

environmental assessment  
may creek activity center

# REDWOOD



NATIONAL PARK / CALIFORNIA

NATIONAL PARK SERVICE  
MAY CREEK ACTIVITY CENTER  
REDWOOD NATIONAL PARK, CALIFORNIA

AGENCY: U.S. Department of the Interior, National Park Service

ACTION: Environmental Assessment, May Creek Activity  
Center, Redwood National Park, California

SUMMARY: The activity center at May Creek will provide orientation, information and limited food services for visitors in the southern portion of Redwood National Park. The proposal requires a 1,050-foot long paved access road, a parking area with an 84 vehicle, 3 bus maximum capacity, approximately 4,300 square feet of activity deck and landing, an information kiosk, and a small cafe and bookshop for interpretive publications. The proposal will result in the disturbance of soil and vegetation over approximately six acres. Impacts on air and water quality would be small. Minor visitor-elk conflict can occur. Adverse impacts on redwood growth are not expected. Cultural resources have not been identified in the construction area and final placement of roads and structures will be made after the area has been brushed and surveyed for archeological sites.

Comments on this environmental assessment will be received for 30 days from the date of this publication.

ADDRESS: All comments should be sent to:

Superintendent  
Redwood National Park  
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Crescent City, CA 95531

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## SUMMARY

This assessment analyzes the consequences of a project designed to fulfill an identified need for information, orientation, and interpretive services in the southern portion of Redwood National Park in northern California. Major concepts of the proposed project are: parking for about 85 vehicles, wooden decking (portions of which would be covered) for information and interpretation activities, a small cafe and bookshop, and restrooms. This project, called the May Creek Activity Center, is preferred by the National Park Service because there is ample opportunity for on-site interpretation, the site is in close proximity to U.S. 101 and is federally owned, and the facilities efficiently meet the needs identified above. The major impacts of this project would be primarily long-term, consisting of improved facilities for visitor contact. Construction activities will have minor to moderate, short-term impacts on the environment.

The "no-action" alternative will not meet the perceived visitor needs. Alternative sites for similar activity centers are considered because of their proximity to federal park lands in the south end of the park and easy access from U.S. 101. A reduced facility May Creek Activity Center which would cause fewer site impacts is a fourth alternative.

Areas of controversy associated with the project are the possible effects on the Boyes Prairie elk herd and management relationships between Prairie Creek Redwoods State Park and Redwood National Park facilities.

## I. PURPOSE AND NEED

The purpose of the action is to provide visitor information, orientation, interpretation, and limited food services at the south entrance to Redwood National Park. The opportunity for these services will be provided at an activity center north of the confluence of Prairie and May Creeks, immediately south of Boyes Prairie.

This action is needed because more than fifty percent of the visitors to the park enter from the south on U.S. 101 and comparable services in a suitable setting are not available to them within a reasonable proximity. The need for providing these services is identified in the park's draft General Management Plan which proposes the activity center under all alternatives except the no action alternative.

The May Creek Activity Center is proposed as an action under the Extended Visits, Restructured Visitor Use, and Preferred alternatives of the park's draft General Management Plan (NPS, 1979), which is presently on public review. It is not the policy of the National Park Service to construct park facilities without the overall guidance of an approved final General Management Plan, because it would lock the Service into a course of action before the full scope of park management and development had been evaluated.

However, because this action is common to all of the management and development alternatives in the park's draft General Management Plan, it is not felt that proceeding with its environmental assessment, and potentially its construction, will in any way jeopardize the decisions on the final General Management Plan. The decision to proceed with this element of the draft General Management Plan is based upon public commitments to fill perceived visitor needs as soon as possible at Redwood National Park.

## II. AFFECTED ENVIRONMENT

### A. Existing Facilities

At the present time, visitors approaching the park from the south on U.S. Highway 101 can obtain limited geographic information about Redwood National Park at a Caltrans rest stop about 20 miles from the park near Trinidad. These facilities are remote from the park and under State management. An information and ranger station is operated by the National Park Service on U.S. 101 in the small town of Orick (see Fig. 1). While providing information services, it is small and the roadside surroundings do not provide an adequate atmosphere for an introduction to, and interpretation of, Redwood National Park. This station has interpretive exhibits and a sales desk for interpretive publications and information.



