

INITIAL STUDY

for

Hammond Trail

Prepared by

Natural Resources Division  
Department of Public Works  
County of Humboldt

Project Background:

The Humboldt County Trails Plan was adopted in June, 1979 by the Humboldt County Board of Supervisors. The Plan outlines the needs of County residents and proposes a plan for meeting those needs with the development of a County-wide trails system accommodating bicyclists, hikers and equestrians. The trails plan involves the construction of all-new trails, the designation of existing useable routes and selected new construction to tie other routes together toward providing a coordinated trail network offering the public alternatives to motorized travel.

The Board desires to implement that portion of the Plan which includes the Hammond Trail. This trail, running along the western edge of McKinleyville will link the Arcata Bottoms area with McKinleyville and Clam Beach Park. An alternative to the Mad River freeway bridge will be provided for non-motorized traffic by use of an existing abandoned railroad bridge to cross the Mad River. The trail will provide a number of access points to the McKinleyville area, providing a continuous hiking and equestrian trail for five miles. Bicycle facilities will be constructed only between Mad River Road and Murray Road and will be Class I (State Criteria).

Project Location:

The project is located for the most part within the old existing railroad bed previously owned by the Louisiana Pacific Corporation. The right of

way is the abandoned site of the Hammond Lumber Company's logging railroad linking the company's facilities at Crannell with tracks in the Arcata area. Specifically the project is located in Sections 6 and 7, T6N, R1E; Sections 18, 19, 30, and 31, T7N, R1E. See attached maps.

Project Description:

The proposed trail will involve the construction of separate bicycle and hiking and equestrian paths. The bicycle path will be paved and approximately eight feet wide where not a part of an existing roadway. The hiking and equestrian path will be approximately eight feet wide with a clearance height of approximately 10 feet. The specifications for the proposed trails are given in the Appendix.

The trail will be located on the existing railroad bed which is overgrown in some places, but intact for the most of its length. The trail will also be located along existing roads whenever possible.

The following is a description of the proposed facilities and the location from south to north.

The project will begin on Mad River Road (Co. Rd. #4L680) at the existing railroad bridge across the Mad River. A short paved section for bicycles within the wide un-paved area at this point will lead to a ramp for both riders and hikers rising to the deck of the bridge. A ramp at the other end of the bridge will connect to Fischer Road.

The accommodation of rider/hikers on the bridge will require the most significant expenditures of the trail project. The bridge deck is approximately 20 feet above ground level at both ends of the bridge. A new deck will be laid on the existing stringers.

Both approaches to the bridge will require the construction of ramps. Detailed drawings have not been developed for these approaches; however, as currently conceived, the ramps will be constructed of wooden members

in a cross-braced, trestle-type affair. Ramp grades will probably be six to seven percent; however, considerable cost savings could be realized by increasing the grade to 10 percent. These ramps will be constructed to align with the bridge.

Figure 1 shows the proposed Hammond Trail.

North of the bridge the trail will follow Fischer Ranch Road, currently a gravel road for the first quarter mile. The project will include paving this road to accommodate bicycle travel. A horse and hiking trail will be constructed at the road margin.

Where the existing pavement on Fischer Ranch Road begins north to School Road, the trail will be located in the County road right of way on the east side of the road. From School Road to Hiller Road the trail will be located in the old railroad right of way on the east side of Fischer Ranch Road. North of Hiller the trail will follow the McKinleyville Community Services District right of way for approximately 1/3 mile to where the trail branches. The west branch of the trail will follow the old railroad grade north and will be for hikers and equestrians. The east branch will be for bicyclists.

The west branch for horses and hikers will follow the old railroad grade north to Murray Road. The trail will then continue north 1 1/2 miles along the bluff to the vicinity of the existing vista point on Highway 101. North of the vista point, the main trail will continue parallel to Highway 101 and end at the Clam Beach County Park parking lot. A spur of the trail will leave the railroad grade in the vicinity of the Vista Point and bear northwest through the sand dunes to the beach. The spur will provide an alternate beach route to the Clam Beach County Park.

The east route for bicycles will involve a 1000 foot section of paving to reach the end of Bolier Avenue. The bike trail will follow Bolier Avenue north to Murray Road. Here, the Hammond Bike Trail will end and join the Fieldbrook Trail of the County Trails Plan.

Construction activities from the beginning of the West Branch to Clam Beach will involve grading and surfacing of the trail as needed, the repair of damaged portions of the grade, the clearing of vegetation and the improvement of drainage where needed.

Other project details will include the installation of signs and striping at intersection in accordance with standards described in the appendix as well as barriers and fences to restrict ORV use of trails and protect adjacent land uses. Details for these features are described more fully in the mitigation measures suggested for land use effects.

## Right of Way Acquisition

The trail right of way acquisition will occur in two phases. Phase I will start 500 feet south of Hiller Road on Fischer Ranch Road and extend north on the old railroad grade to Clam Beach County Park. Phase II will start at School Road and follow Fischer Ranch Road north on the railroad right of way to the south end of Phase I.

For Phase I, the Humboldt County Board of Supervisors entered into cooperative agreements with the California Department of Transportation and the State Coastal Conservancy. These agencies will allocate \$17,500 each towards the purchase of the Phase I right of way.

The following parcels will be acquired in Phase I of the trail right of way and appraised by CalTrans: 511-011-06, 511-224-38, 511-331-02, 511-341-01, 511-351-01, 510-271-77, 511-061-01, and a portion of 508-211-51, 508-211-52, and 508-211-53.

