



United States Department of the Interior

NATIONAL PARK SERVICE

Pacific Northwest Region
931 Fourth and Pike Building
Seattle, Washington 98101

October 31, 1972

IN REPLY REFER TO:

L48
(PNR)O

Memorandum

To: All Areas and Offices, Pacific Northwest Region

From: Assistant Director, Operations, Pacific Northwest Region

Subject: Backcountry Use Study Report for Yosemite National Park

Enclosed for your information and reference is the subject report that was prepared by Don Campbell in 1969 for use in the master plan for Yosemite National Park.

It is our intent that this document will serve you as additional reference source along with the enclosures included with Director Hartzog's memorandum on the same subject to the Region, October 12, 1972. (This material was furnished at the Regional Superintendent's Conference, November 3-6.)

Please bear in mind that the enclosed report was a study report and was not a Backcountry Use Plan. It indicates a useful back-country zoning plan and recommends appropriate management guidelines as well as capacities for the visitor use zones.

We should mention that two items are not included in the contents, neither of which is necessary for your interest. One is a large colored fold-out map of Yosemite that indicated the three zones, and the other item is Appendix E. The large map could not be easily reproduced, and Appendix E was a memorandum from Mr. Campbell to the Team Captain that was specific to Yosemite and issues of 1969.

Wayne R. Howe

Enclosure



National Parks Centennial 1872-1972

A BACKCOUNTRY USE STUDY

FOR

YOSEMITE NATIONAL PARK

***U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
SAN FRANCISCO SERVICE CENTER
OFFICE OF ENVIRONMENTAL PLANNING AND DESIGN***

NOVEMBER 1969

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ABSTRACT

This report recommends a zoning plan with three categories of backcountry management for the vast and scenically superb Yosemite wilderness. The plan envisions moderate, intermediate and light visitor use areas which perpetuate the three basic wilderness experiences: That enjoyed by a novice or family with children in a "gentle wilderness" easily accessible from roads and primarily weekend use; a more rugged wilderness, usually considerable distance from a road, used mostly by groups with the time, equipment and experienced leadership necessary to visit the area; and a more remote and desolate wilderness without trails or bridges for the expert wilderness user. These types of wilderness experiences are already possible; the objective of the plan is to recognize this, establish zoning lines which will maintain a balance of land area devoted to each of these types of use and have a coordinated long range management program which will perpetuate the opportunities for these kinds of wilderness experiences.

Also it is recommended that designated camping areas and campsites with defined capacities be implemented in the Yosemite backcountry. The designated sites, marked with a stationary primitive fire ring is an absolutely necessary management tool for correcting the localized, but expanding problem of deteriorating resource base resulting from indiscriminate camping patterns in popular backcountry camping areas. A defined number of campsites, with adequate spacing between sites and in harmony with the capacity of the area, would always remain to provide desirable wilderness camping conditions.

EXISTING CONDITIONS

GENERAL RESOURCE DESCRIPTION

The Yosemite backcountry consists of approximately 725,000 acres of greatly contrasting landscape, of vast areas of rugged, glaciated granite, exhibiting many monolithic domes and a hundred or more pristine and rarely visited lakes, to majestic, alpine country along the high sierra crest of jagged, snow capped peaks, dwarfed and contorted trees and plush green meadows. The backcountry is surrounded in part by two national forest wilderness areas, the superb Hoover (42,800 acres) and Minarets (109,559 acres) preserving many deep aqua blue lakes, typical of those east of the crest, and the Emigrant Basin Primitive Area (105,954 acres) containing hundreds of beautiful lakes, soon to be designated wilderness. In the elevation range of the Sierra Nevada, Yosemite is essentially a middle elevation park, (6,000 to 10,000 feet) with park elevations ranging between 3,966 to 13,114 feet. Ninety-five major peaks dominate the park's backcountry with 289 pristine lakes that vary in color, size, and landscape setting.

