of Draft Design Standards will be consulted. BLM signs can be fabricated by the BLM Sign Shop in Rawlings, Wyoming or contracted locally in a manner consistent with the BLM sign handbook.

Recommended Materials

- Medium-Density Overlay Plywood (MDO) Marine-quality ¾ inch plywood with one side covered with a smooth but more porous overlay than high-density overlay (HDO) plywood. The porosity of the overlay allows the paint to bond with the substrate better than the more expensive HDO. Available at most local sign shops
- Aluminum. Recommended for road signs and boundary signs
- Polyplate. Fiberglass reinforced composite. Excellent surface to receive all types of graphic applications. Weather resistant, durable, lightweight
- High Pressure Laminate panels. Recommended for interpretive trail signs. Highly resistant to vandalism
- Corroplast. A plastic substrate available in 4'x8' sheets. Decals adhere

easily to the surface. Recommended for temporary signs (trail closure, restoration areas, etc.)

- Alumacore light-weight aluminum material ideal for applying decals, UV protective coating.

Sign Shapes/Colors

- A rectangle with the longer dimension orientated horizontally will be used for most informational signs.
- A rectangle with the longer dimension vertical will be used for most regulatory and warning signs.
- Pantone brown 469 background with white lettering will be used for recreational signs and most regulatory signs.
- White background with red or black lettering will be used on road signs and regulatory signs needing special emphasis.

Sign Types

A variety of sign types described below are recommended to welcome the visitor and to provide direction and guidance regarding land use regulations, interpretive information, and boundary demarcation. Depending on their design and placement, signs can have information on them that serves simultaneous or single functions. The discussion that follows groups the recommended types of signs into seven categories:

- Entry
- Information and Safety
- Boundary
- Regulatory
- Directional
- Interpretive
- Temporary

Within these groups additional categories of signs are recommended and details specified. Figure 4-7, the Ma-le'l Dunes CMA Signing Map, illustrates the recommended, general location of each type of sign within the project area. In general, placement of signs will be carefully selected to minimize visual impacts on the surrounding natural area while providing adequate visitor information and guidance.

Entry Signs

Highway and Coastal Access Signs

BLM will contact the Caltrans Regional Sign Coordinator to provide two signs (one north facing, one south facing) with the words "Ma-le'l Dunes" and an arrow directing visitors traveling along Highway 255 to turn onto Young Lane. It will have white letters on a brown background.

Coastal Access signs, which include the Coastal Access logo (footprints and wave) are supplied by the California Coastal Commission and are installed on state highways by Caltrans. These signs will be installed in conjunction with the "Ma-le'l Dunes" highway sign described above.

Traffic and Parking Signs

Signs with pedestrian and bicycle traffic symbols will be installed on the Ma-le'l Road just past the entrance gate of Ma-le'l North. Speed limit, no parking, and tow-away signs will also be placed at appropriate locations along the road.

Main Entry

The main entry to the CMA is located at the intersection of Young Lane and Ma-le'l Road. This is the first point where visitors will be informed about allowable uses of the area. A new, permanent entry sign will be installed, which will meet the following specifications:

- The sign will read: "Ma-le'l Dunes Cooperative Management Area" and will have both the USFWS and the BLM logos.
- Universal symbols will be prominently displayed to inform visitors of the allowable uses.
- The sign will be approximately 4 feet x 8 feet and may incorporate a logo created specifically for the CMA.

Another sign nearby will display the distance to the Ma-le'l North parking area. With limited parking at the Ma-le'l North parking area, it is important that visitors quickly understand the broader range of permitted recreational uses allowed at Ma-le'l South.

Ma-le'l South Entry

Some signs for the Ma-le'l South entry have already been installed and are described in the existing conditions Section 3.2.1, Existing Use and Access Infrastructure, Ma-le'l South. An additional sign is recommended on Ma-le'l Road heading south indicating "no parking" at the trail entry and directing cars to proceed to the Ma-le'l South parking area.

Ma-le'l North Entry

There will be two signs adjacent to the access gate across Ma-le'l Road, which will contain the following information:

- "Ma-le'l Dunes North, Vehicular access to allowed trailhead Friday through Monday. Pedestrian and bicycle access to allowed trailhead 7 days a week. Open sunrise to 1 hour after sunset, No Camping, Dogs Prohibited." This sign will be approximately 3 feet x 3 feet.
- The RGC hours of operation, which are 10-4, Saturday and Sunday, and contact information. This sign will be approximately 3 feet x 3 feet.

Keeping these two signs separate and different in appearance will make it clear that the RGC is a separate entity.

At the Ma-le'l North parking area, there will be a rectangular entry sign, approximately 48 inches x 24 inches, with a brown background, white lettering. It will contain the following information:

- "Ma-le'l Dunes Cooperative Management Area North Entrance" with the USFWS logo.
- In smaller letters it should indicate that it is the Ma-le'l Dunes Unit of the Humboldt Bay NWR.
- Universal signs for no dogs, no horses, no bicycling, no camping, binoculars, and wheelchair access will be included.

Information and Safety

General site and safety information will be conveyed on signs placed in both the Ma-le'l South and Ma-le'l North parking areas.

Kiosks

Rocket-style kiosks will be located at both the Ma-le'l South and Ma-le'l North parking area trailheads. Kiosks will contain a trail map, a list of use regulations and interpretive and safety information. Near each kiosk, there will also be a visitor sign-in sheet contained in a weatherproof structure. Safety issues to be addressed include:

- Tsunamis
- Poison oak
- Warning not to leave valuables in car
- Any aggressive behavior of dogs should be reported to the BLM Ranger and/or caretaker (Ma-le'l South only).

Emily Walter
The view of the Mad River Slough and Humboldt Bay from Ma-le'l North..

The Ma-le'l North parking area kiosk will include information urging the public to keep the area free of litter and to use the bathroom provided to protect water quality in the Mad River Slough, and the plants, wildlife, and aquaculture which depend on good water quality. This signage will be developed in consultation with shellfish growers working in this portion of the slough.