Phase II of the trail right of way acquisition will require appraisal by the County of parcels 508-224-39, 508-224-48, 508-224-36, 508-291-39, and portions of 508-301-24, 508-291-42, 508-291-41.

THE ENVIRONMENTAL SETTING, POTENTIAL EFFECTS AND MITIGATION MEASURES  
PROPOSED TO MINIMIZE THE EFFECTS OF THE PROJECT:

Cumulative Effects:

The proposed Hammond Trail is a component of the County Trails Plan adopted by the County Board of Supervisors. The Trails Plan includes a number of other trails in the County which will eventually be constructed and used. The environmental effects of the entire plan have been considered in a Master EIR. It addresses the overall cumulative concerns regarding the implementation of the Trails Plan.

This Initial Study on the Hammond Trail identifies the specific potential effects of the Hammond Trail and proposes specific mitigation measures which could be applied to avoid or minimize the effects. Many of the recommendations in this Initial Study were drawn from the Master EIR.

Topography, Geology and Soils:

The proposed trail route traverses a variety of terrain and geology; ranging from relatively level alluvial bottomlands in the vicinity of the Mad River, to the top and steep face of the coastal terrace upon which McKinleyville is located. The northern most portion of the trail will traverse recently stabilized sand dunes and the sandy shore of the Pacific Ocean along Clam Beach. While the trail route traverses slopes which range from level up to 100 percent, the actual trail is gently sloped being an abandoned railroad grade. Trail construction will require very little grading. Drainage was provided in original construction of the railroad grade culverts. The repair or cleaning of old culverts will be necessary in some locations along the trail although most of the original grading and drainage culverts are in good condition. Grading will be required to prepare the trail site across the dunes in the vista point area. Some of the drainage culverts along the right-of-way have failed, causing erosion of the original embankment which necessitates repair work. To avoid similar problems in the future, the proposed trail will be maintained regularly.

The project will have no significant effect on soils. The trail will be located on existing disturbed soils which are marginally productive. If construction across the bottomlands near the southern end of the trail encroaches on agricultural land, minor losses of prime agricultural land will occur. Assuming a taking of a ten foot strip of land will result in a loss of approximately 1.3 acres of agricultural land. The trail will be confined to the existing fenced roadway throughout this area.

Erosion due to construction will be negligible if the trail is properly engineered and maintained. However, hiking and equestrian trails will be surfaced with chips, gravel or other non-erosive material to minimize erosion. Wind erosion in the sand dune area is a potential issue but was found to be insignificant in the Trails Plan Master EIR.

#### Stability:

The trail site is relatively stable throughout as evidenced by the generally good condition of the railroad grade after not being maintained for many decades. A few minor slumps are located north and south of Murray Road which have been caused by poorly maintained drainage culverts. Unless these conditions are corrected, erosion and slope failure will continue threatening the trail route as well as uphill properties. These areas will be stabilized using cribbing, retaining walls and/or other engineering solutions as needed. To avoid further failures, the trail and drainage culverts will be maintained regularly. Due to the difficulty of access for maintenance vehicles, drainage design will emphasize low maintenance-type facilities.

Potential conflicts with the most significant slide, located just south of Murray Road, will be minimized by locating the bike trail along Bolier Road, thus reducing the width of trail required at this point to that required for hiking and equestrian use.

### Hydrology:

The proposed trail route crosses the Mad River, Widow White Creek, other minor ephemeral drainages and passes a number of small ponds. The clearing of the route and paving of the bike trail will produce minor increases in runoff to local streams but will have no significant effect on their flows. Drainage culverts located along the trail will be repaired or cleaned as needed and checked for adequacy in handling project generated runoff. The trail route crosses a drainage ditch in Section 36 which will be culverted. The existing bridge crossing of Widow White Creek should be adequate for hiking and equestrian use. However, the wooden shoring of the bridge is deteriorating and will be repaired to avoid further damage to the bridge. Erosion has caused the failure of portions of the roadway in the vicinity of the bridge. The bridge itself may also require some repair and maintenance.

Drainage of the trail route for  $\frac{1}{4}$  mile north of Widow White Creek is currently poor due to obstructions in drainage culverts. This area supports marsh vegetation to a varying degree. The trail route should be chosen to avoid ponding and appropriate drainage culverts installed to provide drainage and minimize ponding along the route. If ponding conditions cannot be avoided with minor drainage changes or repairs, these areas will be traversed with boardwalks to minimize damage to the marsh.

Preparation of the Mad River crossing will involve the construction of approach ramps to match the grade of the bridge deck. During flood condition these ramps could inhibit the flow of floodwaters either directly or by trapping debris which could further inhibit flow. This inhibition or backwater effect could increase the flood stage in the vicinity of the bridge increasing flood hazards to local residences and agricultural uses. This potential effect will be incorporated into the final design of the approach ramps and no structure will be erected which will cause an increase in flood stage greater than that allowed by the Federal Flood Insurance Program. The full range of design alternatives will be explored before construction which will include alternative alignments and materials.

