

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

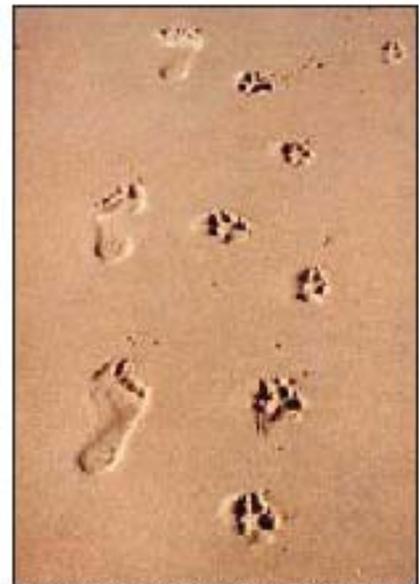
The entire Ma-le'l Dunes CMA will be open to non-motorized recreation uses with the following restrictions (discussed in more detail below):

- Pedestrian use and associated activities are allowed only on designated trails, open sandy areas, and the wave slope.
- Equestrian use allowed only on designated trails and wave slope.
- Dogs allowed off leash on designated trails and open sands throughout Ma-le'l South and along the wave slope 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.
- Overnight camping is not allowed.
- Organized group camping for special events may be approved on a case-by-case basis.
- Vegetative gathering for personal use and traditional gathering by tribal members is allowed May to November along designated trails at Ma-le'l South and otherwise by special permit.
- Fires allowed only in designated sites.
- Canoe and kayak launching and landing in designated locations only.
- Motorized vehicles, firearms crossbow/bow shooting, mineral sales, and livestock permits and leases are prohibited throughout the CMA.

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



Footprints and paw prints in the sand

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 wave slope 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.



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

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 wave slope 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, or at 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).



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

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. 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 Special Group Camping Events

Group organized camping events may be allowed on a case-by-case basis at the Ma-le'l South Special Event Area 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, and otherwise by special permit. Off-trail collection of vegetative material will not be allowed because of its potential to cause impact to the highly erodible, forested dune soils. Ma-le'l North will be closed year-round to gathering of plants and plant material, including mushrooms and berries, except by special permit.

Nearby residents have expressed concern regarding not being allowed to collect huckleberries off-trail and off season for either personal or commercial use. In order to address this concern, and based on the result of ongoing monitoring efforts in the area, limited off-trail and off-season vegetative gathering may be allowed at Ma-le'l South in accordance with an MOU between the agencies and the Tribe, on a case-by-case basis, and to the extent that such activity does not cause negative impacts to the forest. BLM will work to develop a special permit process for this use.

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 be accommodated during high tide at the Ma-le'l North parking area during day use hours. Boat landing will also be allowed near the end of the railroad berm, and access to the top of the berm at this location will be provided. Boat access and boat landing at any other location within the CMA will not be allowed due to potential erosion and adverse impacts to sensitive species.



Acom mush basket, United Indian Health Services permanent collection. Spruce roots are most often used in cooking and eating baskets because they swell up and make the basket watertight.

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).

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 boat ramp and at the end of the railroad berm.

4.1.10 Motorized and Non-Motorized Vehicle Use

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

4.1.11 Restoration Activities

On-going environmental restoration activities will continue in the dunes and forests of the CMA. Both BLM and the USFWS will continue to eradicate European beachgrass, ice plant, yellowbush 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 the assistance of contracted labor, such as the CCC, and FOD restoration programs. In addition, USFWS will implement CDC funded restoration activities throughout the nearshore dunes and forest at Ma-le'l North over the next five years (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



Non-motorized public boat launching and landing will be accommodated at Ma-le'l North during high tide



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

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

To the extent feasible and compatible with agency objectives, these areas will meet the guidelines of the California Disabled Accessibility Guidebook (CalDAG, 2003).

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 Cooperative Management Area from 1990 to 1994. User surveys were not conducted.

Visitors to the Ma-le'l South and Ma-le'l North areas are expected to total approximately 16,500 and 8,000 persons per year, respectively (Bruce Cann and Andrea Pickart, personal communication, 2005). Expected boat use is approximately ten per weekend day during peak summer hours. During the weekdays, a maximum of five boats per day is expected in good weather. Use levels for traditional resource gathering are expected to be low, perhaps five visits per year by one or a few tribal members. No more than 50 program participants/special groups are expected to visit Ma-le'l North with no more than six special groups per month.