DEL NORTE COUNTY

HUMBOLDT COUNTY

CARUTHERS COVE

COASTAL DRIVE

OSSAGON CREEK

GOLD BLUFFS BEACH TRAIL

PRAIRIE CREEK TRAIL

101

FERN CANYON

GOLD BLUFFS BEACH CAMPGROUND

PRAIRIE CREEK STATE PARK HEADQUARTERS

PRAIRIE CREEK CAMPGROUND AND PICNIC AREA

ESPA LAGOON

MAJOR CREEK

PRAIRIE CREEK TRAILERS AND RESIDENCE

LOGGING ROAD

DAVISON ROAD

SKUNK CABBAGE HILL

SKUNK CABBAGE CREEK

ORICK HILL

REDWOOD CREEK

ORICK RANGER STATION

ORICK

LADY BIRD JOHNSON GROVE

BALD HILLS ROAD

PRAIRIE CREEK FISH HATCHERY

LOST MAN CREEK PICNIC AREA

GENEVA ROAD

LOST MAN CREEK

HOLTER

RIDGE ROAD

CAL-BARREL ROAD

LOGGING ROAD

ALIGNMENT

ELK PRAIRIE

MAY CREEK

PRAIRIE CREEK HOUSING AND MAINTENANCE AREA

Proposed May Creek Activity Center

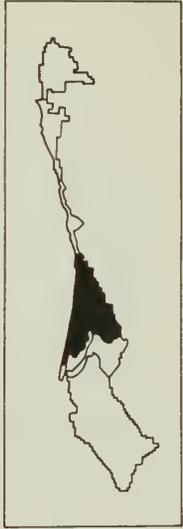


Figure 1

# Proposed May Creek Activity Center



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Peak day visitation during the summer at the Orick Ranger Station is 500 to 700 people.

A small, State operated information station in Prairie Creek Redwoods State Park is about 7 miles north of Orick. This station has a few information and interpretive exhibits and provides information primarily about this and other nearby State Park units. The station is not designed to accommodate large volumes of traffic or visitors.

The construction site is the area presently known as the Prairie Creek Trailers and Residence area, and is about 5 miles north of Orick and about 500 feet west of U.S. 101. The site is currently accessible by a 14-foot-wide gravel road and is occupied in part by four house-trailers and associated parking which provide offices and residence space for park employees. A well, adjacent to the trailers, provides water while two 1200-gallon septic tanks and two leachfields west of the trailers treat sewage. About 200 feet north of the trailers is an NPS residence and fire cache, which use the same utilities.

#### B. Natural Environment

The area proposed for construction of the May Creek Activity Center is primarily on portions of natural prairie which extend into

an old-growth redwood forest. Along the interface of these two vegetation types are dense, mixed stands of red alder, tan oak, salmonberry, western hemlock, sitka spruce, and willow. The soils under both vegetation types are alluvial and range from moderately well-drained to somewhat poorly drained.

No federal or state listed species of rare, threatened, or endangered plants or animals exist in or utilize the proposal area as critical habitat, nor Roosevelt elk from Boyes Prairie move into the forest and prairie extensions in the early morning and late evening in search of forage, browse, and in bad weather for shelter.

The site of the activity center is approximately twenty feet higher than the bed of Prairie Creek. Precipitation and flood-frequency data for the area are not adequate for the determination of 100-year floodplain. As Prairie Creek is only 400 feet west of the site and the site soils are alluvial, it must be assumed that the site is within the 100-year flood plain of Prairie Creek. Alternate sites above or outside of this flood plain are not available; however, only about ten to fifteen square miles of drainage basin lie upstream from the site and the creek is not large, so any flooding would be very shallow overland flow and provide little hazard to life or property.

The water quality of Prairie Creek is only fair due to bacterial contamination possibly from elk and the septic systems in the

nearby State Park campground. The water quality from the existing well at the site is good except that it exceeds primary and secondary drinking water standards for iron and manganese.

To avoid redundancy, further details of the natural environment will be given in the following section on environmental consequences on an impact specific basis. Generalized description of the natural environment of Redwood National Park may be found in the draft General Management Plan for the park and its draft environmental statement (available from Redwood National Park Headquarters, Drawer N, Crescent City, Calif. 95531).

### C. Cultural Resources

A survey of archeological resources in and around Redwood National Park (Moratto, 1973) indicated that archeological resources are likely to be found in the vicinity of the proposed activity center. A preliminary survey of the project area (Salzman and Bickel, 1979) was hampered by the dense understory vegetation and no historic or archeological resources were located. The area is now being brushed and a site intensive survey is being made by the park staff archeologist and the western regional office archeologist. If sites or remains are revealed, they will be professionally evaluated and variations in the activity center design or exact location will be

made to preserve the site(s), or adverse effects will be mitigated. The findings of this survey will be made a part of the environmental review for this environmental assessment.