### Water Quality:

The proposed trail route traverses the Mad River, Widow White Creek, a number of small to large ponds through the dune area, and one pond at the mouth of Widow White Creek. Several areas of the trail route are marshy with poor drainage. Potential water quality effects include increased siltation of these water resources from the exposure of mineral soils during trail construction and the contamination of surface waters by horse droppings. The avoidance of these effects was discussed in the Master EIR and avoidance measures included the following; surfacing trails with wood chips, gravel or other materials to reduce erosion, locating trails as far from waterways as possible; and providing bridges at stream crossings to reduce the potential for direct contamination. The last measure is already incorporated into the trail plan as existing bridges will be used to cross the Mad River and Widow White Creek. Ponds along the trail route shall be avoided and a buffer strip of vegetation will be retained between the trail and any water resources. Marshy areas will be avoided or crossed with boardwalks or bridges to avoid direct contacts with water resources.

### Air Quality / Climate:

The potential for significant effects in this area was found in the Master EIR as insignificant. The project will have the potential for improving air quality by providing alternates to motorized transportation and reducing automotive-related pollutant emissions.

### Wildlife:

The proposed trail route traverses a variety of habitats including, from south to north agricultural lands, coastal coniferous forest, riparian and marsh habitat and dunes which are highly disturbed from the natural condition. From the Mad River to the end of Bolier Road, the trail route is highly disturbed (mostly an existing road) and offers little in the way of wildlife habitat. From this point north, the route is relatively undisturbed and lightly used and is mostly overgrown with native

brush species. The route, north of Widow White Creek for  $\frac{1}{4}$  mile, is frequently marshy and many spots along the trail support riparian type vegetation. The trail passes through the backdune area which collects drainage from the dunes and bluffs to the east and supports similar vegetation types. See Vegetation section (Appendix B).

The wildlife values of these riparian and wetland vegetation types is well documented and a number of field observations have confirmed the wildlife use along the trail route north of Hiller Avenue. The Mad River bridge is frequented by kingfishers fishing the Mad River. The river gravel bars and riparian vegetation are used by a variety of shorebirds, wading birds, waterfowl and song birds. The agricultural lands to the north support resting shorebirds, a variety of passerine birds as well as small mammal populations. Wildlife use between this area and Hiller Avenue is limited to human-tolerant species which use this heavily developed area. The forested areas to the north support a variety of birds as well as large mammals. South of Murray Road, mammal use is limited by the number of existing homes and the heavy use of the trail route by local residents. The route from Murray Road north is relatively undisturbed and the dense growths of brush supports a variety of bird species and provide cover for mammal activity. Beaver are known to use the ponds at the mouth of Widow White Creek and other water associated mammals could probably be found in this area. The dune areas, due to their disturbed nature and lack of diversity probably support limited number of wildlife species. However, a variety of birds have been sighted in similar areas and small mammal populations appear to be relatively heavy.

The construction and clearing of the trail route involves the removal of native vegetation in the overgrown areas of the trail. Total vegetation removal, amounts to as much as 3.6 acres spread over approximately 2.5 miles. The opening of the trail will involve increases in human use of already disturbed areas. New human use in undisturbed areas may result in disturbance to human-intolerant wildlife species found along the route. Disturbance will be intermittent and will not occur during night time hours to any significant degree but may involve periodic interference

with the activities of wildlife using the area. The greatest potential for disturbance lies in the potential for disturbance from off-road vehicles (ORV's) illegally using the trail. Such use will increase noise levels and the potential disturbance along the trail significantly. No rare or endangered species are known to use the project route. No raptor nests are known in the area.

As described in the Master EIR, the disturbance of marshy areas will be minimized by the use of stepping stones, bridges or boardwalks for crossings to protect wetland quality and restrict use to the trail route in these areas. Vegetation removal will be limited to that necessary to achieve the standards described in the Appendix. ORV's will be prohibited by ordinance from using these trails and a stiff fine imposed on offenders. Volunteer law enforcement will come from the trails council and regulations proposed in the Trails Plan and Master EIR will be adopted and implemented by the County.

#### Archaeological and Historical Resources:

There are no known archaeological resources located along the trail route. The route has been extensively disturbed during original construction of the railroad grade and further work will not have a significant effect on archaeological resources. However, if any artifacts or other materials are unearthed during construction, NICPA will be contacted immediately and the archaeologists recommendations for handling the resource will be implemented.

The Hammond Trail is considered an historical resource because the trail is a former railroad grade. The construction of the proposed trail will serve to enhance the understanding of the historical value and is compatible with the resource.

The existing bridge over the Mad River serves as a prominent historical resource. The bridge was originally connected to the existing grade

to the south by trestle and a trestle also joined the bridge to the existing grade at the top of Fischer Road to the north (Pialorsi, 1979). This trestle was approximately 1700 feet long. The bridge will make an excellent site for an historical marker highlighting early logging activities.

Near the northern end of the railroad grade is a short wooden trestle which will be of historical value in connection with the railroad and trail use. The trestle will be preserved and highlighted with an interpretational sign installed along the trail route to enhance its historical value.

#### Land Use:

The proposed trail site is located along the existing Hammond Lumber Company (now owned by Louisiana Pacific) railroad right-of-way which will be acquired by the County of Humboldt prior to trail construction. The trail will be located entirely within this right-of-way with some exceptions. The section between Mad River Bridge and School Road

would be located within the existing County road right-of-way. A 1000 foot section of bike trail will be located within McKinleyville Community Services District right-of-way connecting the southern end of Bolier Road and the point at which the trail departs from the Humboldt Meridian. The northernmost portion of the trail will leave the right-of-way to meander through Clam Beach Park which is entirely County owned.