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. Some visitors to Ma-le'l North will arrive by bicycle, kayak, or canoe.

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's area, trails, trail amenities, fences, and signing.

4.3 Access and Circulation

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

4.3.1 Motorized Vehicle

Vehicles will access the designated parking areas via the Ma-le'l Road (a.k.a. the access road). Vehicles will be prohibited everywhere else including on the HBMWD pipeline easement except for authorized maintenance or emergencies. To the extent possible, the existing gravel Ma-le'l Road leading

to designated parking areas in both Ma-le'l North and Ma-le'l South, and to the caretaker trailer area, will be improved and resurfaced 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 will 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 one full foot over a one-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 the Ma-le'l Road will be developed. Bicyclists entering the CMA will be expected to use caution when accessing the site and will be made aware of the one-lane, gravel nature of the road. Signing will be used to alert motorists of the presence of bicyclists.

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 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 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 access 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.



Bicyclists entering the Ma-le'l Dunes CMA will be expected to use caution when accessing the site and will be made aware of the one-lane, gravel nature of the road.

4.3.4 Pedestrian Access

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

4.3.5 Kayak and Canoe Access

Canoe and kayak landing and launching within the Ma-le'l Dunes CMA will be accommodated by the construction of a kayak and canoe ramp located at the Ma-le'l North parking and picnic area along the Mad River Slough and at the end of railroad berm trail. This facility will be available for carry-in and carry-out access for canoeists and kayakers during daylight hours only. The ramp at the Ma-le'l North parking area will be accessible only during high tide.

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 restroom, two information kiosks, and directional signs. Improvements at Ma-le'l South that were included in the previous environmental review process but have not yet been installed are cooking grills.

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

- A water spigot for equestrian use.
- 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 lot.