### III. ALTERNATIVES INCLUDING THE PROPOSED ACTION, AND THEIR ENVIRONMENTAL CONSEQUENCES

#### A. The Preferred Alternative

The preferred action is to construct an activity center and parking area near the confluence of Prairie Creek and May Creek and immediately south of Boyes Prairie. The site is within Redwood National Park and immediately south of Prairie Creek Redwoods State Park west of U.S. 101. This center would provide opportunities for interpretation, staffed information and orientation services, and limited food service and book sales (see Fig. 2).

The facilities would be designed to accommodate 1200 persons on a peak day and 150 persons in a peak hour. This would allow for a 150% increase above the 1979 peak day visitation at the Orick Ranger Station.

The major design elements include:

- a. right and left turn lanes on U.S. 101.

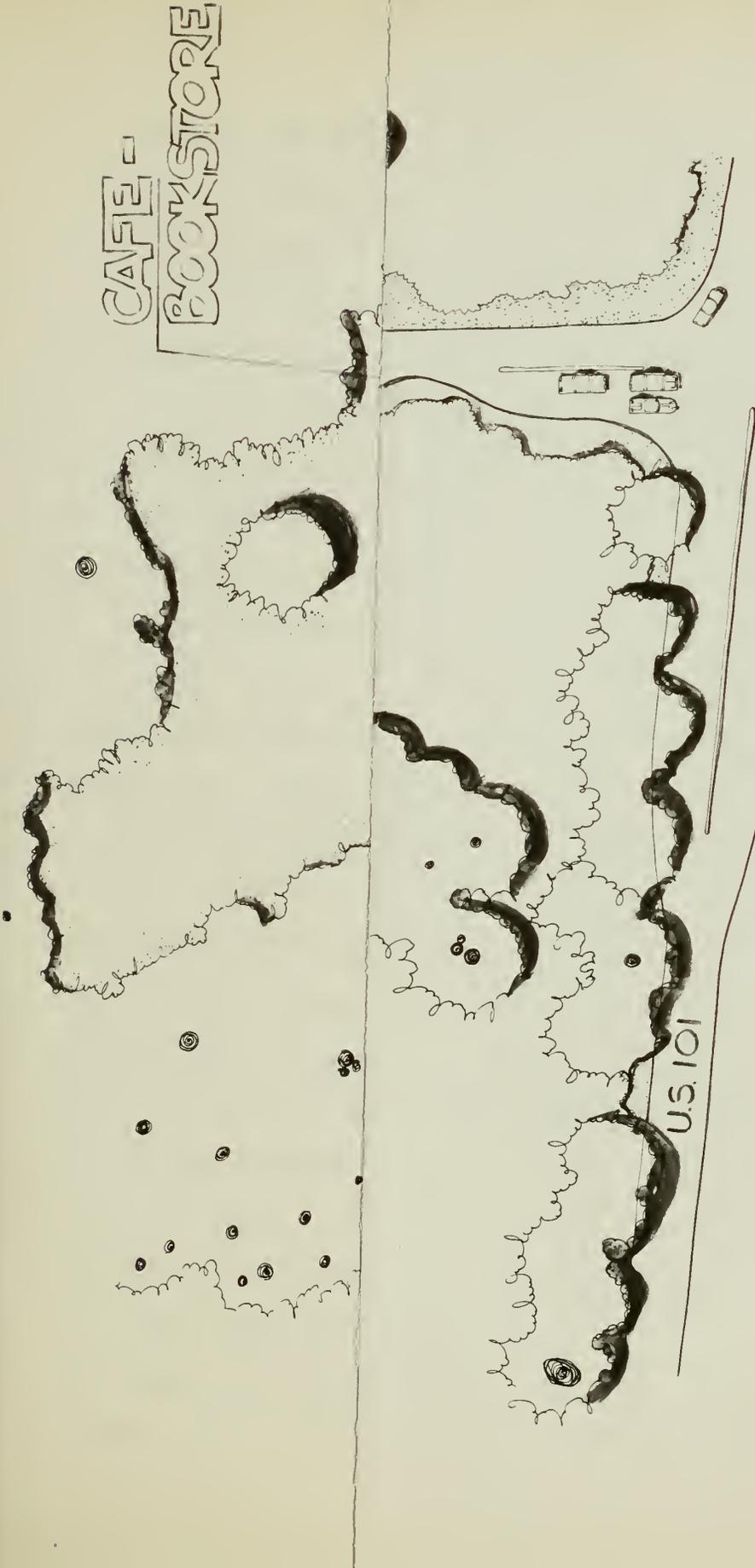


FIGURE 2