The right-of-way is bordered by a variety of privately owned lands in a variety of land uses. Adjacent to existing roads, the first mile of the trail passes through agricultural and residential lands. The next mile, ending at Murray Road passes through agricultural and timber lands and is bordered by rural residential lands for the northern half mile. From Murray Road north, the right-of-way follows the base of the ocean bluff with agricultural uses occupying the top of the bluff. The bluff and the backdune areas to the west are open space with native and introduced

vegetation. A short distance north of Widow White Creek the ownership changes to public as the trail enters Clam Beach County Park, a recreational area used for fishing, clamming and other recreational uses.

The Master EIR on the project found the Hammond Trail to be compatible with all applicable County plans and policies. The Trails Plan itself was adopted as part of the Recreation Element of the County General Plan.

The proposed trail as an introduced new use may create the potential for conflicts with existing land uses. Where the trail is adjacent to or within existing road right-of-way and travelled ways the trail will intensify use by opening a new through access. Existing access creates problems for adjacent ranchers with trespass and associated problems including dogs chasing dairy stock. Problems will be minimal in existing developed areas north of the agricultural lands and extending north to Hiller Avenue where the public use is established along the corridor. However, existing problems may be increased in less developed agricultural areas.

From Murray Road to the multi purpose trail branch south of Bolier Avenue local residents presently use the railroad right-of-way for hiking and equestrian use. Trail use will be intensified in this area. Private lands to the west are already subject to significant levels of trespass and this activity will be intensified. Other portions of the trail are similarly used but only infrequently. These lands are currently in timber production and will not be subject to the same impacts associated with agricultural lands. Impacts in these areas may take the form of increased liability and fire hazard.

The potential for increased liability and fire hazard also exists north of Murray Road but is limited by the density of vegetation in the area and the slope of the bluff which will tend to restrict use to the cleared trail. The small settlement at the mouth of Widow White Creek, which is particularly isolated, may be the subject of trespass and vandalism as access off the trail is available.

The area surrounding the trail between Hiller Road and the end of Bolier Road is currently open space with potential for agricultural use. The opening of the trail will provide access to these unfenced private lands bordering the trail on both sides, increasing the possibilities of trespass and the harassment of livestock by trail users and their pets.

The potential effects will all be increased if illegal ORV use takes place on the trail. Annoyance to neighboring residences and harassment of livestock will be increased.

To reduce these potential effects, all trail entrances will be posted with the rules and regulations described in the Trails Plan and the Master EIR regarding trail etiquette and trespass. The section of trail between Bolier and Hiller Roads will be fenced on both sides (some existing fence on one side may be adequate) to restrict the passage of trail users and their pets to adjacent private lands. All rules and regulations will be enforced with stiff fines (infractional) and the possibilities of volunteer enforcement will be pursued to the fullest possible extent with the County taking the lead. Proposed rules, regulations, and enforcement ideas, described more fully in the Master EIR and Trails Plan, will be implemented. Enforcement will be accompanied by a vigorous public education program which focusses on land use issues, increasing public consciousness of landowner concerns.

ORV use of the trail will not only create a nuisance for hiking and equestrian users of trails but will also be an annoyance for adjacent residents and agricultural uses which will be subject to increased noise levels. ORV use of any portion of the proposed trail, other than existing roads, will be prohibited by law and entry into the trail will be prevented by the placement of barriers which will restrict their use at trail entrances.

Noise:

Trail users will be subject to relatively low levels of noise as the existing trail is located away from most development and significant

noise sources. Traffic noise will be audible along Fischer Road but will be insignificant. Adequate separation will be maintained between the equestrian trail and the roadway to minimize conflicts. Low level freeway noise levels from Highway 101 are audible to some portions of the trail. The ocean surf break provides the master source of background noise on the trail from Murray Road north.

Increased use of the trail route will involve minor, insignificant increases in noise levels for the residents of the route, unless ORV's illegally use the trails. The trails are not proposed for this use and ORV's will be prohibited by ordinance and other law enforcement means. Other noise increases will be limited to livestock noise and conversations of trail users.

#### Utilities and Services:

Portions of the railroad right-of-way have been used by the McKinleyville Community Services District (MCS D) for the placement of sewage collection lines. To avoid potential conflicts between trail development and this utility use, the MCS D will be consulted during trail design and will approve final plans. MCS D and Pacific Gas and Electric may also maintain other utility lines along the trail route. These entities will be consulted to approve plans in order to avoid interference with service or damage to existing facilities.

Increased needs for services will be limited to the increase in the need for law enforcement services to enforce trail use regulations if the County Sheriff is to be responsible for patrols. As previously described, volunteer help from the Trails Council will be used to the extent feasible. However, a plan must be developed for this activity to empower volunteers, clarify responsibilities and provide for adequate patrols as trail use increases. Should law enforcement become a burden to the County, efforts will be made to have trail users fees charged to cover these costs. However, a collection system will have to be developed.

### Traffic:

Effects of the trail on traffic will be limited to conflicts between trail users and automobile traffic the roadway and intersections along the length of Fischer Road as well as at the intersection of Hiller Road. The potential exists for physical conflicts as well as noise of vehicles which could frighten horses. The Trails Plan and Master EIR made specific design recommendations (State Standards, see Appendix) for trail construction which will be followed in order to maintain adequate trail/roadway separation. These standards will be used in trail design as they have been prepared to minimize safety problems and promote safe use of the trail system.