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Ma-le'l North

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

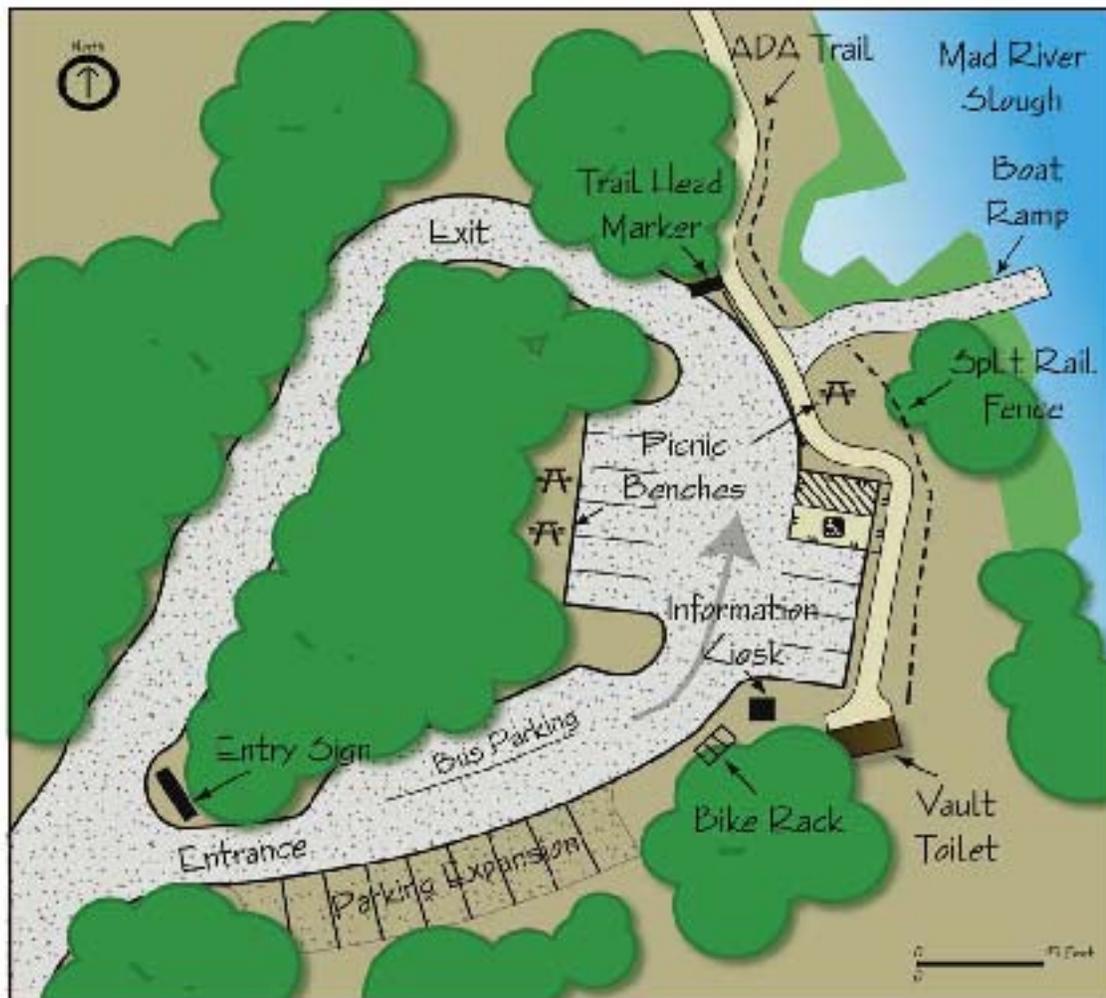


Figure 4-2 Proposed layout of the Ma-le'l North Parking Area

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
- Future expansion for nine additional motorized vehicle spaces
- Kayak and canoe ramp
- 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 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 Association's 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 per toilet
- ADA-accessible

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

4.4.3 Kayak and Canoe Loading and Launching Ramp

To enhance boat access during high tides, a kayak and canoe loading and launching "ramp" will be constructed at the Ma-le'l North parking area to the edge of the slough. Symbolic fencing will be installed on either side of the ramp and walkway to discourage entry into the adjacent salt marsh habitat. Prior to the installation of the ramp rare and special status species plants known to exist in the vicinity will be dug up and moved to suitable habitat nearby. Figure 4-3 illustrates the conceptual cross section for the ramp. The following criteria will be used in ramp installation:

- The ramp will be five-feet wide, approximately 35 ft long, and surfaced with the gravel confined by a heavy-duty, polyethylene cellular product (e.g. Geoweb™).
- The upland slope of the "ramp" should not exceed 12%.



An example of a single vault toilet building supplied by CXT Incorporated.

- The slope of the submerged portion of the ramp should not exceed 20%.

The objective of the structure is to accommodate canoe and kayak landing and launching while confining such activity to a small area so as to protect sensitive salt marsh habitat from trampling and erosion. The "ramp" is intended to assist in the ferrying of boats by hand from vehicles to the slough. It is not intended for vehicular access. It will require an incidental amount of wetland fill area of less than 300 square feet).

A floating dock was considered infeasible for this location as the area is only accessible during high tides, and during low tides a boater would need to cross as much as 400 feet of mud flat to reach open water. This significantly limits boating accessibility from this location.

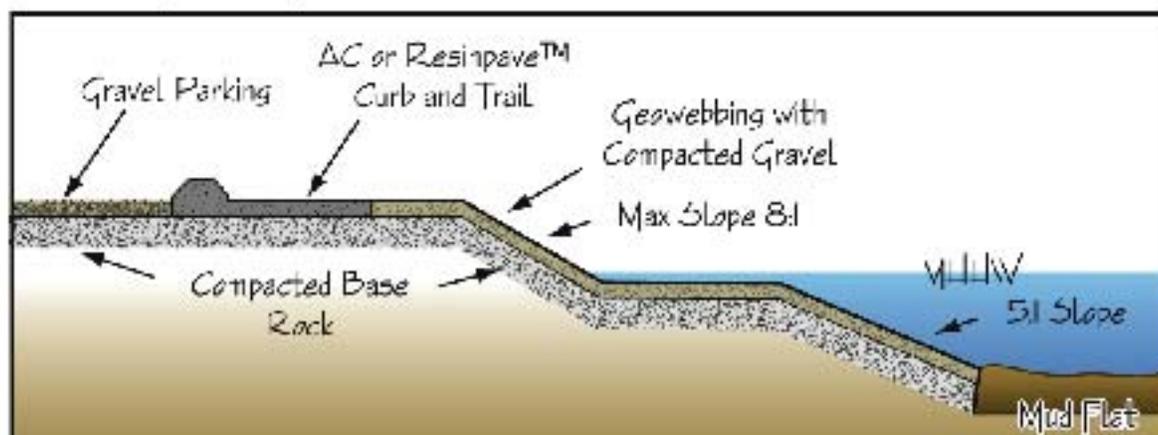


Figure 4-3 Kayak and Canoe Ramp Cross Section (not drawn to scale)

4.4.4 Caretaker Trailer Pad

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, and vegetation clearing.