Orientation Signs

Orientation signs will help visitors orient as they visit different use areas within the site. The sign content will include:

- "You are here" with an arrow
- Trail map
- "No cross country hiking beyond this point"
- "No dogs/horses" or symbol
- Other site amenities such as parking areas
- Trail lengths and level of difficulty
- Suggested size: 11 inches x 14 inches

Boundary Signs

Boundary signs will be carefully placed to demarcate ownership change or a change in jurisdiction. Signing intervals of boundary signs may vary depending on safety concerns, impact to the visual quality of an area or issues regarding enforcement of use regulations. Generally, boundary signs shall be in the line of sight. In the project area there are six boundary types to be signed:

- RGC property boundary signs will be erected along the length of the fence line at appropriate intervals. The boundary should be signed with: "Redwood Gun Club, Do Not Enter". An entry sign, approximately 4 feet x 3 feet is recommended at the RGC entry gate stating: "Redwood Gun Club Open 10-4 Saturday and Sunday (with contact information)."
- The USFWS Boundary will be signed with the USFWS "A" Series Blue Goose sign. The sign will be white with blue lettering, 11 inches x 14 inches, and will be in the line of sight, no more than ¼ mile spacing between signs with the exception of the property line between the USFWS and the BLM. This boundary will have signing limited to areas where the trail intersects a property line in order to minimize the visual

impact in an open dune area. This customized approach to boundary signing is acceptable due to the unique nature of the CMA (Eric Nelson pers. comm. 2005).

- Boundary signs at approximately 300-foot intervals will be installed to designate the Ma-le'l South and Ma-le'l North property boundary.
- "No dogs beyond this point" signs to be posted with USFWS boundary signs.
- The boundary between the Ma-le'l Dunes Unit and the Lanphere Dunes Unit will be signed at intervals of no more than 300 feet from the beach to the forest edge to indicate a USFWS management change. "Permit required beyond this point" signs will be posted.
- The SPI boundary will be signed along the access road and the Ma-le'l North parking area. Signs will be approximately 11 inches x14 inches and read: "Sierra Pacific Industries- Do Not Enter." These boundary markers will also be placed on the gate where Sierra Pacific Industries' boundary crosses the HBMWD easement with the additional statement: "Unauthorized Access Prohibited."

Regulatory Signing

Regulatory signing will convey Ma-le'l Dunes CMA regulations, especially in areas with a high potential for user conflicts. It is recommended that most regulatory signs at the CMA be brown with white lettering with the exception of road signs, which will be white with black or red lettering. Visual elements and regulatory language for signing should be clear, attention-grabbing and consistent with the management guidelines of both BLM and USFWS. In addition, restrictions related to the following subjects should be addressed:

- Hours of operation and gating policies
- Traffic and parking
- Biological resources protection including restriction of boating and landing on the salt marsh areas or islands
- Cultural resource protection

Directional Trail Signs

Trail Route and Distance Markers

In open dune habitats, it can be difficult to distinguish trail corridors. Trail route markers will be used to create a trail corridor in open dune situations that lack a clear path.

- Where corridors are undefined, the distance between markers will depend on the line of sight.
- Markers will be constructed using 4 inches x 4 inches redwood posts with a 2 inches circle routered on the front. The routered circle will be color-coded to match area trail maps. This system is used at Manila Dunes Recreation Area and a similar system is used at Lanphere Dunes.
- At trail junctions where visitors have a choice of routes, low, wood-routered signs will contain trail names, arrows and mileage and destinations as appropriate. These will be done in the same style as the trail directional signs at the former Mad River Slough and Dunes.

Interpretive Signs

Trailside Interpretive Signs

Interpretive trail signs will be limited to the parking and picnic areas and the ADA accessible Tsoutsgish Trail. Sign design will be consistent with other interpretive signing on site and should adhere to the RCAA Interpretive Signing Manual (Redwood Community Action Agency 2003). Interpretive themes are discussed below. The signing manual provides a variety of sign base options.

An example of an interpretive sign an base at Headwaters Forest Reserve.

- These signs will use the Mad River Slough template from the RCAA signing manual, be 24 inches x 36 inches, and be made of high-pressure laminate material.
- It is recommended that the interpretive signs along the trails be constructed in a cantilevered style with bases similar to those at Headwaters Forest Reserve (see photo on this page).

Temporary Signs

Low-cost temporary signs may be needed for seasonal postings or to indicate areas undergoing restoration, etc. Examples of temporary signs include:

- Signing to deter mushroom picking in forest areas
- Signing for areas along bank of slough indicating “No Landing/ Re-vegetation in progress,” and “Re-vegetation/erosion control in progress.”

Temporary signs may be constructed using Corroplast with UV resistant materials and may contain the Ma-le'l Dunes CMA logo.

4.5.2 Interpretation and Information

Interpretive Themes

Interpretive information will be organized around main themes that are engaging and help the visitor easily assimilate information. When material is organized around themes, all interpretive information relates back to the main theme and sub themes. Sub themes develop detailed messages that support the main theme. Visitors are more likely to remember key messages when information is organized thematically.

Main Theme

The Ma-le'l Dunes CMA is a culturally significant place to the Wiyot people who have a long history of habitation in the area and of making use of the area's diverse and abundant resources.

Sub-Themes

The following are sub themes that will be incorporated into interpretive signs and publications. The Cultural Resource Specialist for the Wiyot Tribe will be consulted when developing public interpretive information relating to Wiyot culture.

- Restoration activities help restore natural diversity and endangered species habitat.
- The juxtaposition of 11 different habitat types in a relatively small area is responsible for the wealth of diversity found within the Ma-le'l Dunes CMA.
- The Mad River Slough's long history of use both for travel and as a source for food continues to this day. The continuing use of the slough for food production and its support of healthy plants and wildlife depends on pristine water quality. Visitors will be encouraged to do their part to maintain the slough's water quality. This signage will be developed in consultation with the shellfish growers working in this portion of the slough.
- Public involvement has played a critical role in the protection of the Ma-le'l Dunes.

Publications and Public Information

Humboldt Beach and Dunes Map and Guide

The Humboldt Bay Beach and Dunes Map should be revised and updated to include the Ma-le'l Dunes CMA. The map has had several reprints with the same cover. The map was originally printed with funding from the SCC as part of the HBDMP implementation grant. In the past, the BLM ,USFWS and the County have provided funding for reprints.