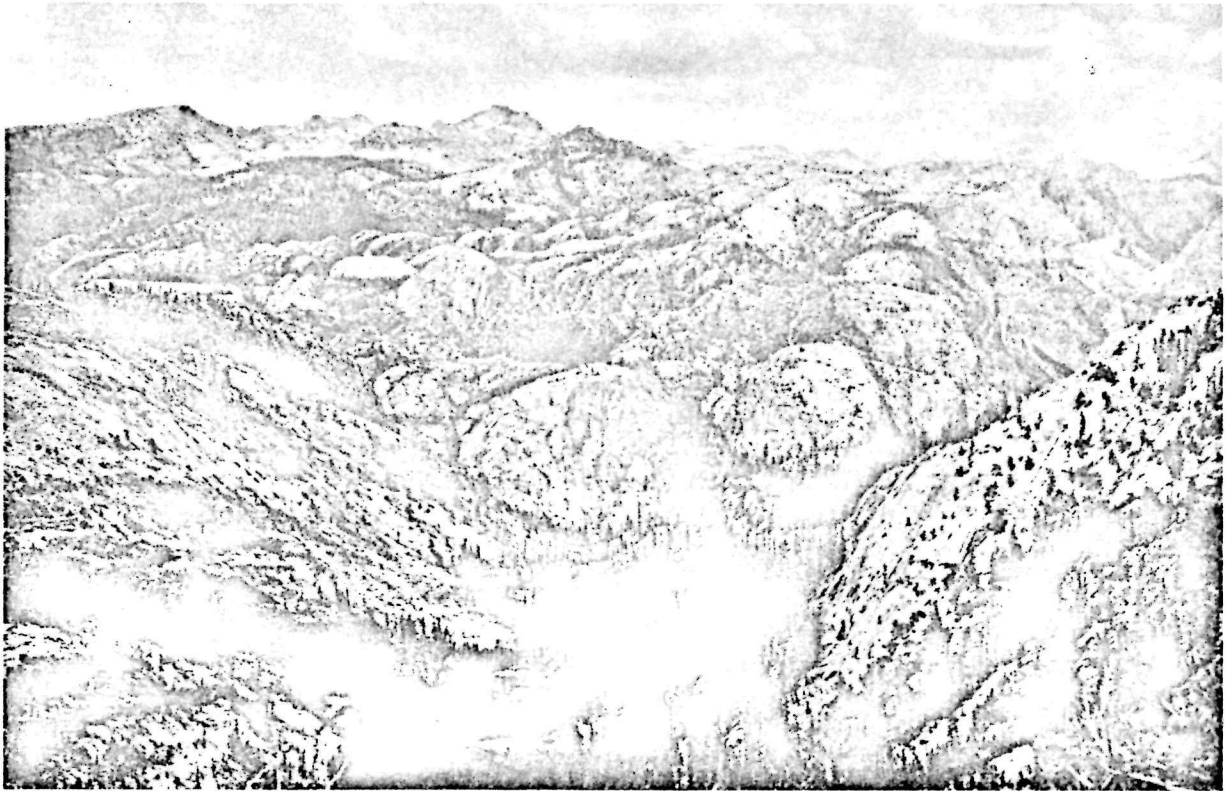
Almost all of the Yosemite backcountry visited by the backpacker or horseman is heavily forested.* Because of its middle sierra elevation, this backcountry contrasts considerably with the high alpine backcountry of Sequoia-Kings Canyon National Parks.