4.4.5 Trail Routes

Two miles of new hiking trails will be added to the CMA's existing three-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 recommended trail routes within the Ma-le'l Dunes CMA.

All hiking trail upgrades, including paths, stairs, puncheon style bridges, and other associated amenities will be constructed using 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-foot-wide, 8-foot high overstory, all-season accessible, on native soils. Detailed discussions of improvements to specific hiking trails appear below.

All casual trails throughout the area will be decommissioned and revegetated with native plants and/or brushed with vegetative materials, including the trail which leads north from the caretaker's residence 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.

Hiking trail improvement work in the forest and dunes will avoid impacts to sensitive and special species populations such as coral root orchid (*Corallorhiza*), sugar stick (*Allotropa virgata*), and other unusual or rare plant occurrences and animal or insect 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.

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 should 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 should be included in the publications where the trail map occurs.

Ma-le'l South

Equestrian Trail

Latak 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 Latak Trail, which means "sand" in the Wiyot language.

¹ Available from Don Beers, North Coast Redwoods Headquarters, 800-A West Clark, Eureka, CA 95501, Telephone: (707) 445-6547

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The equestrian trail begins at the south side of the Ma-le'l South parking area and heads west through the dunes. At the primary 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 Latkak Trail is approximately one mile in length. The equestrian trail will be maintained with various widths up to 8-feet wide.

Hiking Trails

Latkak Trail

A new extension of the existing Latkak Trail will provide additional beach access from Ma-le'l South. The trail extends through the foredunes north of where the Latkak 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.

Wonokw 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 (USDI-BLM, 2004). This forest-dune loop will be known as the Wonokw 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 Wonokw Trail traverses forested dunes, descends open dunes, passes an intersection with the Letik Trail (discussed below) and then joins the Latkak Trail to the beach. In the future, BLM may develop a spur that will follow a forested ridge from the middle of the Wonokw trail to the Ma-le'l South parking lot.

The Wonokw 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.

Letik Trail

The Letik Trail, meaning "sunshine" in Wiyot, departs the northern end of the Ma-le'l South parking and leads hikers through an old access gate and a series of nearshore dunes to join the Wonolow Trail and Latkak 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 offering a 2.5 mile hiking loop.

Cukish Trail

The existing railroad berm trail, will be known as the Cukish 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 rail road trestle. It serves as the entry route to a 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' minimum width, and an 8' overstory clearance.
- ADA accessibility upgrade (discussed below).
- Installation of "bio-engineered" erosion control measures to protect the berm and the installation of benches and a wetland viewdeck (discussed below).

ADA Accessibility

To accommodate ADA accessibility, along the Cukish Trail, typical design requirements will be based on CALDAG 2000 and should include:

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



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

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 shall be removed and the existing trail base will be widened to six feet.
- Following compaction of the graded and widened subgrade, geo-textile fabric is to be installed.
- Following geo-textile fabric installation, a minimum of 0.4 feet of 5/8 inches minus crushed rock fractured all sides shall 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 between cost effectiveness and potential impact.

Erosion Control

There are many locations along the Cukish Trail where erosion and slumping will need to be addressed with various erosion control measures. Typically this is addressed by backfilling these areas with large quarry rock or concrete and/or asphalt construction debris (a.k.a. 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 should 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 contracted 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.