A map should be updated and reprinted with consideration of the following recommendations:

- A reprint with a new cover, featuring a photo from the Ma-le'l Dunes CMA, will capture attention and stand out as compared to previous reprints. RCAA's current Humboldt Bay Trail Plan layout may be incorporated into the revised map.
- The look of the map will be updated with new photographs.
- Much of the information and layout can stay the same and public access information about the Ma-le'l Dunes CMA should be added including:
- Location
- Open hours
- Describe cooperative management
- Indicate allowed uses (using universal symbols) distinguishing between north and south
- Description of unique features

Trail Map and Brochure

A Ma-le'l Dunes Trail Map and Brochure should be created to include:

- A detailed map of the trail system, color-coded such that trails are easily identified
- Use regulations, distinguishing between north and south jurisdictional regulations relating to horses, dogs, no camping, fires, etc.
- Natural history information relating to the key interpretive themes for the area
- Information about the activities of the RGC, including open hours, shooting limited to a supervised target range, etc.

- Updated information regarding cultural and environmental values of the area
- How the efforts of the Humboldt Coastal Coalition, FOD, SCC, USFWS, BLM, CNLM and other community members helped to create and protect the Ma-le'l Dunes CMA

Pocket Field Guide

A five-panel laminated field guide focusing on beach and dune flora and fauna was produced by the FOD with funding from the HBDMP implementation grant in 2000 and will be updated to highlight the Ma-le'l CMA.

Posting Public Information

Other information about the CMA that should be conveyed to the public will be posted within a space provided on the rocket-style kiosks located at each trailhead entry.

Interpretive Programs

It is anticipated that FOD will play an important role in the implementation of interpretive programs at the Ma-le'l Dunes CMA. FOD will be the clearinghouse for scheduling interpretive programs involving other groups/ organizations using a web-based calendar. To the extent that funding and personnel permit, FOD will continue conducting volunteer restoration days and will return to offering public-guided walks in the area.

5.0 Access Operations and Management

This chapter describes strategies for maintaining public access at the Ma-le'l Dunes CMA, discussed under the following components:

5.1 Agency Coordination and Cooperative Agreements

5.2 Visitor Management

5.3 Enforcement and Security

5.4 Adaptive Management

5.1 Agency Coordination and Cooperative Agreements

The success of maintaining public access to the area relies on the cooperation of several partners. To this end, BLM and USFWS will cooperatively manage the properties contained within the Ma-le'l Dunes CMA for public access consistent with stated agency objectives, not precluding changes in management pursuant to policy mandates. BLM and USFWS will also work with FOD, the Wiyot Tribe, RGC, HBMWD, and SPI to conduct operations and maintenance of the area and its infrastructure.

In order to facilitate cooperation and coordinated management for public access, cooperative agreements between the two agencies and between the agencies and the large landholding entities adjacent to the CMA will be prepared and executed. Separate cooperative agreements may be necessary to delineate cost-sharing of labor, services and/or equipment. Below is a list of recommended agreements and recommended stipulations for each.

1) Agreement between BLM and USFWS for the management of the Ma-le'l Dunes CMA.

Within this document BLM and USFWS may agree to:

- Meet quarterly or more as needed to discuss public use concerns
- Collect and share information on visitor use and biological data, including monitoring data on the western snowy plover and endangered plant species, which will aid in the public use and natural resource management of the CMA
- Collaborate as appropriate on funding opportunities consistent with the goals of this Plan

- Maintain a consistency in appearance of the CMA (North and South) that conveys to the visitor the cooperative nature of the landholding agencies within the area
- Develop appropriate tools including cooperating agreements between USFWS, BLM and other parties such as FOD that will allow for interagency exchange of goods and services
- Outline the responsibilities of both BLM and USFWS with regards to the caretaker's duties, supervision, and facility development and maintenance
- Develop protocol regarding law enforcement
- Work with the Office of Emergency Services to develop a tsunami response plan, which would address the style and location of tsunami signing and postings which would specify evacuation protocol, and integrate the caretaker in evacuation activities

The existing Supplemental Agreement between BLM and USFWS regarding law enforcement may be used to provide enhanced protection for persons, property and resources at the Ma-le'l Dunes CMA.

2) Agreement between BLM, USFWS and RGC

This agreement may address the following:

- Maintenance of boundary fencing
- Use of Ma-le'l Road and cost-sharing of roadway maintenance based on the average monthly (or yearly) use of the roadway by RGC members
- The closing and opening of gates
- Provisions for security of the RGC's property boundaries by the CMA caretaker
- Provisions that BLM and USFWS work with the RGC to develop signing and brochure language that informs the public that they should not be alarmed by shooting noises, that the gun club is a controlled environment but that for safety, the public should stay out of the gun club's property (RGC et al. 1990)
- Provisions that BLM and USFWS work with the RGC to address invasive species and animal-friendly fencing

3) Agreement between BLM, USFWS and the Wiyot Tribe

BLM and USFWS may enter into an agreement with the Wiyot Tribe in order to provide increased cooperation between parties, to develop opportunities for subsistence activities, and to further management goals on the Ma-le'l Dunes CMA relating to traditional cultural Wiyot practices. The agreement will facilitate the issuance of special use permits to tribal members for the gathering of plant material or other materials for personal use within the Ma-le'l Dunes CMA. The terms of the use will be stipulated in the agreement or individual permit. BLM and USFWS will work to develop a special permit process for this use and a monitoring program to measure effects on biological resources.

4) Agreement between USFWS and SPI

USFWS will consider entering into an agreement with SPI to address the maintenance of boundary fencing, maintenance of the drainage ditch that runs along the east side of the access road, and provisions for security of SPI's property boundaries.

5) Agreement between FOD and BLM

The FOD has a current Memorandum of Understanding with the Humboldt Bay NWR regarding their role as a refuge support group. FOD should develop an assistance agreement with the BLM to identify common goals and projects so that they can work with BLM's interpretive staff to develop collaborative programs and avoid duplication.

5.2 Visitor Management

Planning for the management of public areas can be difficult because of the lack of reliable data about visitor use and relevant information about the status of natural and physical resources. The availability of reliable data can increase the ability of area managers to anticipate and control use to suit the management objectives of the area. Visitor use information can also be helpful in the pursuit of grant funding because it establishes potential beneficiaries of a proposed project. In order to effectively manage Ma-le'l Dunes CMA visitors, this Plan recommends that:

- A caretaker will be contracted to reside within the project area and assist with visitor management throughout the area.