### Viewshed Aesthetics:

Views along the trail route include agricultural lands, residential development, coastal forest lands, the Mad River and the Pacific Ocean. The proposed project will have no significant effect on any viewshed from the trail and will serve to provide more opportunities for enjoying existing views. The views from Mad River Bridge and the bluffside portions of the trail are especially interesting. Views could be improved in some areas by selective clearing of vegetation to provide wider view openings to the west.

Ten residences are located within 200 feet of the trail above the bluff along the portion of the trail between a point  $\frac{1}{4}$  mile south of Murray Road north to the Highway 101 Clam Beach Overlook. This portion of the trail is currently almost completely free of foot traffic and visual intrusion to these residences private property. Vegetation will be left as a buffer from  $\frac{1}{4}$  mile south of Murray north to Murray Road to prevent visual intrusion. One residence located at Widow White Creek and within 150 feet of the trail has an open view of the trail. A fence will be placed between the trail and residence and vegetation will be planted to prevent visual intrusion to the property by trail users. One residence north of Widow White Creek is located on the bluff 70 feet above the trail.

The view from the trail to the residence is well blocked by existing vegetation.

REFERENCES CITED AND PERSONS CONSULTED:

Humboldt County Public Works Department. Final Environmental Impact Report for the Humboldt County Trails Plan. May 1, 1979.

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Pialorsi, Delores. Former Area Resident. Personal Communication, 1979.

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Simpson, Charles. Resource Analyst. TerraScan. Field Observations. Personal Communication, 1979.





Tuttle, Donald C. Natural Resource Analyst. Humboldt County Public Works Department. Personal Communication, 1979.

N Clam Beach  
Co. Park

Clam Beach

PROJECT LIMITS

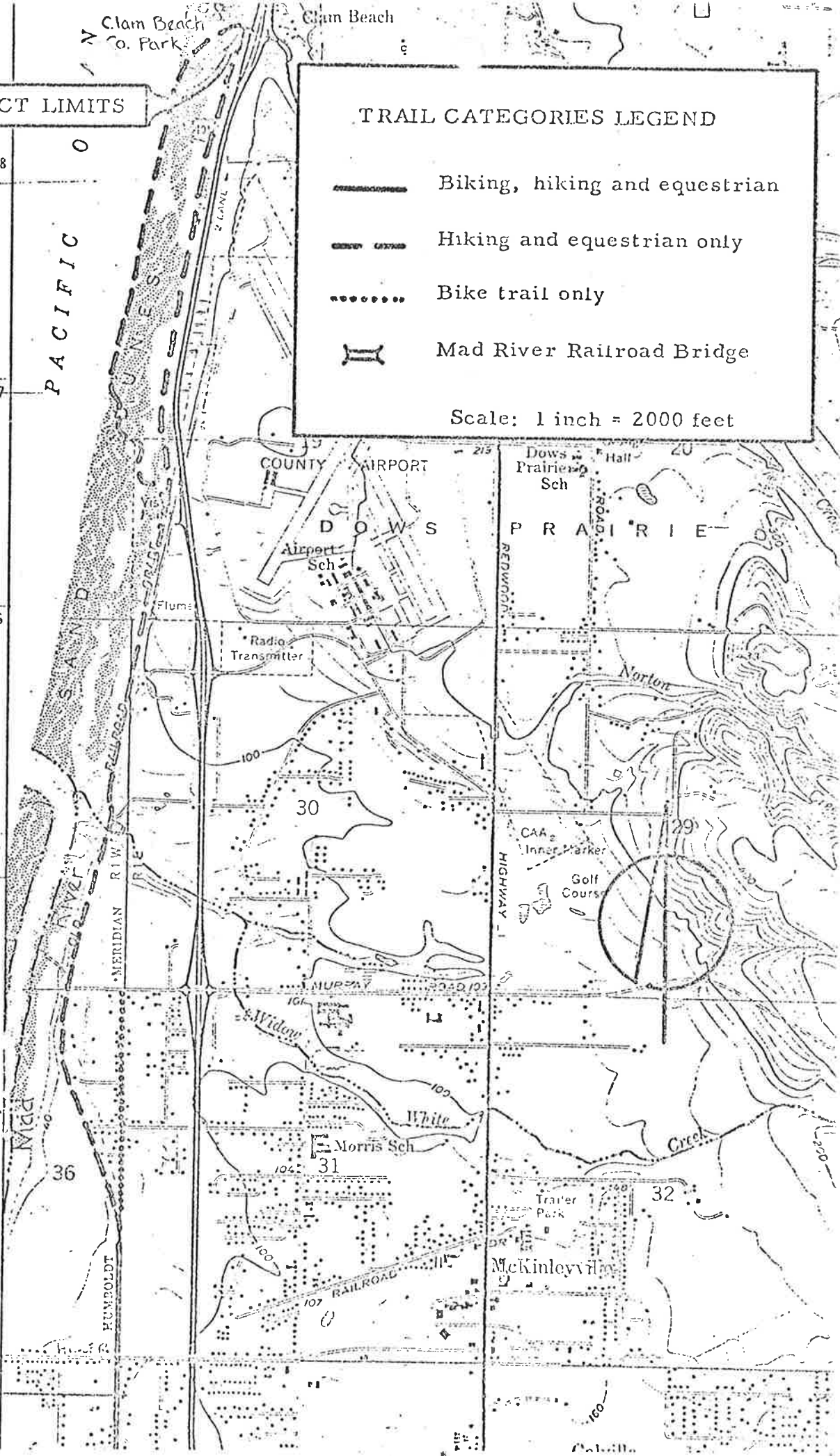
**TRAIL CATEGORIES LEGEND**

-  Biking, hiking and equestrian
-  Hiking and equestrian only
-  Bike trail only
-  Mad River Railroad Bridge