# MAY CREEK

# ACTIVITY CENTER

REDWOOD NATIONAL PARK

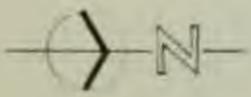
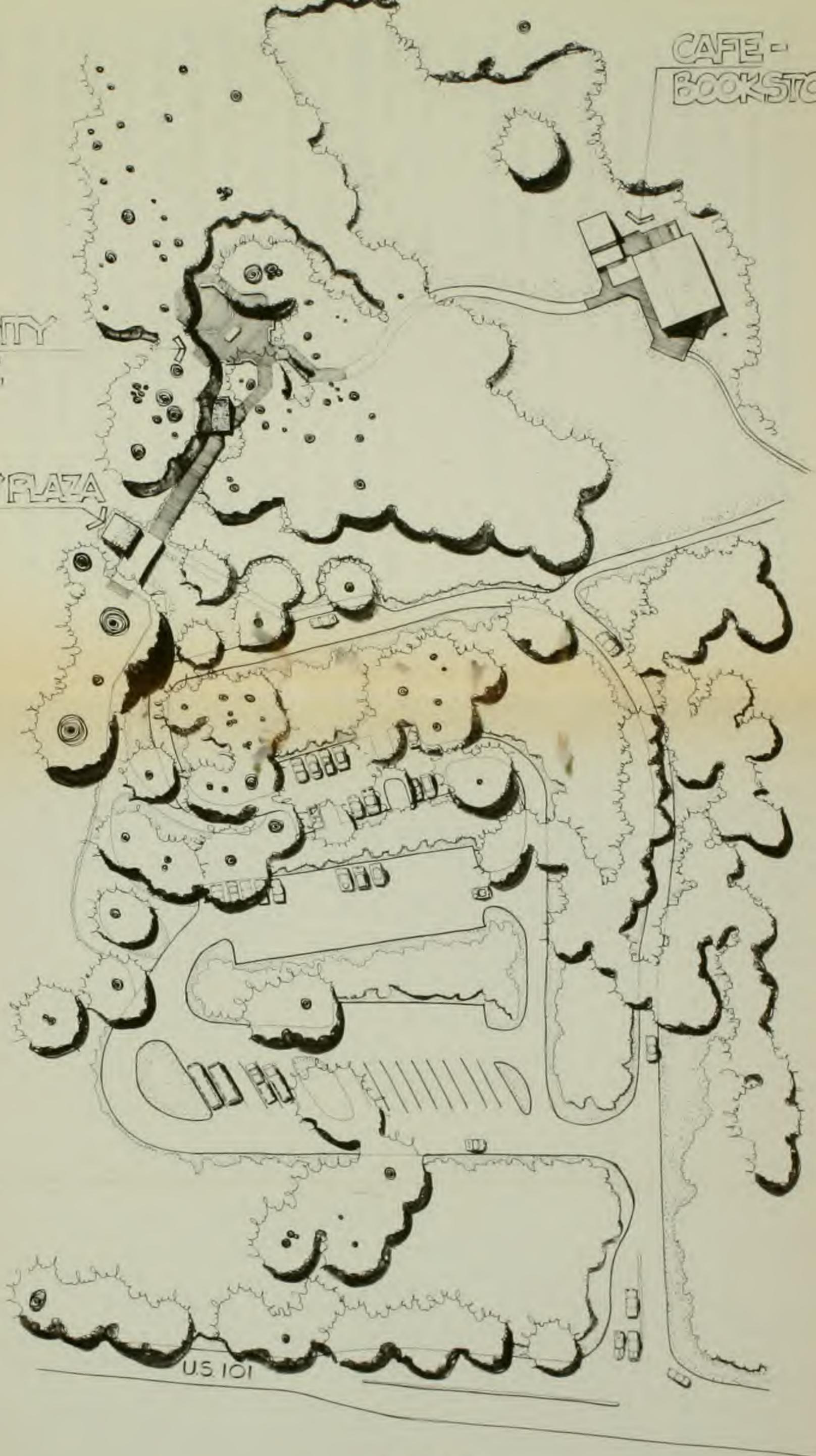
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CAFE -  
BOOKSTORE

ACTIVITY  
DECK

ENTRY PLAZA



0' 20' 100' 200'

FIGURE 2  
MAY CREEK  
ACTIVITY CENTER

REDWOOD NATIONAL PARK

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- b. paved entry road and parking for 84 vehicles, and 3 buses (with the potential for expansion to 100 vehicles).
- c. entry plaza - to provide information panels and restrooms in close proximity to the parking area.
- d. landing and activity deck - redwood boardwalk and decking "in the redwoods" with provisions for information/orientation services as well as interpretation.
- e. cafe/bookshop - limited food services and publications sales on an arm of nearby Boyes Prairie.
- f. static pile composting of sewage nearby, but off-site.