- Visitor records and census data will be collected by the caretaker and given to respective agencies.
- Site-specific visitor management strategies will be developed and employed. Some strategies regarding traffic parking are discussed further below.

5.2.1 Visitor Records

Visitors to the Ma-le'l Dunes CMA will be requested to write their names and place of residence on sign-in sheets located at the kiosks at both the south and north entrances to the area. In addition, FOD will maintain attendance and participant records for all field trips, tours and volunteer restoration workdays and these records will be made available to the respective agency. Sign-in sheet and FOD information will be compared to the results of a visitor census described below.

5.2.2 Visitor Census

A census to establish baseline visitor information will be conducted within the first year that the area is formally open to the public.

FOD and/or Humboldt State University will coordinate the survey and the work will be considered as part of a future grant-funded project possibly in conjunction with an environmental education and outreach grant program.

5.2.3 Caretaker

A caretaker will be contracted to provide services throughout the Ma-le'l Dunes CMA and is critical to the management of visitors in the area. The caretaker will reside in a small clearing located along the west side of the road on BLM's Ma-le'l South property and south of the RGC's property (see Figure 4-1). Compensation for caretaker services will consist of free utilities and a stipend to be provided by USFWS. Utilities provided by USFWS will include electricity, sewer, water, and telephone service. An analysis of these cost share expenses appears in Appendix C.

The caretaker position will require knowledge, skill, and experience to repair and maintain the CMA facilities and amenities such as picnic tables, wooden steps, decking, information boards/kiosks, and fencing. Interpretive skill and knowledge of the area's resource values will be preferred so that the caretaker can be effective in communicating information to the thousands of diverse visitors expected to visit the area. Specific duties and responsibilities of the caretaker will include:

- Keeping caretaker residence in a clean and orderly appearance
- Opening and closing the entrance gate at the daily prescribed times
- Patrolling CMA on a regular basis deemed reasonable by USFWS and BLM. Check trails, fences, signs, gates, parking areas, interpretive structures, and research areas
- Replacing or repairing existing signs or other facilities when needed. Notify agency staff if signing or facilities are broken or damaged and cannot be repaired by caretaker
- Notifying agency staff if casual trails develop throughout forest and dune mat areas, and work with agency to block trail with natural barriers as necessary
- Notifying staff if HBMWD pipeline becomes exposed along any trail or at any location
- Checking parking area for vehicles at closing time. Follow appropriate protocol when vehicles remain

5.2.4 Traffic and Parking

A number of strategies or protocols are required to control vehicle use for a variety of situations, such as:

- **Vehicles parked in parking areas after gate closing time:** Caretaker will allow one half hour grace period. If vehicles remain caretaker will contact agency law enforcement ranger for specific instructions according to established protocol.
- **Vehicles parked along** Ma-le'l Road: Signs indicating that parking is not allowed will be displayed along the roadway and at locations where parking is likely to occur. The caretaker will follow established protocol.
- **Ma-le'l North parking area has reached vehicle capacity:** During times when heavy visitation is anticipated (for example, on warm weekend days) and when the caretaker has observed that the Ma-le'l North parking area is full, the caretaker will place a temporary sign at the south gate indicating the area is full and directing visitors to park at the Ma-le'l south entrance of the CMA.

Other Park Management tasks that will be needed:

- Clean and stock restrooms as necessary.
- Pick up minor trash as needed, and empty all litter cans as necessary.
- Provide brochures to visitors, keep the kiosks stocked and clean, and post information and maps as necessary. Obtain additional brochures as necessary.
- Remove and replace visitor register pages and transfer to each BLM, USFWS and Friends of the Dunes.
- Carry radio during patrols and contact law enforcement rangers according to established protocol.
- Maintain a written log of violations, incidents and unusual events, and notify agency ranger if illegal activities are observed or suspected.

5.3 Enforcement and Security

Law enforcement and security is an important management tool that will assist the agencies in meeting their goal to accommodate:

- Safe and orderly open public access
- A range of recreational opportunities without adversely impacting the natural and cultural resources of the area

To this end, BLM and USFWS will work internally and with the Sheriff's Office to create a coordinated approach to law enforcement that will ensure the public a safe visit to the area as well as ensure that the area's natural resources are protected.

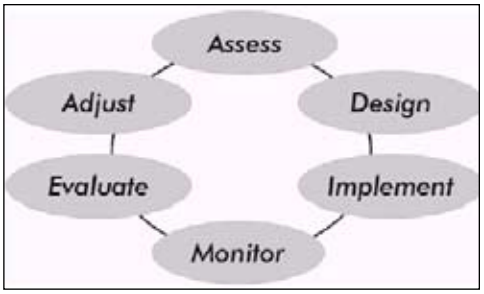
Access to the area will be controlled via the Ma-le'l South and Ma-le'l North entrance gates. The gates will have a padlock and key similar to the existing mechanism for locking the entrance gates to the area. The caretaker will be responsible for opening and closing the gates at the proper time, and a defined set of protocols will be followed when addressing vehicles or law enforcement needs. Security throughout the area will be addressed via patrols by the caretaker and by law enforcement protocols. The protocol will address how fire and law enforcement staff will gain emergency access to the CMA.

5.4 Adaptive Management

Through an adaptive management approach, the cooperating agencies will aim to thoughtfully select and implement management practices and adapt them as necessary to achieve management goals. As time progresses agencies may consider changing roles regarding trail maintenance and security, additional parking, or the issuance of special use permits.

Adaptive management has been used as a resource management technique since the early 1970s and can be defined as a systematic process for continually improving management policies and practices by learning from the outcomes of operational programs. It involves synthesizing existing knowledge, exploring alternative actions, making explicit predictions of their outcomes, selecting one or more actions to implement, monitoring to see if the actual outcomes match those predicted, and then using these results to learn and adjust future management plans and policy. Adaptive management follows a cycle of six key stages, which begins with the assessment of a problem or goal.

Some basic assumptions and characteristics of adaptive management are:



Source: 2002 ESSA Technologies Ltd..