VOLUME OF BACKCOUNTRY USE

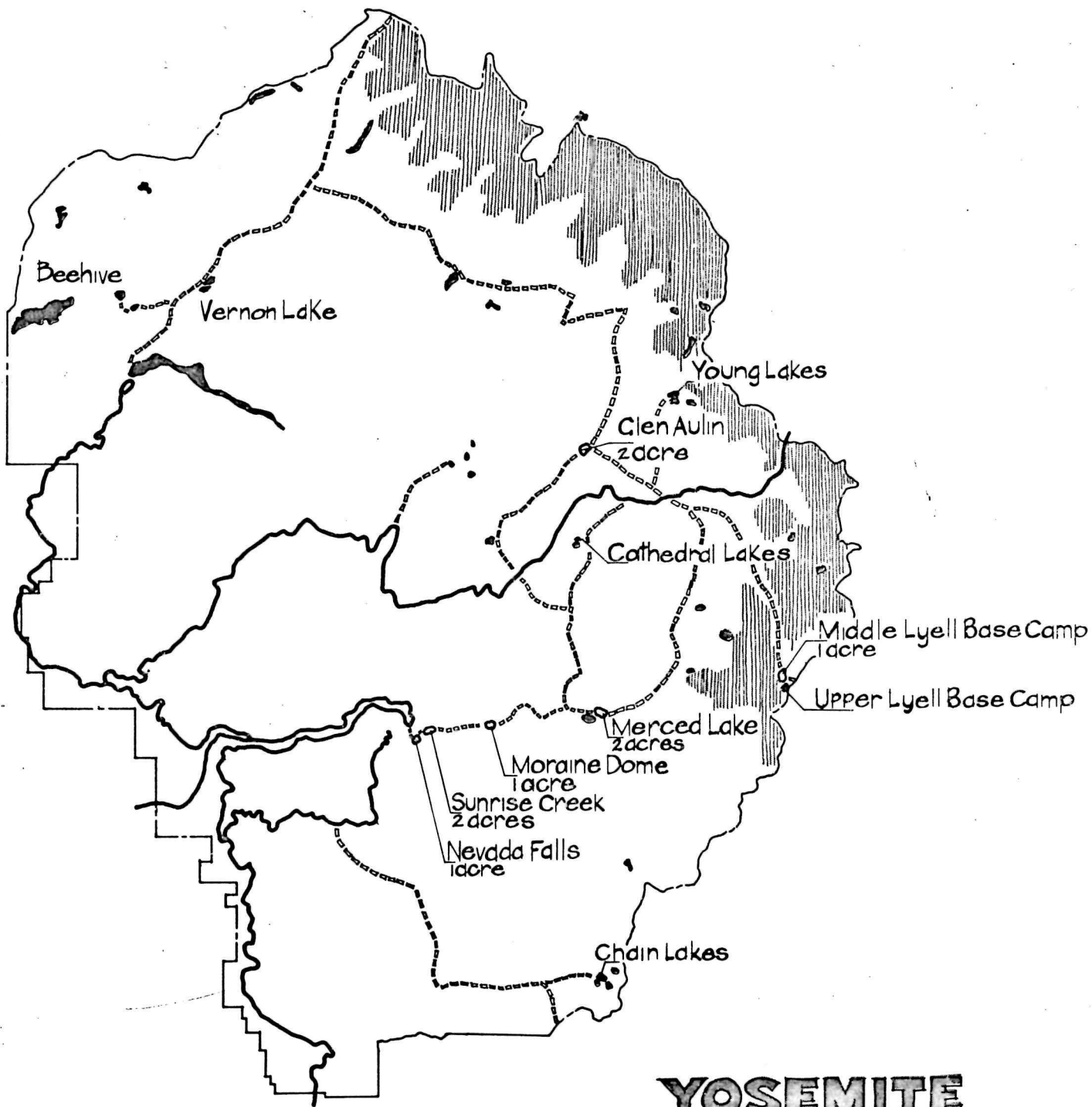
Although the number of backpackers has increased annually, the Yosemite backcountry is not now threatened by overuse nor, at the existing rate of increase (roughly doubling every 10 years), should there be pressure of overuse in any area until approximately 1978, with adequate planning and management programs. Concentration of campers in the backcountry in proportion to the entire backcountry resources is extremely low. The most heavily camped-in areas of this wilderness average approximately 50 campers (including groups), a day.* This figure is far short of the reported 200 to 300+ campers in certain areas of the Minarets, John Muir Wilderness and Sequoia-Kings Canyon National Parks. This is not to say because of weather, season, holiday or some other factors that on limited occasion more people could not be found in one area of the backcountry.

* See Appendix "A"

* Based on daily observations of Nic Fiore, Operator of the Yosemite High Sierra Camps for 8 years. This is a one-day figure on an average weekend during the heavy use season.



Although the rugged mountains and vast scale of the Yosemite backcountry give the overall appearance of having sparse tree cover, most of the backcountry (valleys, side walls of canyons, low ridges, etc.) where the wilderness user travels and camps is in dense forest.

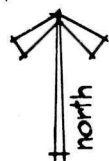


LEGEND

- resource deterioration
- potential resource deterioration
- lake
- main trail
- sierra crest
- road
- park boundary

YOSEMITE NATIONAL PARK

scale 12 miles



EXISTING RESOURCE CONDITIONS

Generally the Yosemite backcountry 1/8-mile off the main trail and away from the frequently used camping areas is virtually undisturbed. Trail conditions by volume of use is difficult to judge since trails receive maintenance at varying times. Generally, all trails are easy to hike and passable by horse; some need to be relocated out of the meadows and boggy areas.

Within the 122 designated areas** where camping is allowed in the park's backcountry, 6 areas totaling 9 acres out of this 725,000-acre backcountry exemplify the problems associated with overuse.