Scale: 1 inch = 2000 feet

PHASE I

4538  
4537  
4536  
4535  
57:30"  
4534  
4533  
T. 7 N.  
T. 6 N.  
(W. 1/4)



PROJECT LIMITS

PHASE II ← PHASE I

T. 7 N.  
T. 6 N.

1165 1 NW  
(WEE CITY)

WEE CITY 0 1 MI

4536

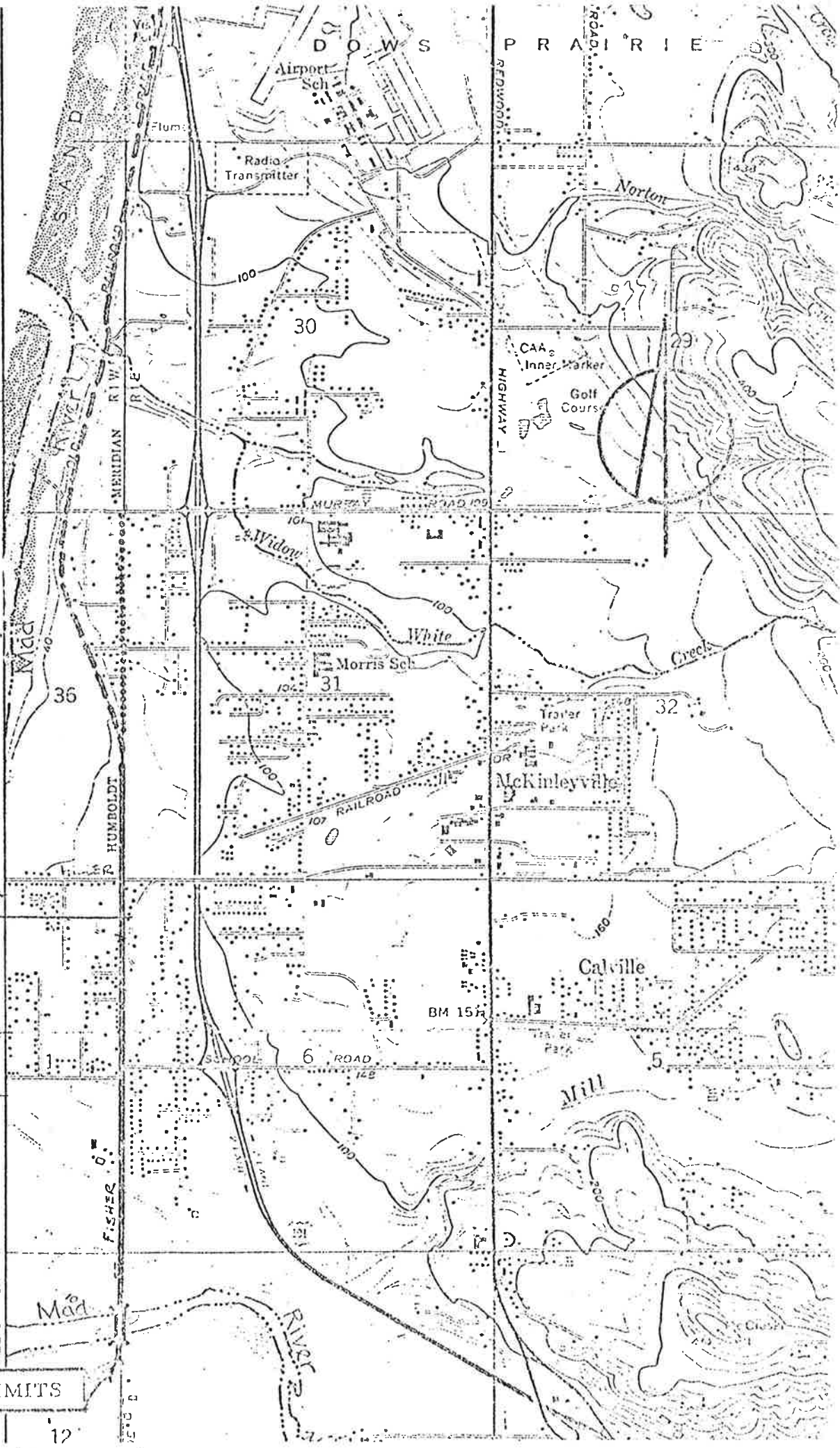
4535

57'30"