- Acknowledging that resource management is not a static state, and that policies and practices must be responsive to change in order to be effective
- Acknowledging that there is uncertainty about what is the "best" policy or practice for a particular management issue
- Acknowledging that what is the "best" policy or practice can change
- Using the assessment and design stages of the cycle to thoughtfully select the policies and/or practices to be implemented
- Designing and implementing a plan of action to reveal the critical knowledge that is currently lacking
- Selecting policies and/or practices based on the best knowledge currently available, and anticipating adapting them in response to knowledge gained in the future
- Monitoring key response indicators
- Evaluating the management outcomes in terms of the original objectives, and incorporating results into future decisions

6.0 Public Access Plan Implementation

This chapter presents a phased approach towards implementing the actions for improved public access to the Ma-le'l Dunes CMA. Costs associated with implementation are discussed and a detailed estimate of costs provided. In addition, potential state, federal and local funding sources are listed and discussed.

6.1 Implementation Strategies

Recommendations for improvements that are critical to establishing basic operations, usability, and public safety will be implemented first as "Phase One" improvements. Proposed improvements to enhance the experience of visitors to the area will be implemented in a later stage, and as funding allows, as "Phase Two" improvements. A detailed list of tasks for each phase is contained in Appendix D.

BLM, which acquired the (former) Buggy Club parcels in June of 2004 and conducted the necessary environmental review in October 2004, completed most access improvements in the spring of 2005 and opened the area to the public in July 2005. Phase One and Two improvements to Ma-le'l South that were not previously subject to environmental review will be evaluated under the CEQA/NEPA process prior to implementation.

Phase One and Two improvements will be accomplished by agency staff, general contractors, the CCC, and contracted work crews. Specifically, the CCC can construct trails, steps, bridges and view decks.

6.1.1 Phase One

Ma-le'l South

Infrastructure, use and operational improvements to Ma-le'l South that were not previously considered for environmental review, but are recommended Phase One improvements include:

- Close casual parking area adjacent to power tower and installation of 1,000-foot pedestrian safety corridor along Ma-le'l Road.
- Redesign parking area, if necessary, to accommodate more vehicles.
- Re-vegetate casual trails throughout the Ma-le'l South forest.
- Remove old storage container adjacent to parking area.

- Extend proposed Lutguk Trail for hiking.
- Install orientation and temporary signs.
- Re-establish caretaker residence.
- Remove boundary fence between BLM and USFWS, and the fence that extends through the foredunes.
- Develop and execute cooperative agreements and special permit process.

Ma-le'l North

All proposed improvements to Ma-le'l North will undergo environmental review prior to implementation. Upon approval from regulatory agencies USFWS should make Phase One improvements generally in the following order:

- Recruit and hire caretaker.
- Install vault toilet.
- Upgrade Ma-le'l Road, including re-location of the gates and installation of entry and boundary signs and fences along it.
- Improve Ma-le'l North parking area and install day use amenities including temporary toilet, trash receptacles, picnic tables, and entry and regulatory signing, kiosk, and bike rack.
- Survey forest and dune trail routes for sensitive plant and insect populations.
- Conduct preliminary upgrade of Tsoutsgish Trail
- Upgrade Dap Loop Trail through forest, including installation of steps at trailhead, installation of step and rail near mid-point of trail.
- Revegetate casual trails and remove old kiosk, entry sign, bike rack, and iron ranger at the Ma-le'l North parking area.
- Establish new forest egress at the Kimuk trailhead.
- Establish Hout and Kimuk Trails across the dunes, including the removal of unwanted fences and benches, and install a puncheon bridge.
- Install directional, jurisdictional, boundary, and temporary signs.
- Develop and execute cooperative agreements and special permit process, as necessary.
- Create Ma-le'l Dunes CMA trail map and brochure and update Humboldt Bay Beach and Dunes Map.

- Organize and conduct Ma-le'l Dunes opening ceremony, wherein the appropriate entities are recognized for their efforts.
- Begin interpretive programs.

6.1.2 Phase Two

Phase Two improvements will occur as funding becomes available and as the collaborative effort allows. Phase Two improvements should include the following:

Ma-le'l South

- Replace 100-foot section of step and rail along Du'k Trail.
- Install 30 foot boardwalk along Du'k Trail.
- Establish section of Du'k Trail spur that will follow a forested ridge from the middle of the Du'k Trail to the Ma-le'l South parking area.

Ma-le'l North

- Upgrade Tsoutsgish Trail to ADA standards.
- Repair wetland viewdeck.
- Install cable steps on Kimuk trail.
- Install interpretive signs and benches along Tsoutsgish Trail.
- Stabilize bank along railroad berm.

6.2 Implementation Costs

The total estimated cost to fully implement the proposed improvements and programs to establish CMA operations were estimated at approximately $473,495 in 2006 (Phase One at $175,000 and Phase Two at $298,495). Line item cost estimates for Phase One and Two are outlined in Appendix E. Estimates were derived from industry standards, the experience of the Plan authors and BLM and USFWS staff, and conversations with stakeholders and contractors. A special effort was made to take into account for logistical challenges associated with the physical remoteness and environmental sensitively of much of the plan area. Project management, environmental review, permitting and contingency costs were also added based on estimated base construction and development estimates.

The two largest costs for physical improvements are the bank stabilization or erosion control along the railroad berm ($56,000) and the installation of an ADA trail along that same structure ($120,000). These features are also associated with the largest potential variations in design and installation costs. More detailed analysis and design are required to accurately assess these costs. Both of these are Phase Two improvements and are not required to establish area operations.

The cost estimate assumes installation by private contractors or contract labor with project management by the participating agency staff. No donated labor or materials were assumed. At this time, local material and labor costs are fluctuating dramatically. Thus, estimates should be updated as necessary during the implementation process.

6.3 Funding Strategies

Implementing the recommended access improvements hinges on securing funding for this project. There are a wide variety of funding programs and possibilities available at the state level.

The Ma-le'l Dunes CMA will be cooperatively managed and maintained by BLM and USFWS. Their partners include a diverse stakeholder group consisting of FOD, the RGC, SPI, and the Wiyot Tribe. Federal agency partnerships with private and non-profit entities provide for cost share due to the leverage they offer. Funding agencies or organizations commonly require that all necessary environmental review and permitting be approved prior to disbursements. As the Ma-le'l CMA project has already completed or initiated these processes, funding opportunities are all the greater.

The following is a list of grant and program sources identified by the access planning team to be relevant to the various key elements of the access plan, including: public access, recreation, environmental education, and habitat restoration and protection. Initial contact with program representatives will occur when appropriate.