Details of the proposal are as follows:

Approximately 1000 feet of U.S. 101 will be widened from the existing two lanes to four lanes. A new 1050 foot paved entrance road (14 to 24 feet wide) will provide access to the parking area. Elevated wooden boardwalk and decking (approximately 4300 square feet) will be situated in the old-growth redwood forest to provide facilities for information and interpretive services. About 665 square feet of this decking will be covered as a rain shelter. On an arm of the nearby prairie, an 1800 square foot buffet-style cafe will serve soups, sandwiches, and beverages with provisions for both indoor and outdoor dining. Included in the cafe structure will be a small bookshop for interpretive publications. Restrooms that will utilize water conserving fixtures will be provided near the parking area.

If proven adequate, the existing well will provide water for the cafe and comfort station (this will require treatment to reduce iron and manganese content). Another well will be drilled to provide water should the existing well prove inadequate. Sewage will be held in a 6000-gallon holding tank for later removal by truck to a remote site for static-pile composting. Greywater will be disposed of separately in a new mounded leachfield system nearby. The new 2500 sq. ft. leachfield and similar back-up location will be located approximately 150 feet southwest of the cafe/bookshop in the same arm of Boyes Prairie. Electrical power connections on-site will be undergrounded in approximately 600 feet of trench. About 200-yards of paved walkways will complete the pedestrian connections.

Parking area construction will require rerouting about 800 feet of the bed of an ephemeral stream to the east towards U.S. 101. Also, about 2 to 3 feet of structural fill will be needed to support the paved area.

A new pump and well house will be constructed on the site of the existing well house between the NPS residence and the trailers.

Except for some structural timbers the boardwalk, landing, activity deck, shelters, and cafe/bookstore will all be constructed of old-growth redwood milled from logs removed from the Redwood Creek basin as part of the Watershed Rehabilitation Program.

These salvage logs were cut before the 1978 expansion of park lands and are being removed from rehabilitation units where they create erosion problems. Lumber for future repairs will be milled at the same time and stockpiled. All lumber to be purchased will not be redwood (e.g. Western red cedar or Douglas-fir).

Prior to construction, the trailers on-site will be removed to the Redwood National Park office area in Orick. The house and fire cache would remain for a period but eventually will be relocated. Trailers for the construction supervisor and contractor will be temporarily situated where the existing trailers are now.

Construction materials, equipment, and spoil will be temporarily stored on previously impacted land in addition to about 1/3 acre of the arm of Boyes Prairie (in the vicinity of the trailers) and 1/3 acre where parking would eventually be located.

Appropriate native plants will be seeded or planted as part of the site restoration. Attempts will be made to collect the needed plants on-site prior to construction.

Facilities for composting sewage will be placed on an abandoned log deck about a mile from the activity center site. Sewage will be trucked to the composting site, mixed with wood chips on a covered concrete pad and aerated with vacuum hoses buried in the pile.

Runoff from the pad will be collected in drains, held and mixed with the subsequent batches. The site is level, cleared, and has existing gravel road access from the activity center site. Electrical power for blowers is already on-site. Facilities needed will include: a concrete pad with drains and roof, a holding tank, and small shed for mechanical equipment.

Construction will require about 4 months with the sequence being: building and deck construction followed by parking and road construction; construction at the composting site will be concurrent with other work. The period of work will probably be March through June.

Approximately 6 acres of surface disturbance and associated soil compaction would result from this alternative. About 2 acres of this would be temporary.

Although much of the construction will take place in a redwood grove, efforts will be made to minimize disturbance during and after construction. A large truck-mounted auger will be used to drill about 200 holes, 24 to 36 inches in diameter (7 to 12 feet deep), for deck and building supports. To reduce the impact of this action all nearby tree trunks will be wrapped at the base to avoid abrasion and planking, landing mat, or similar supportive surface will be used to spread the weight of this heavy equipment. Each of

the holes will be filled with about one cubic yard of concrete to support the posts. The concrete will be delivered via a pressure hose system from outside the grove in order to minimize impacts of delivery. Also, fairly tight limits on the area of construction activity will be established. However, spring construction dates would result in maximized soil impacts.