These heavily used areas, reflecting lack of firewood, compacted soils, trampled and dying riparian vegetation, multiple fire rings and primitive tables, are not "overuse areas", in the sense of the backcountry being overrun with people but rather misuse of land, resulting from indiscriminate camping patterns. "Misuse" is the correct term because camper densities per acre are much too high. Campers are continually moving their campsites in these small areas, altering the land, and in some cases, camping in fragile ecological areas. All of these areas are surrounded by extensive forests with downed timber, fresh water, privacy from sight and sound of others, good views, birds and squirrels and many other desirable qualities of the Yosemite wilderness. The Yosemite backcountry has the resource base to accommodate many more people than it is accommodating now and under much more desirable wilderness conditions. This can be accomplished through planning, a small amount of management control and minimum restrictions on the wilderness user,



Glen Aulin, an area offering a poor backcountry camping environment. Resource deterioration resulting from too high a density and campers continually moving their campsites within a limited area produce this type of resource deterioration.



In every area of the backcountry where localized resource deterioration is apparent (one to two acres per area) there are large expanses of forested flat land surrounding these areas. By substantially reducing camping densities per acre, utilizing additional resource base for camping and controlling use to designated sites, desirable wilderness camping conditions such as this will always be maintained.

** Yosemite National Park requires that all persons camping in the backcountry have a fire permit. These fire permits are written for 122 camping areas.

RECOMMENDATIONS

ZONING PLAN

There are three basic type of wilderness experiences which are possible in the Yosemite backcountry:

(1) Hikes around the high sierra loop and short distance hikes from access roads in which large numbers of people—mostly novices or families with children—participate; essentially gentle wilderness and used primarily on weekends. (2) A more rugged type of experience, further back from the roads, which, in time, topography and distance, appeals to a smaller number (mostly groups) who have the time, equipment and experience necessary to visit the area. Three days to two weeks are usually required. (3) A very rugged type of experience, appealing to the few expert wilderness travelers, willing to camp in desolated areas, travel considerable distances without trails or markers and rely primarily on their skills to navigate and enjoy their wilderness experience.

Visitations within these categories will continue to increase proportionately. There could, however, be pressure to expand one category of use out of proportion to the others due to new access roads outside the park or new trails within the park's backcountry. To assure that the three types of experiences are always available, the following zoning plan is recommended. When implemented and capacities for the various categories are established, the quality of the present wilderness will be maintained. This is a broad guide for backcountry management; problem areas are to be handled individually by reorganizing use patterns, designating campsites, controlling fish populations and trail maintenance.

The recommended zoning lines and zoned areas are based on 35 days of observations in the Yosemite backcountry using the criteria of existing user patterns, projected user patterns, developing a balance of suitable lands for each zone, accessibility of areas by time, distance, and topography, scenery, land, water and vegetative resources, existing and potential administrative manpower, publicity and safety.

Criteria for Volume of Use on Backcountry Trails

Moderate Use Trails: A trail where, during a hiking day, a backpacker would see 40 persons or more and possibly several large groups (including stock parties).

Intermediate Use Trails: A trail where during a hiking day, a backpacker would see 11 to 40 persons and two or less large groups of 25 or more people (including stock parties).

Light Use Trails: A trail where, during a hiking day, a backpacker would see 10 or less people.

Volume of use on trails has been established from discussions with backcountry park staff, by personal observations, and observations of several others who have hiked the Yosemite backcountry during the heavy-use season.

Moderate Use Area

This area encompasses the popular high sierra camp loop, Lyell Canyon, Young Lakes, McCabe Lakes and Ten Lakes Basin; also the early season use area of Hetch Hetchy, Eleanor, Laurel and Vernon Lakes. Scenery, access, topography, hiking logistics, safety and publicity make this the most frequently visited part of the backcountry. It will continue to be because of its potential (expanses of dense forest) to accommodate large numbers of backcountry users under very desirable wilderness conditions if recommended planning and management measures are implemented.

Intermediate Use Area

This area, comprising a substantial portion of the Yosemite backcountry, contains many picturesque lakes, outstanding stands of mature hemlock, lodgepole and western white pine and hardy, knee-high grass meadows. The zone would be used primarily by groups with the time, equipment and experienced leadership necessary to visit the area. Parties would be required to camp in a designated camping area but would be allowed to select their own place to camp—in most instances, sites already established by trail crews would be used.

Light Use Area

The light use area encompasses the superlative Mount Lyell and Red Peak area on the southeast boundary and the isolated Nance Peak, Snow Peak and rugged Sawtooth Ridge areas on the north boundary. These areas of outstanding beauty would remain in a complete state of naturalness requiring visitors to erase all traces of their presence as they left the area. The zone would be used primarily by the more proficient wilderness traveler relying on his physical ability, experience and equipment to challenge natural barriers and endure hardships.