6.3.1 State Funding Sources

State Coastal Conservancy

The SCC manages several programs that provide grant funds for coastal trails, access, and habitat restoration projects. The funding cycle is open for these programs. The SCC has proven their strong interest in the coastal

public access element of the Ma-le'l Dunes CMA, having provided funds for the development of this access plan, and would likely be interested in assisting with implementation of access improvements.

California Department of Parks and Recreation, Recreational Trails Program

This program provides up to 80% of project funding for recreational trails and trails related projects; funding is available for both motorized and non-motorized trails. Eligible projects may include acquisition, development, or rehabilitation of recreational trails. Funding is available to entities that have management responsibilities over public lands.

California Department of Parks and Recreation, Habitat Conservation Fund

Administered by the California Department of Parks and Recreation, this program provides matching funds to local governments for habitat restoration and for public access projects that help urban residents access wildlife areas. The program can provide up to 50% of the required funding related to wildlife corridors and trails, riparian habitat, rare, endangered, threatened, or fully protected species, and aquatic habitat for spawning and rearing of anadromous salmonids. Only local units of government are eligible. This program will allow up to 20% of awarded funds to cover planning and project administration.

Land and Water Conservation Fund (LWCF)

The LWCF is a reimbursement program administered by the National Park Service and California Department of Parks and Recreation. Projects are limited to outdoor recreation purposes and indoor facilities that support outdoor recreation activities, and may include acquisition or development of neighborhood, community, and regional parks and recreation facilities, as well as the acquisition of wetland habitat. LWCF requires a 50% match. Eligible applicants include entities with authority to acquire, develop, operate, and maintain public park and recreation areas. The application deadline is May 1st annually.

California Department of Fish and Game, Public Access Program

This program provides state/local cooperative projects with funds (not grants) for acquisition or improvements that preserve wildlife habitat or provide recreational access for hunting, fishing, or other wildlife oriented recreation. Qualifying projects include development of fishing piers or floats, access trails or roads, boat launches, wildlife observation and interpretive trails, restrooms, and parking areas. Funding can be up to $250,000, not including engineering and CEQA costs, and no matching funds are required for non-pier projects.

California Department of Fish and Game, Wildlife Conservation Board (WCB)

The WCB provides funds for habitat restoration and wildlife access projects. The board meets ten times annually to select projects. The WCB has a similar process to that of the SCC in which funds can be secured on a relatively short time line. Their staff are interested in receiving proposals that have the consent of the local CDFG office.

California Conservation Corps (CCC)

The CCC has matching Proposition 12 and 40 funds. Their Fortuna Center may be interested in potentially supplying labor for trail construction and environmental restoration. It is a requirement that work is crafted to serve as education for the Corps members. For instance, the uniqueness of the Ma-le'l Dunes ecosystem and Wiyot cultural history could be taught by local experts.

California Department of Transportation, Environmental Enhancement and Mitigation (EEM) Program

This Caltrans program is designed to provide mitigation for Caltrans projects, and is available to local agencies and non-profits. A potentially relevant Caltrans project may be related to the nearby State Route 255. Of the three EEM categories, 'Roadside Recreational' is likely a good project fit. A first step is to discuss early project concepts with the local office.

California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002

Given California's current budget crisis, the funding for many of the programs authorized by Proposition 40, including the Per Capita Grant Program, will occur in a future state budget.

6.3.2 Federal Funding Sources

National Fish & Wildlife Foundation

This federal foundation provides federal matching funds for fish, wildlife, plant conservation and education projects, as well as public access projects. There are numerous programs, however, one of most relevant to this project is the 'Pathways to Nature' program, which funds wildlife and bird viewing and education opportunities at significant nature tourism destinations in the U.S. and Canada. Funds must be matched equally with non-federal matches.

6.3.3 Local Funding Sources

Humboldt Area Foundation (HAF)

The HAF's mission is "to serve as an independent staging ground for residents, individually and in concert, to build social, economic and environmental prosperity to California's North Coast". The deadline for small grants (less than $5,000) is the first day of each month; the deadlines for general grants (over $5,000) are June 1, September 1, and December 1. The HAF is primarily focused on smaller projects that benefit youth and families, and economic development projects in the region. Projects typically funded by HAF do not appear to match rail-trail development. However, if there were individuals interested in acting as benefactors for trail development, the HAF would be an appropriate institution to work with to establish project-specific funding programs.

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Appendices

A. Current Access Road Maintenance Method

B. Wiyot Trail Names

C. Shared Maintenance Responsibilities and Costs

D. Implementation Tasks Phase One and Two

E. Implementation Cost Estimates

Appendix A

Current Access Road Maintenance Method

Under current conditions, RGC road maintenance work normally consists of two basic operations. One is general repair work where truckloads of base rock (3/4" minus Class II aggregate base) are shaped by a homemade spreader screed and wheel-rolled for compaction. This work is normally performed once every two years and takes about a day to complete. The second operation is filling "pot holes" by shovel loads then dragging the road with the screed to level and reshape it. This work is done between 10 and 12 times per year and is done by one individual. Hours expended are around 50 to 60 per year. Approximately ten cubic yards were purchased by RGC in 2002 and spread over the length of the road, between the two gates, with a small remainder stockpiled for subsequent "pot hole" repair work. Since January 2005, approximately four pick-up truckloads have been purchased and applied to the road (Bob Fallis pers. comm., email, April 17, 2005).

Currently, vehicular traffic is relatively light, infrequent and controlled. Most of the traffic occurs on Saturdays and Sundays when the RGC range is open to its general membership and the public. According to Bob Fallis of RGC (pers. comm., April 17, 2005), the two most significant factors affecting the condition of the road are vehicular traffic and storm water retained on the road. Currently, storm water retained on the road appears to be most problematic. The road between the two gates is nearly flat, longitudinally and cross-sectionally. Most of it is in a "choker" condition in between vegetated sand dune and berms. Storm water is trapped on the roadbed itself and can not free-drain off to the side and escape. The only place for this water to go is down, through infiltration, which is a slow process. Because the base rock is a relatively thin layer on top of sand, when open water is present and traffic moves across it the hydrostatic shock wave that it sets up causes the fines in the base rock to "pump" causing the road surface to lose shape and load-bearing strength, thus creating a "pot hole." Left unchecked, this process will continue and accelerate, ultimately resulting in the loss of the entire roadbed section.