4534

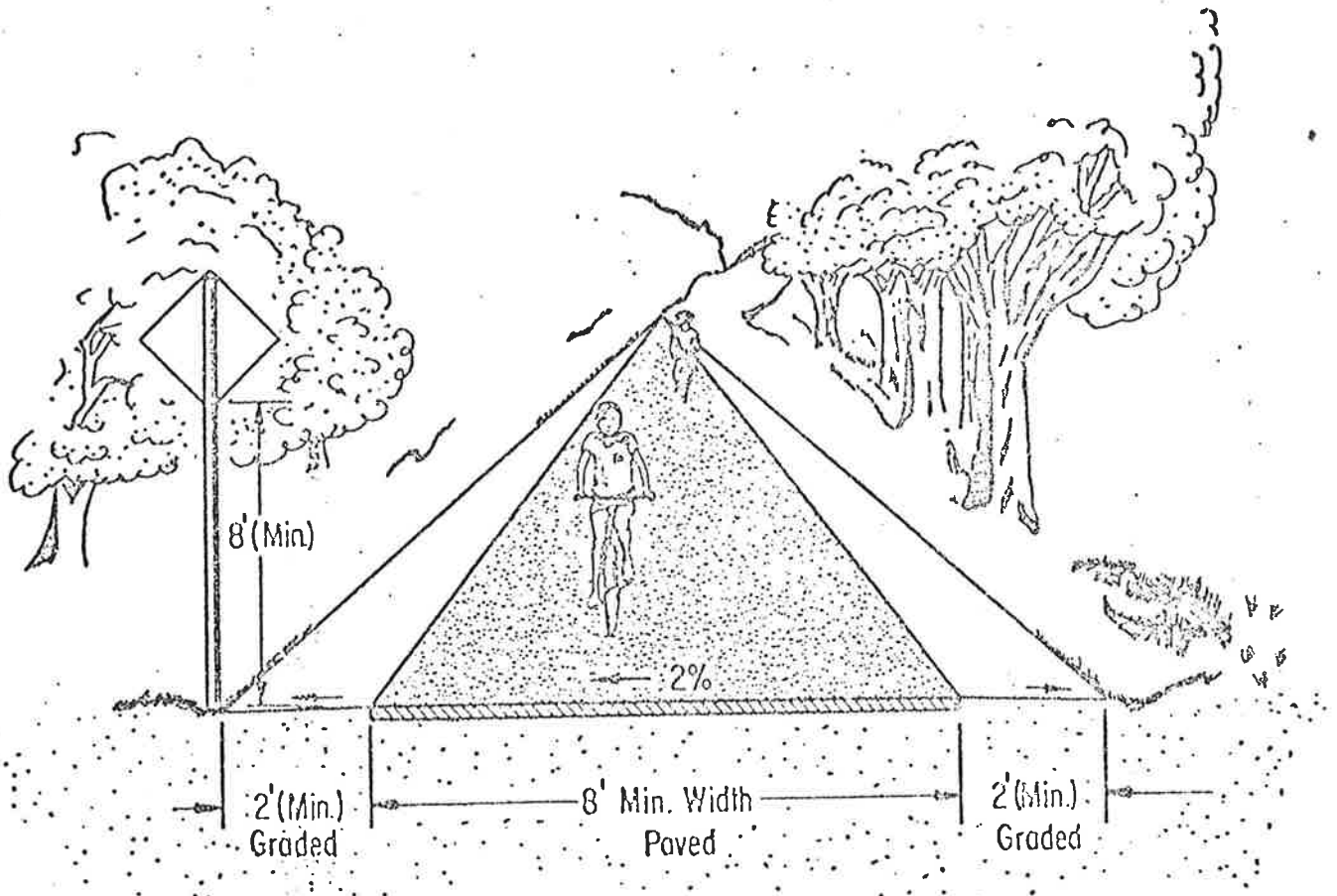
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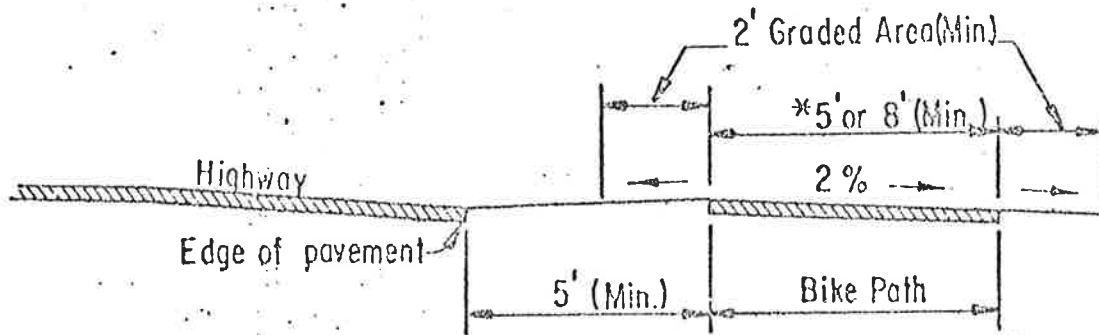


APPENDIX

## TWO-WAY BIKE PATH ON SEPARATED RIGHT-OF-WAY



### TYPICAL CROSS SECTION BIKE PATH ALONG HIGHWAY

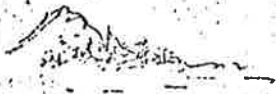


\*One-Way: 5' Minimum Width  
 Two-Way: 8' Minimum Width

Source: California Department of Parks and Recreation. 1978. California Recreational Trails Plan. Hiking-Equestrian Element. State Guidelines and Standards for Hiking and Equestrian Trail Development.



TRAVELWAY CLEARING  
for equestrian and  
hiking trails.



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29 September 1979

VEGETATION REPORT ON THE HAMMOND TRAIL

PURPOSE OF STUDY

- 1- To prepare a report on the vegetation of the Hammond Trail between Murray Road and Clam Beach.
- 2- To note the presence or absence of rare or endangered plants, and if present, to note their location on a map provided.
- 3- To determine the impact, if any, to the vegetation of clearing the Hammond Trail to make it accessible.

FIELD SURVEYS

Field surveys were made on 20 June and 23 July 1979.