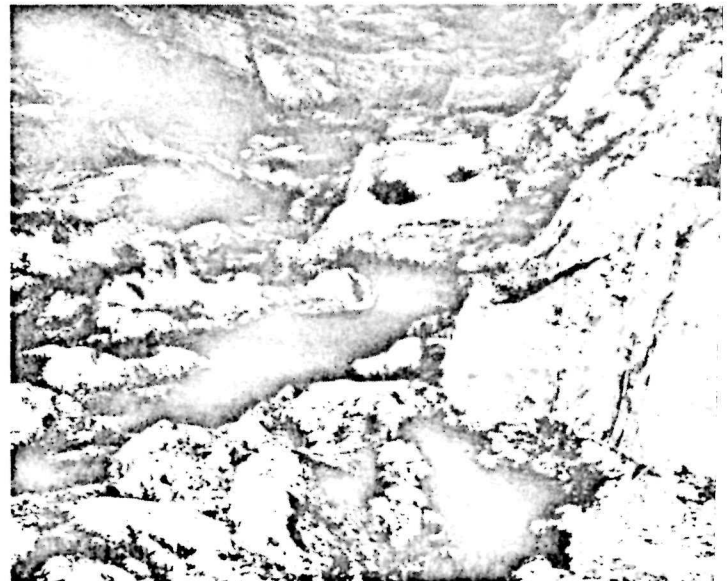
Management guidelines for each of the three zones are in Appendix B.



A backpacker in a proposed moderate use area (Lyell Canyon). This zone is primarily a gentle wilderness to be visited by family groups and less experienced backcountry visitors.



A proposed intermediate use area (Benson Lake and Rogers Canyon country). This area would primarily be used by groups of varying sizes with the time, equipment and experienced leadership necessary to visit the area.



A proposed light use area along the north boundary of the park. Now remote wilderness for a number of reasons (outlined in text) the area would be managed to preserve this character. Primarily experienced wilderness travelers would use the area.

DESIGNATED CAMPSITE CONCEPT

Designated camping areas and campsites with defined capacities should be introduced into the Yosemite backcountry. The camps and campsites would be a management tool to help correct resource deterioration problems associated with indiscriminate camping in popular backcountry areas. A defined number of permanent campsites, in harmony with the capacity of the area, would provide desirable wilderness camping conditions. Six areas of 9 acres already show considerable deterioration and many other areas could quickly deteriorate in the near future. The need for implementation is now.

Camping Area

A designated camping area would consist of a specified number of designated campsites. Each campsite would have a small primitive fire ring and would be a minimum of 100 feet (in dense forest) from other rings. The designated campsite would accommodate a single person, couple, a family, or several families hiking together. Groups such as Camp Fire Girls and Boy Scouts would be handled in special group campsites which would have multiple rings and additional space for camping. Each unit (25 sites) would have pit toilets centrally located a minimum of 150 feet from any water supply.

This concept places strong emphasis on the type of backcountry camping experience which is provided for people. Stationary rings and a primitive sanitary facility are absolutely necessary for protection of backcountry lands and waters and to provide beneficial wilderness camping conditions. People should be allowed to set up their camp near a primitive fire ring, with desirable setting and views, fetching fresh water from a cold running stream, and having absolute privacy from others who might be camped in the vicinity. More sophisticated improvements, such as developed water supplies, tables and central dishwashing areas which have been suggested for other backcountry areas are not contemplated; water out of a faucet, rather than a cascading stream or a cold clear river, would seriously detract from the traditional concept of camping in wilderness. It is questionable if wilderness lands can be upgraded and remain wilderness.