Appendix B

Wiyot Trail Names

English	Wiyot	Sounds like
north	rrak vou'r	dock voo-er
trail	walhel	wah-lhel
north wind	rradughu'n	daw-dug-uh'n
sunshine	**ledik**	led-eek
the sun sets	guduwurish	gudd-uh-wurr-eesh
snake	halouna'si'	hall-oo-not-see
ocean	shou'r	shoe-er
salal berry	**viqhul**	haw-pie
bird	**tsoutsgish**	tsoots-geesh
sand	**lutguk**	lutt-guck
surf fish	**hout**	hoot
south	dak hishvuri	dock heesh-vurr-ee
spruce tree	**du'k**	duck
spruce roots	**dap**	dopp
whale	**kimuk**	kee-muck
sea lion	goumayoulilh	goo-my-you-leelh
Words in bold were selected as trail names for the Ma-le'l Dunes CMA.		

Appendix C

Shared Maintenance Responsibilities and Costs

BLM and USFWS will be responsible for maintenance of all infrastructure, signage, and visitor records associated with their respective properties. Table 1 below lists the responsibilities of the cooperating partners. The caretaker will carry out routine maintenance, including replacement of signs (other than those to be replaced by BLM), but materials will be supplied by the responsible landholding agency. USFWS will contract with the various entities, including the California Department of Forestry (CDF), to maintain vegetation growth along Hammond Road.

Table 1. Assignment of Shared Responsibilities

Maintenance Task	Responsible Party
Ma-le'l Dunes CMA main entry sign	BLM, USFWS
Access roadway surface, including portion to Ma-le'l South	USFWS, RGC
Access roadway signs	USFWS, BLM
Access roadway vegetation	USFWS with CAL FIRE
Redwood Gun Club boundary signage	USFWS, BLM, RGC
Redwood Gun Club boundary fences	USFWS, BLM, RGC
HBMWD easement fence, gate and signs	USFWS, HBMWD
Caretaker compensation, trailer maintenance, and utilities	USFWS
Caretaker radio	BLM
FOD restoration volunteer and guided walk records	FOD

A brief comparison of cost sharing expenses between entities appears in Table 2.

Table 2. Comparison of Cost-Share Expenses

Cost Share Expenses	USFWS	BLM	RGC
Start-up Costs			
Access Road Improvements	$ 5,000	$ -	$ -
Caretaker Residence re-establishment	$ -	$ 2,500	$ -
Total shared start-up O&M costs	$ 5,000	$ 2,500	$ -
Annual On-going Costs			
Access Road Maintenance	$ 2,550	$ -	$ 450.00
Caretaker salary	$ 3,650	$ -	$ -
Caretaker utilities (power, propane, water) at $150/mo	$ 1,800	$ -	$ -
BLM Ranger Back-up Enforcement	$ -	$ 9,600	$ -
Total shared annual O&M costs	$ 8,000	$ 9,600	$ 450

*This cost is based on $1000/yr for vegetation control, $2000/yr for road surface maintenance, and an estimated 85% of use by USFWS and 15% by RGC.

Appendix D

Implementation Tasks Phase One and Two

PHASE ONE IMPROVEMENTS	RESPONSIBILITY
INFRASTRUCTURE	
1. Establish caretaker trailer pad	BLM
2. Improve Ma-le'l Road	USFWS
3. Relocate Ma-le'l North entry gate	USFWS
4. Install new board fencing, along Ma-le'l Road adjacent to private residential properties	USFWS
5. Close parking area at power tower and install 1,000 ft walkway along Ma-le'l Road	BLM
6. Install new gate and fencing to HBMWD easement on east side of Ma-le'l Road	USFWS
7. Install live fence plantings along Ma-le'l Road adjacent to SPI property	USFWS
8. Install new post and wire fencing along Ma-le'l Road adjacent to RGC	USFWS
9. Upgrade parking areas	USFWS
10. Install vault toilet	USFWS
11. Install trash receptacles/picnic tables/bikes racks	USFWS
TRAIL WORK	
12. Preliminary upgrade of Gokwera Trail and control erosion	USFWS
13. Install trail steps at Dap Loop Trailhead	USFWS
14. Repair step and rail on Dap Loop Trail	USFWS
15. Re-vegetation of casual trails throughout forest and at Iron Creek	BLM
	USFWS
16. Re-route forest egress/Establish Hout Trail with markers	USFWS
17. Establish Ki'mak Trail with markers	USFWS
18. Install puncheon bridge over wetland on Hout Trail	USFWS
19. Remove unwanted fences	BLM
	USFWS
20. Dismantle dilapidated structures	BLM
	USFWS
21. Remove existing kiosks	USFWS
SIGNAGE AND PUBLICATIONS	
22. Install new main entry signage at Young Lane	BLM
	USFWS
23. Install Ma-le'l North entry signage	USFWS
24. Install highway and coastal access signage	BLM

PHASE ONE IMPROVEMENTS, continued	RESPONSIBILITY
SIGNAGE AND PUBLICATIONS, continued	
25. Install jurisdictional boundary signage (for RGC, SPI, HBMWD)	USFWS
26. Install regulatory signage	USFWS
27. Install temporary signage	BLM
28. Install trail markers	USFWS
29. Install orientation signage	BLM
	USFWS
30. Update Humboldt Bay Beach and Dunes map and create trail brochure	BLM
	USFWS
OPERATIONS	
31. Hire Caretaker	USFWS
32. Develop special permits for overnight camping and vegetative and traditional gathering	BLM
	USFWS
33. Develop and execute agreement between USFWS and BLM	BLM
	USFWS
34. Develop law enforcement protocol	BLM
	USFWS
35. Develop and execute other agreements with partners (RGC, SPI, FOD, Wiyot Tribe)	BLM
	USFWS
36. Organize and conduct opening ceremony	CMA Partners
37. Begin interpretive programs	CMA Partners
PHASE TWO IMPROVEMENTS	**RESPONSIBILITY**
INFRASTRUCTURE	
38. Upgrade benches	USFWS
TRAIL WORK	
39. Upgrade ADA Railroad Trail	USFWS
40. Install cable steps at forest egress/Hout Trailhead	USFWS
41. Wetland view deck repair	USFWS
42. Replace 100 ft section of step and rail and install 30 ft. boardwalk on Wonowk Trail	BLM
SIGNAGE	
43. Install interpretive signage	BLM
	USFWS