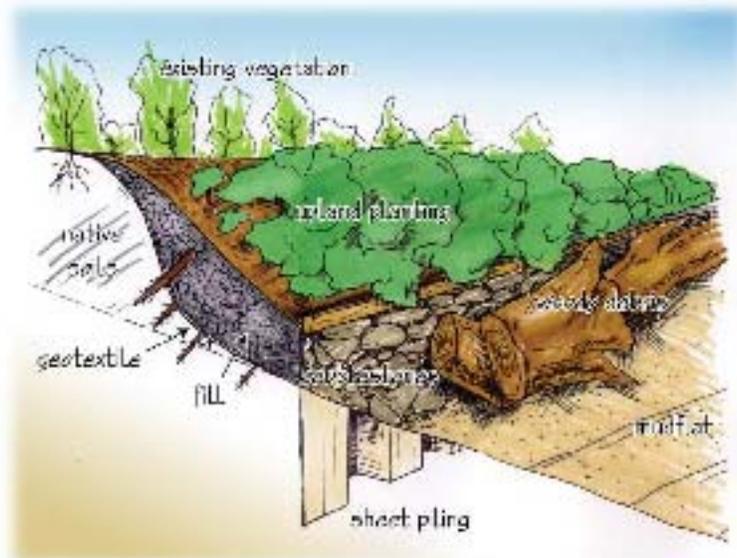


Figure 4-5. Example of Erosion Control Cross-Section

Kimnak Trail

The Kimnak Trail, meaning whale in Wiyot, is a proposed new trail that will extend from the Cukish Trail up a large dune, past a dune overlook view deck, over open sand and nearshore dunes, to the beach. It passes through the corner of Ma-le'l South/BLM property, a portion of Humboldt Bay Wallflower populations, and primary dunes densely vegetated with European beachgrass.

The Kimnak Trail will include the following improvements:

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

Hop'oy Trail

The Hop'oy Trail, meaning "berries" in Wiyot, is an existing loop trail through the forest that will extend from the Cukish Trail. Hop'oy Trail will include the following improvements:

- At the Hop'oy trailhead steps and rail will be installed to ease access and eliminate erosion potential.
- Along the Hop'oy Trail approximately 150 feet of steps and rail will be installed to replace a dilapidated wooden staircase.
- In the area where there is a predominance of reindeer lichen (*Cladonia portentosa ssp. pacifica*), the trail will be re-aligned and delineated with peeler core logs or other natural material to protect this unique and sensitive ecosystem.



Location of proposed cable steps and dune view deck.

- The dilapidated cabins near the meadow in the northern portion of USFWS property will be dismantled and removed.
- The trail that leads to the bank of Iron Creek will be decommissioned in order to eliminate impact to salt marsh vegetation.

Hudt Trail

The Hudt Trail, meaning surf fish, will be an open dune trail to the beach that extends from the forested Hop'ó'y 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 primary dune system 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 Ki'mak Trail. The set of trails could also be hiked in reverse by starting at the Kimak Trail. The Hudt Trail will require the following improvements:

- A new, less steep forest exit, or forest egress, will be delineated at the Hudt 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 spanning approximately 15 feet and 4 feet wide will be installed in the foredunes across the seasonal wetland and will be anchored to prevent theft and management during seasonally high water. (For detailed specifications see "Trails Handbook" mentioned at the beginning of this section).

4.4.6 Trail Amenities

Wooden Benches

The existing wooden benches along the trail 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 (CDF) High Rock Camp (Contact Ken Davis, 707-946-2362).

Dune Overlook View Deck

Located approximately 500 feet from the Ma-le'l North parking area, the Dune Overlook View Deck will offer a spectacular vantage point of the beach, dunes, slough, and beyond. The structure will also create a sense of destination for hikers and guided walks. The construction of such a structure will be similar to the viewing deck at the Manila Dunes. Figure 4-6 illustrates the conceptual elevation for the Dune Overlook View Deck.



Location of Ki'mak Trail across nearshore dunes to the beach.



Location of Hudt trail through dune swale to the beach.