The understory in the area where the parking area will be located is very thickly populated with salmonberry, red alder, and vine maple. This thick brush will be removed where the parking area is built. Some of the vine maple is over 20" in diameter but, without a well defined central trunk; therefore, Table 1 which itemizes the trees over 12" diameter at breast height (D.B.H.) that would be removed in the proposed project does not indicate the vine maple

Table 1: Trees over 12" DBH that would be removed as a result of the Preferred Alternative.

DBH (in.)	SPECIES	DBH (in.)	SPECIES
50	Western Hemlock	16	Tan Oak
49	Western Hemlock	45	Sitka Spruce
45	Western Hemlock	42	Sitka Spruce
40	Western Hemlock	40	Sitka Spruce
34	Western Hemlock	36	Sitka Spruce
26	Western Hemlock	28	Sitka Spruce
32	Tan Oak	28	Sitka Spruce
31	Tan Oak	23	Sitka Spruce
31	Tan Oak	17	Sitka Spruce
30	Tan Oak	12	Sitka Spruce
18	Tan Oak	12	Sitka Spruce

removal. Average height of canopy trees in the area is about 160 feet.

No mature redwood trees will be cut. Understory vegetation that will be removed in the mixed forest and brushy area where parking area construction will take place, will amount to about 3½ acres and consist of salmonberry, blackberry, thimbleberry, and seedlings of willow, red alder, western hemlock, and sitka spruce for the most part. About 1/4 acre to 1/3 acre of the redwood grove will be denuded of sword fern, oregon grape, redwood sorrel, and associated understory. About 2 acres of the grassland area of the prairie would be compacted during construction, the dominant species here are primarily introduced perennials such as orchard grass and velvet grass.

Drilling the pier holes in the redwood grove and adding lime based concrete to each will have unknown effects on the chemistry and flow of nutrients and soil moisture in the redwood grove. Approximately 700 square feet of near-surface roots will be destroyed by these holes.

The proposed site was surveyed in late spring 1979 (Gary Lester, USFWS) for plants of special concern, specifically Monotropa uniflora, Pityopus californicus, Erigeron delicatus, and Pleuropogon refractus. No evidence of these plants was found. Therefore, no

plants designated as threatened or endangered by criteria established by the Endangered Species Act of 1973 will be affected. Nor will any plant species designated as rare or endangered by the California Native Plant Society be affected.

A relatively minor long-term decrease in water quality in the local surface waters should be expected, as runoff from the parking area would contribute cobalt from tires and petroleum based chemicals from cars and buses as well as from the new asphalt. It is not known what long-term effects changing the course of the small stream channel or installation of the new leachfield will have. Local groundwater sources are anticipated to be more than adequate to serve the needs of this development without adverse impacts (Akers, 1978). No ground or surface water contamination should result at the composting site. Composted material will be used in soil augmentation efforts of the Redwood Creek Watershed Rehabilitation Program. Water quality monitoring will accompany use of composted material.

Few effects on wildlife are anticipated with the possible exception of the Roosevelt elk that utilize the subject area intermittently for forage and cover. The elk, while not particularly sensitive to human presence, do avoid areas where people are active and, therefore, would be denied the use of the project area during daylight hours; especially during construction. However, due to

the existing developments this is true to some degree already and no significant change is expected after completion of construction. The new facilities would not be used at night. Human interaction with elk is considered to have little effect on elk behavior (Mandel and Kitchen, 1979).

No animal species designated as threatened or endangered by the criteria established by the Endangered Species Act of 1973 would be affected by the proposal.

No significant effects on ambient air quality will occur. A worst case model evaluation for carbon monoxide was prepared for the parking area at the proposed May Creek Activity Center. This evaluation concluded that the resultant CO concentration would be slightly more than one-half of the national one-hour ambient standard and therefore considered acceptable. Details of the calculations are in Appendix J, DES and General Management Plan, NPS, 1979.

The appearance of the activity center site during the first season or two of use would be rather harsh until natural vegetation is given sufficient time to recover. Thereafter, the area would provide a much improved first impression of Redwood National Park over the Orick facilities.

Projected total construction costs are about \$1,221,850. Much of this would remain in the Redwood region as many materials would be obtained locally (e.g. local mills used to produce lumber from salvage logs, fill material probably from commercial operations in Redwood Creek, cement from local mixers, etc.).

The facilities would all be easily made fully accessible for wheelchair use due to the nearly level ground surface. Visitors would remain longer in the park due to the increased opportunities for activities and better information on other sites to be visited.

Impulse buying in Orick by visitors utilizing the Orick facilities may be reduced by relocation of contact functions to May Creek. This effect should be small.