DESCRIPTION OF THE VEGETATION

The vegetation along the Hammond Trail consists of Coastal Strand, Coastal Scrub, and North Coast Coniferous Forest interspersed with marshy areas containing Coastal Freshwater Bog vegetation. There are areas of heavy brush, open low-profile dune vegetation, skunk-cabbage bogs, alder thickets, patches of Sitka spruce, and riparian vegetation, all intermingled.

Coastal Strand - Coastal Strand vegetation exists on the sandy beaches and dunes. There is much fog and wind which influences

the plants present. The vegetation is primarily low and prostrate, often succulent, and late flowering. There is no overstory.

Northern Coastal Scrub - The Scrub vegetation occupies a narrow coastal strip between the Strand and the Redwood Forest further inland, and is here intermixed with the Northern Coastal Coniferous Forest. The Coastal Scrub vegetation consists of rather low plants seldom over 6 to 10 feet in height. Where it consists of shrubs it is sometimes quite dense, but there are also areas of grass. There is no overstory.

North Coast Coniferous Forest - The patches of Forest vegetation are intermixed with the Scrub vegetation. This vegetation type is two-layered with an overstory of trees 20 to 150 feet tall. The understory is dense and continuous with the brushy Scrub vegetation.

Freshwater Bog and Riparian - Along the Hammond Trail, the boggy areas result from standing water and small streams coming from springs along the coastal bluff. The vegetation is limited to species which can tolerate extremely wet conditions. There is an overstory of trees 20 to 60 feet tall or more. The understory is typically sparse.

#### RARE PLANTS

No rare or endangered plant species were found in the two miles of the Hammond Trail that was investigated.

#### POTENTIAL IMPACT

There are areas of the Hammond Trail where extensive brush removal, limb cutting, and some tree removal will be necessary. The plant species that will be involved in this are hardy, vigorous

species and will not as a whole be adversely affected by such treatment. In a few areas, the overstory will be opened slightly, and the increased light to the ground levels may cause an increase in the number and variety of understory species.

COASTAL STRAND SPECIES LIST

<u>species name</u>	<u>common name</u>
Abronia latifolia	sand verbena
A. maritima	sand verbena
Artemesia pycnocephala	wormwood
Cakile edentula ssp. californica	sea rocket
C. maritima	sea rocket
Convolvulus soldanella	beach morning glory
Elymus mollis	beachgrass
Fragaria chiloensis	beach strawberry
Franseria chamissonis	ncn*
Lathyrus littoralis	beach sweet pea
Lupinus arboreus	lupin
L. littoralis	lupin
Mesembryanthemum chilense	sea-fig
Oenothera cheiranthifolia	beach evening-primrose
Poa confinis	bluegrass
P. douglasii	bluegrass
Polygonum paronychia	knotweed
Sagina crassiculis	pearlwort
Stellaria littoralis	starwort
Tanacetum douglasii	tansy

NORTHERN COASTAL SCRUB SPECIES LIST

<u>species name</u>	<u>common name</u>
<i>Aira caryophyllea</i>	hairgrass
<i>A. praecox</i>	hairgrass
<i>Ammophila arenaria</i>	beach grass
<i>Anaphalis margaritacea</i>	pearly everlasting
<i>Arctostaphylos uva-ursi</i>	bear berry
<i>Armeria maritima</i> v. <i>californica</i>	sea thrift
<i>Artemisia pycnocephala</i>	wormwood
<i>Baccharis douglasii</i>	coyote bush
<i>B. pilularis</i> ssp. <i>consanguinea</i>	coyote bush
<i>Epilobium watsonii</i> v. <i>franciscanum</i>	willow herb
<i>Erigeron glaucus</i>	seaside daisy
<i>Garrya elliptica</i>	silk-tassel bush
<i>Gaultheria shallon</i>	salal
<i>Heraacleum lanatum</i>	cow-parsnip
<i>Lonicera involucrata</i>	twinberry
<i>Lupinus arboreus</i>	lupin
<i>L. bicolor</i>	two-color lupin
<i>L. littoralis</i>	lupin
<i>Mimulus guttatus</i> ssp. <i>littoralis</i>	beach monkey flower
<i>Orthocarpus erianthus</i> v. <i>latifolium</i>	owls-clover
<i>O. purpurascens</i> v. <i>latifolius</i>	owls-clover
<i>Parentucellia viscosa</i>	nen*
<i>Plantago hirtella</i> v. <i>galeottiana</i>	plantain
<i>P. hookeriana</i> v. <i>californica</i>	plantain
<i>Polygogon monspeliensis</i>	beard grass

<u>species name</u>	<u>common name</u>
Rubus parviflorus	thimbleberry
R. vitifolius	California blackberry
Sagina crassicaulis	pearlwort
Stellaria littoralis	starwort
Tanacetum douglasii	tansy
Urtica lyallii	stinging-nettle

#### NORTH COASTAL CONIFEROUS FOREST SPECIES LIST

Gaultheria shallon	salal
Marah oregana	wild cucumber
Montia perfoliata	miners' lettuce
Myrica californica	wax myrtle
Picea sitchensis	Sitka spruce
Pseudotsuga menziesii	Douglas-fir
Rubus parviflorus	thimbleberry
R. vitifolius	California blackberry
Sambucus callicarpa	red elderberry
Urtica lyallii	stinging-nettle

#### FRESHWATER BOG AND RIPARIAN SPECIES LIST

Alnus oregana	Oregon alder
Carex obnupta	ncn*
Juncus lesueurii	rush
Lysichiton americanum	skunk-cabbage
Salix hookeriana	willow

\* ncn -- no common name