Location of new forest egress at the Hudt trail head

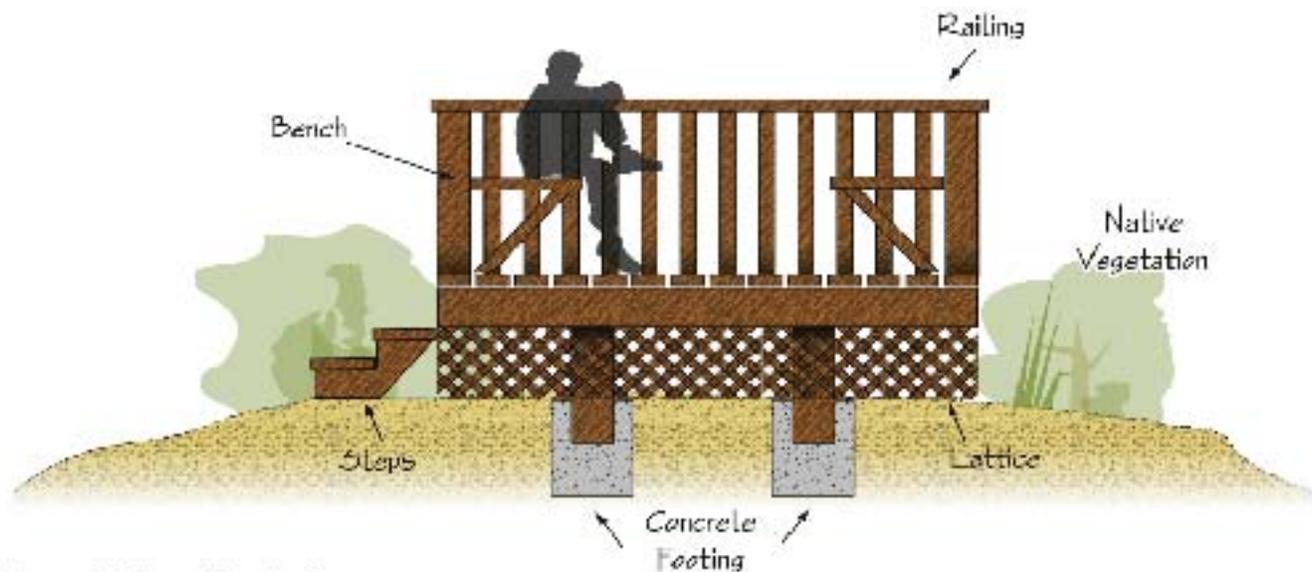


Figure 4-6 Dune View Deck

The structure will be appropriately engineered to ensure the safety of the user; typical specifications could include:

- Construction area cleared of vegetation and leveled to a minimum cross slope of 20%.
- 8 feet x10 feet deck with two benches and open approach from the west.
- Treated wood framing, minimum 4 inches x 12 inches timbers with 2"x12" joists on maximum 16" centers.
- Recycled plastic composite decking with no-slip texture.
- Redwood railing 36-inches in height
- 9-16-inch diameter, 3-foot deep concrete footings, 4-feet on center, minimum 1-foot clearance above grade.

After the anticipated removal of European beachgrass in the vicinity of this site is complete, the feasibility of installing the view deck should be re-evaluated. If considered feasible, the design of the permanent structure should include erosion control and sand accretion components such as lattice. In addition, native stabilizing vegetation should be planted around the view deck. The vegetation around the perimeter of the view deck will be managed to preserve the view shed.

Wetland View Deck

At a point approximately 1,200 feet along the Culish Trail from the trailhead, the existing wetland view deck will be replaced with a structure of similar dimension. Figure 4-7 illustrates the conceptual elevation of the wetland view deck.



Figure 4-7 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 x 10 feet, which is the size of the current structure. Minimum floor clearance (5 feet x 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.

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 near the previous special events area, 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 the access road north and south of the caretaker residence on BLM property will be removed.

Ma-le'i North

- Random post and wire fencing will be removed along the Fernstrom-Root/southern boundary of the property throughout the foredunes, and at the primary dune.

New and Repaired Fencing

New fencing should 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 the access road. This fence should 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 should be planted on the access road side of the fence. The USFWS access road boundary should be delineated as part of this process.
- Along the 2,000-foot length of SPI property where it borders the access road. This fence should 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 should be repaired or replaced.



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

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'i South

- Special group area structures.

Ma-le'i North

- Iron Creek structures
- 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 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 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 different use levels. 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.

Guidelines for Development

The development of a signing program will be consistent with the Humboldt Bay Interpretive Signing Manual (2003) developed by the Natural Resources Division of the RCAA. 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.