The facilities would be designed for 90 KW maximum with an average use predicted at 65 KW which is a 900% increase over the existing system.

As mentioned in the description of the affected environment, the construction areas are currently being brushed to facilitate the site-intensive archeological survey which is presently underway. If archeological sites or resources are found by the survey, the design or specific location of the activity center facilities will be altered to totally avoid impact on the resource or adverse impacts

will be mitigated. The results of this survey will be made part of the environmental review for this environmental assessment, and will aid in the determination of the significance of the proposed action's environmental consequences.

#### B. No Action

Under this alternative the management of the area would continue on its present course. Information and interpretive brochures and the exhibits at the Orick Ranger Station would be upgraded in an attempt to fill the need for these services at the south entrance to the park. In addition, the station would receive minor interior modifications to better meet the demands upon it.

A better understanding of the natural environment and its value, and an orientation to specific use areas, reduces the amount of misuse or inadvertent degradation of natural resources within a natural area by visitors. The effect upon the park resources from inadequate or ineffective interpretive and orientation services is not quantifiable, but would occur under the no action alternative.

Under the no action alternative the inadequacy of existing State and National Park Service facilities in meeting perceived visitor needs would not be solved. Also, as the May Creek Activity Center is contained within all alternatives of the park's General Management

Plan except no action, it is likely that it will be an action of any final approved plan. Therefore, an effect of the no action alternative would be that of delaying needed services to the public and denying these services to present users.

C. Alternative Sites for a South Area Activity Center

1. "B-Deck" - About 2 miles south of the May Creek site and about 200 yards west of U.S. 101 on the Davison Road is a log storage deck that could provide parking and sites for facility development in close proximity to a redwood grove suitable for interpretive efforts. Use of this site would require Congressional approval for acquisition as it is outside the presently authorized Redwood National Park boundaries and still in private ownership.

Site design would be similar to the May Creek facilities. Right and left turn lanes from U.S. 101 to Davison Road exist; however, Davison Road itself would need widening to two-lanes to the deck. This portion of Davison Road crosses Prairie Creek via a one-lane bridge that would need to be reconstructed to accommodate two-lanes and heavier traffic. A moderate amount of new paving for the road and parking area would be required.

New impacts to vegetation and soils would be greatly reduced in this site development as compared to the May Creek site. However, a great deal more time, money, and controversy would be associated with the acquisition and use of this site. New surface area impacts would amount to one to two acres in the redwood forest and dairy pastures adjacent to Davison Road and the log deck.

Accessibility of the redwood grove here to handicapped visitors would be reduced because of the moderate to gently sloping ground surface.

The effects on air and water quality in the vicinity would be as discussed for the Preferred Alternative.

The parking area would be visible from U.S. 101 until vegetative screens could be grown. The effect on Orick of providing contact services here would also be the same as for the Preferred Alternative.

No surveys of this area have been made for archeological resources or endangered plant species. It must be assumed that this site also lies in the 100-year floodplain of Prairie Creek.

2. "A-Mill" - Still closer to Orick than the "B-Deck" site by about 2 miles and east of U.S. 101 about 1/4 mile on the Bald Hills

Road is a lumber mill owned and operated by Arcata Redwood Company. This site is quite near the confluence of Redwood and Prairie Creeks and also the Redwood Creek/Tall Trees Grove trailhead. This site would also require Congressional approval for acquisition as it is outside presently authorized boundaries.

The design of facilities at this site would have to be quite different than at the other sites because there is no redwood stand there which is suitable for interpretive use. Also, most of the surrounding area has already been altered from the natural state. The surrounding pasture is commercially grazed by cattle, the Bald Hills Road is used by commercial log truck traffic, gravel is commercially removed from the bed of nearby Redwood Creek in the summer, and the hill slopes nearby were logged 10 to 20 years ago.

Therefore, new impacts to the natural environment would be the least at this alternative site; however, cost of developing this site would also be the greatest. A development concept for the site was not proposed.

The site has not been surveyed for archeological resources or endangered species. This site does lie in the 100-year floodplain of Redwood Creek.

#### D. Reduced Facilities at the May Creek Site

This alternative would have the same entrance road, activity deck, and entry plaza (with restrooms and information panels) as outlined in the preferred alternative but other details would differ substantially.

Parking for only 40 vehicles and 3 buses would be provided. The site for parking spaces would utilize more area adjacent to the existing graveled road in the area, resulting in less new impact than the preferred alternative.