Appendix E

Implementation Cost Estimates

ESTIMATED COSTS PHASE ONE				
Infrastructure	**Quantity**	**Unit**	**Unit Cost**	**Subtotal**
Ma-le'l Road improvements	4400	LN	$5.00	$22,000.00
Ma-le'l North Entry Gate	1	Ea	$3,000.00	$3,000.00
Board fencing	300	LF	$20.00	$6,000.00
Pedestrian walkway	400	LF	$15.00	$6,000.00
Gate at HBMWD Easement	1	Ea	$3,000.00	$3,000.00
Live fence plantings	500	LF	$2.00	$1,000.00
Caretaker trailer pad improvements	1	Ea	$4,500.00	$4,500.00
Ma-le'l North parking area improvements	7000	LF	$3.00	$21,000.00
Install Vault Toilet at Ma-le'l North	1	Ea	$18,500.00	$18,500.00
Ma-le'l North trash receptacles	1	Ea	$500.00	$500.00
Ma-le'l North picnic tables	1	Ea	$1,000.00	$1,000.00
Ma-le'l North bike rack	1	Ea	$500.00	$500.00
Ma-le'l North post and cable	300	LF	$20.00	$6,000.00
Ma-le'l South parking area improvements	1		$10,000.00	$10,000.00
Total Phase 1 Infrastructure Costs				$104,000.00
Trail Work	**Quantity**	**Unit**	**Unit Cost**	**Subtotal**
Railroad Berm Trail Preliminary Improvements	3000	LF	$1.00	$3,000.00
Trailhead Steps at Dap Loop Trail	30	LF	$40.00	$1,200.00
Step and Rail on Dap Loop Trail	75	LF	$50.00	$3,750.00
Casual Trail Revegetation	1500	LF	$5.00	$7,500.00
Re-route Forest Egress	1	Ea	$500.00	$500.00
Hout Trail trailmarkers	10	Ea	$150.00	$1,500.00
Kimuk Trail trailmarkers	15	LF	$150.00	$2,250.00
Puncheon bridge on Hout Trail	60	SF	$75.00	$4,500.00
Remove unwanted fences	5000	LF	$1.00	$5,000.00
Dismantle dilapidated structures	2	Ea	$2,000.00	$4,000.00
Remove existing kiosks in Ma-le'l North	2	Ea	$200.00	$400.00
Total Phase 1 Trail Works Costs				$33,600.00

Signage	**Quantity**	**Unit**	**Unit Cost**	**Subtotal**
Main Entry Signage at Young Lane	1	Ea	$2,000.00	$1,000.00
Highway and coastal access signage	2	Ea	$1,000.00	$200.00
Jurisdictional Boundary Signage (for RGC, SPI, HBMWD)	20	Ea	$100.00	$2,000.00
Temporary Signage	8	Ea	$50.00	$400.00
Ma-le'l North Entry Signage	1	Ea	$1,000.00	$1,000.00
Ma-le'l North Regulatory Signage	5	Ea	$500.00	$2,500.00
Ma-le'l South Orientation Signage	1	Ea	$1,000.00	$1,000.00
Ma-le'l North Kiosk	1	Ea	$5,000.00	$5,000.00
Total Phase 1 Signage Costs				$13,100.00
Operations	**Quantity**	**Unit**	**Unit Cost**	**Subtotal**
Develop special permits for overnight camping and gathering	0	Staff Hour	$35.00	
Develop and execute cooperative agreements	0	Staff Hour	$35.00	
Develop law enforcement protocol	0	Staff Hour	$35.00	
Organize and conduct opening ceremony	0	Staff Hour	$35.00	
Interpretive Programs	0	Staff Hour	$35.00	
Total Phase 1 Operations Costs				
PHASE ONE SUBTOTAL				$150,700.00
Contingency (10%)				$15,070.00
Project Management (20%)				$9,230.00
TOTAL				$165,770.00
TOTAL PHASE ONE COSTS				**$175,000.00**

ESTIMATED COSTS PHASE TWO				
Infrastructure	**Quantity**	**Unit**	**Unit Cost**	**Subtotal**
New Benches	8	Ea	$500.00	$4,000.00
Ma-le'l North trash receptacles	2	Ea	$500.00	$1,000.00
Ma-le'l North picnic tables	3	Ea	$1,000.00	$3,000.00
Live fence plantings	1500	LF	$2.00	$3,000.00
Potable water at Ma-le'l South	1	Ea	$7,500	$7,500.00
Total Phase 2 Infrastructure Costs				$18,500.00
Trail Work	**Quantity**	**Unit**	**Unit Cost**	**Subtotal**
Railroad Trail Erosion Control	750	LF	$75.00	$56,250.00
Repair Wetland Viewdeck	100	sf	$75.00	$7,500.00
Step and rail on Wonowk Trail	100	LF	$50.00	$5,000.00
Boardwalk on Du'k Trail	30	LF	$150.00	$4,500.00
Cable Steps at Forest Egress/Hout Trailhead	50	LF	$75.00	$3,750.00
Step and Rail on Dap Loop Trail	125	LF	$50.00	$6,250.00
ADA Access Trail Improvements	15000	sf	$8.00	$120,000.00
Total Phase 2 Trail Work Costs				$203,250.00
Signage and Publications	**Quantity**	**Unit**	**Unit Cost**	**Subtotal**
Humboldt Bay Beach and Dunes Map Update	80	Hours	$50.00	$4,000.00
Print Map Update	5000	Ea	$1.00	$5,000.00
Ma-le'l Dunes CMA Trails Brochure	5000	copies		$9,000.00
Ma-le'l South Interpretive Signage	3	Ea	$2,500.00	$7,500.00
Ma-le'l North Interpretive Signage	5	Ea	$2,500.00	$12,500.00
Total Phase 2 Signage Costs				$38,000.00
PHASE TWO SUBTOTAL				$259,750.00
Contingency (10%)				$25,975.00
Project Management (20%)				$12,770.00
TOTAL				$298,495.00
TOTAL PHASE 2 COSTS				**$298,495.00**
GRAND TOTAL PHASE 1 & 2				**$473,495.00**

Exhibit 2: Ma-le'l Dunes CMA Access Management Plan