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, (currently Vaugh Ruppert: (503) 872-2702) 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 should be consulted. BLM signs can be fabricated by the BLM Sign Shop in Rawlins, 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.
- Coroplast. 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, U.V. 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 Trail Signs
- Interpretive
- Temporary

Within these groups additional categories of signs are recommended and details specified. Figure 4-8, 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 should 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 (Dave Gustafson, 445-6379) to provide two signs (one north facing, one south facing) with the words "Ma-le'l Dunes Access" and an arrow directing visitors traveling along Highway 255 to turn onto Young Lane. The sign will be approximately 60 inches wide and 30 inches high. 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 Access" highway sign described above.

- The Coastal Access signs are 4 feet x 4 feet with white lettering on a brown background.
- BLM will contact Linda Locklin at the California Coastal Commission locklin@coastal.ca.gov or (831) 427-4875 to request that signs be installed.

Traffic and Parking Signs

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



An example of a coastal access sign.

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Main Entry

The main entry to the CMA is located at the intersection of Young Lane and the access 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 with arrows will be prominently displayed to inform visitors of the allowable uses.
- The sign will be approximately 4 feet x 8 feet and should reflect the distinct character of the area and 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 in the southern portion of the CMA.

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 the access road heading south indicating "no parking" at the trail entry and directing cars to proceed to the Ma-le'l South parking entry.

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 Cooperative Management Area, Open Sun rise to 1 Hour After Sunset, No Camping. 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 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 should 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 NWRC.
- Universal signs for no dogs, no horses, 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 lots.

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
- Low tidal warnings to boaters
- Warning not to leave valuables in car

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 lots
- 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 and spaced no more than 250 feet apart and unless otherwise specified. In the project area there are six boundary types to be signed:

- RGC property boundary signs should 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 should be placed 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 should be white with blue lettering, 11 inches x 14 inches, and should be in the line of site, 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 (personal communication, Eric Nelson, 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 sign.
- The boundary between the Ma-le'l Dunes Unit and the Lanphere Dunes Unit should be signed at intervals of no more than 300 feet from the beach to the forest edge to indicate a USFWS management change.
- The SPI boundary will be signed along the access road and the North parking lot. Signs will be approximately 11 inches x 14 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 prohibition of boating and landing on the salt marsh areas or islands'
- Cultural Resource Protection
- Permitted boating speed in the Mad River Slough

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 routed on the front. The routed 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-routed 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 Culish Trail. Sign design should be consistent with other interpretive signing on site and should adhere to the RCAA Interpretive signing manual (2003). Interpretive themes are discussed below. The signing manual provides a variety of sign base options.

- 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 trail (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 should be constructed using Corroplast with UV resistant materials and should contain the Ma-le'l Dunes CMA logo.

4.5.2 Interpretation and Information

Interpretive Themes

Interpretive information should 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 take home key messages when information is organized thematically.

Main Theme

The Ma-le'l Dunes 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 should be incorporated into interpretive signs and publications. The Cultural Resource Specialist for the Wiyot Tribe should be consulted when developing for the public interpretive information relating to Wiyot culture.

- Restoration activities help restore natural diversity and endangered species habitat.
- The juxtaposition of eleven different habitat types in a relatively small area is responsible for the wealth of diversity found within the Ma-le'l Dunes.
- The Mad River Slough's long history of use both for travel and as a source for food continues to this day.
- Public involvement has played a critical role in the protection of the Ma-le'l Dunes.

Publications and Public Information

Humboldt Bay 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, will capture attention and stand out as compared to previous reprints. RCA's current Humboldt Bay Trail Plan layout should be incorporated into the revised map.
- The look of the map should 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 should be added including:



An example of an interpretive sign on a base at Headwaters Forest Trail

- 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, FWS, 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 FCD with funding from the HBDMP implementation grant in 2000 and should be updated to highlight the Ma-le'l CMA.

Humboldt Bay Water Trail

The kayak and canoe ramp in Ma-le'l North will be incorporated in the Humboldt Bay Water Trail system and associated trail map and guide. Humboldt Bay Water Trail signing from the RCAA signing manual will be used to convey information about tides and boat safety.

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" kiosks located at each trailhead entry. Information that the public should be aware of relative to the area will be posted within the kiosk.

Interpretive Programs

It is anticipated that FOD will play an important role in the implementation of interpretive programs at Mal-lel 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.

Other potential partners for providing interpretive programming in the Mal-lel Dunes CMA include:

- Audubon
- California Native Plant Society
- HSU Natural History Museum
- Explore North Coast
- Sierra Club

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