A wood-chipped path would replace the elevated boardwalk leading to the raised activity deck. A wood-chipped path would also lead to the arm of the nearby prairie and to an area suitable for elk viewing, however no cafe/bookstore would be constructed in the prairie. No new leachfields would be required, but power, water, and blackwater systems would remain unchanged from the preferred alternative. The composting aspect of the proposal would also remain unchanged.

In this alternative about 4 acres of surface disturbance and associated soil compaction would result. About 1½ to 2 acres of this would be temporary, associated with construction techniques. About 150 holes would need to be drilled for the decking using the same procedure outlined in the preferred alternative.

Proportionately less understory vegetation would be affected here. Fewer canopy trees would be removed. Of the trees shown in Table 1 the following would not be removed in this alternative: 34" DBH western hemlock and 32", 31", 31", 30" 18", and 16" tan oaks.

The effects on local surface water quality would be reduced somewhat over the preferred alternative. Overall construction cost would be about \$850,000. Electrical demand of the facilities would be about 20 KW or a 100% increase over the existing system design. Handicapped access would also be more difficult along the wood-chipped trails.

Other impacts would be similar, but reduced in extent or magnitude as compared to the preferred alternative.

#### IV. LIST OF PREPARERS

Reed McCluskey, Environmental Specialist, DSC. Document preparation and production.

Susan Vogt, Environmental Specialist, Denver Service Center. Initial research.

## V. CONSULTATION/COORDINATION

The following agencies, organizations, and individuals have been briefed and consulted regarding the proposed project:

- California Department of Parks and Recreation
  - Area Manager, Trinidad Area, Prairie Creek R.S.P.;
  - District Manager, District 1, Eureka.
  
- Save-the-Redwoods League
  - Executive Director
  
- Caltrans (California Department of Transportation)
  - District Office, Eureka
  
- Congressman Don Clausen
  
- Orick Chamber of Commerce
  
- Orick Community Services District
  
- Northcoast Environmental Center
  - Steve Lau, representative

--Local service organizations and clubs

--Dr. Edgar Wayburn, past President, Sierra Club;

member, Secretary of the Interior's Advisory Board on  
National Parks, Historic Sites, Buildings, and Monuments.

--Representatives of Dept. of Interior, Office of the Secretary.

--Representatives, Friends of Del Norte

Also, local media sources have publicized the proposed project; and an exhibit describing the project was set up for Humboldt and Del Norte County fairs as well as Curry County fair in Oregon.

## VI. REFERENCES CITED

- ° Akers, J.P. Potential Potable-water Supplies in Redwood National Park, California. U.S. Geological Survey Open-File Report 78-970. 1978. Menlo Park, Calif.
- ° Mandel, Richard D. and D. W. Kitchen. The Ecology of Roosevelt Elk In and Around Redwood National Park. 1979
- ° Moratto, Michael J. A Survey of Cultural Resources In and Near Redwood National Park, California. 1973. Publications in Anthropology no. 8 Tucson, Arizona: Cultural Resources Management Division, Western Archaeological Center, National Park Service.
- ° Salzman, Sally S. and Polly McW. Bickel. Archaeological Survey in Rehabilitation Units in Redwood National Park, California. 1979. National Park Service. On-file Redwood National Park.
- ° U.S. Department of the Interior. Draft Environmental Statement and General Management Plan, Redwoods National Park. U.S. National Park Service, 1979.

## VII. APPENDIX

<u>Vegetation</u>	<u>Common/Technical Equivalents</u>
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Orchard grass --	<u>Dactylis glomerata</u>
Nodding semaphore grass --	<u>Pleuropogon refractus</u>
Velvet grass --	<u>Holcus lanatus</u>
Del Norte Daisy --	<u>Erigeron delicatus</u>
Redwood sorrel --	<u>Oxalis oregana</u>
Indian Pipe --	<u>Monotropa uniflora</u>
Swordfern --	<u>Polystichum munitum</u>
Salmonberry --	<u>Rubus spectabilis</u>
Thimbleberry --	<u>Rubus parviflorus</u>
Blackberry --	<u>Rubus vitifolius</u>
Oregon grape --	<u>Berberis nervosa</u>
Willow --	<u>Salix</u> spp.
Vine maple --	<u>Acer circinatum</u>
Red alder --	<u>Alnus rubra</u>
Redwood --	<u>Sequoia sempervirens</u>
Western hemlock --	<u>Tsuga heterophylla</u>
Tan oak --	<u>Lithocarpus densiflorus</u>
Sitka spruce --	<u>Picea sitchensis</u>
Western red-cedar --	<u>Thuja plicata</u>

Species listed are not definitive but merely indicative of community composition.

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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