Location

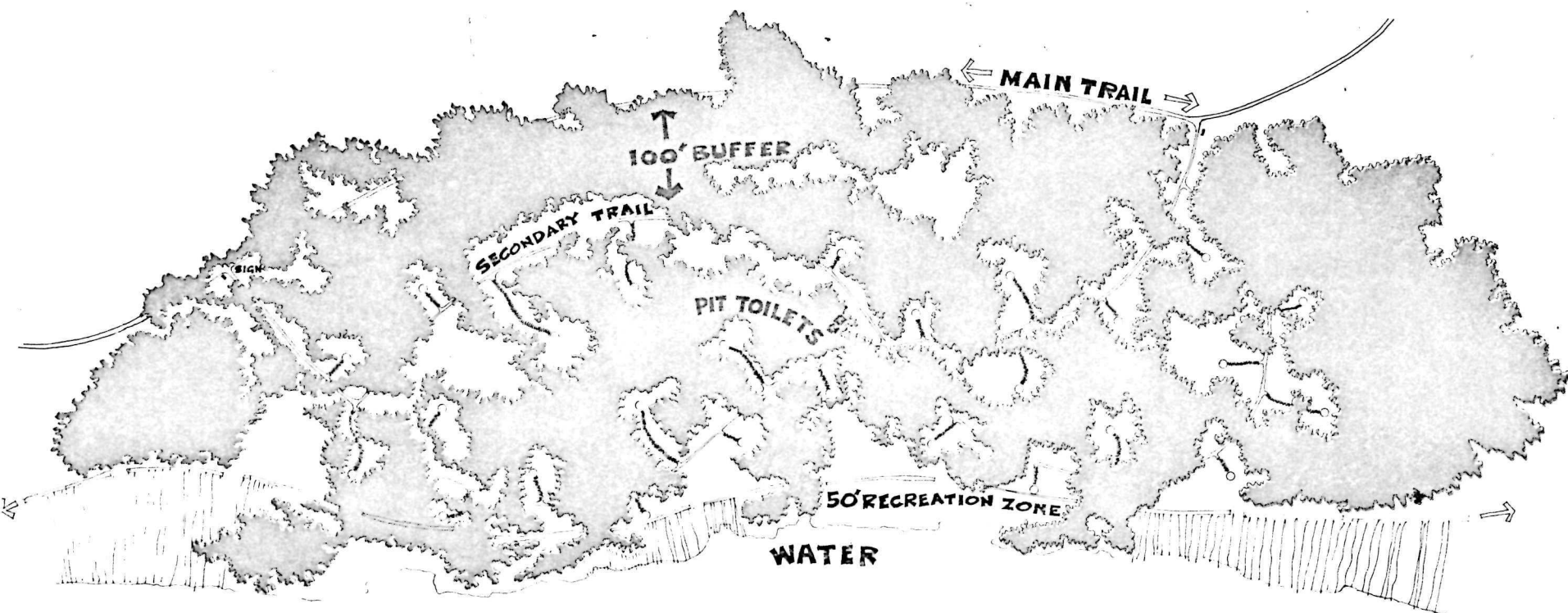
The designated camping areas are to be located in ecologically desirable areas in which to camp, primarily in forests with mature trees, downed timber, adequate water, and away from swamps and periodic flood planes. Many ecological situations like this are available, but are not used because of existing camping patterns and in some cases downed timber limiting access. The camping areas should also be placed where it will best serve the camping interest of the backcountry user. Possible areas such as in the vicinity of main trail junctions, and halfway points between specific designations are the most important. The designated campsites contemplated here are only to be implemented in the moderate use zone.

Layout of Designated Camping Area

The designated camping area should be situated a distance of 100 feet off the main trail where heavy forest exists. Where vegetative cover is less dense, the distance should be greater. In all cases, the distance should be sufficient to provide complete screening of the camping area from the main trail. In addition to the 100-foot buffer there should be a 50-foot recreation buffer provided between the campsites and the stream or lake on which they are situated. This recreational buffer will provide free and uninterrupted access to the water for fishing, wading, viewing, and gathering water.

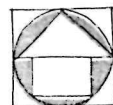
Signing

The designated camping area should be adequately signed for the backcountry user. A sign at each end of a camping area at the junction of the main and secondary trails would (1) state that this is a designated campsite area; (2) indicate the number of sites and graphically portray their arrangements; (3) request persons camping to sign the campsite register; and (4) indicate the distance to the next designated camping area and the change in elevation.



THE PROPOSED DESIGNATED CAMPING UNIT
 CONSISTS ENTIRELY OF FIRE RINGS AND A PRIMITIVE
 SANITARY FACILITY. BOTH EXIST IN THE BACKCOUNTRY
 NOW. DESIGNATING CAMPSITES IS AN EFFECTIVE
 MANAGEMENT TOOL FOR PROVIDING DESIRABLE
 WILDERNESS CAMPING CONDITIONS AND ELIMINATING
 DESTRUCTIVE CAMPING PATTERNS.

NOTE: SECONDARY TRAILS ARE NON-CONSTRUCTED PATHS



DESIGNATED CAMPING UNIT

BACK-COUNTRY STUDY
 YOSEMITE NATIONAL PARK

9-10-69

SCALE 0 50 100

Land Requirements for Camping

The fact that additional land will be used for new campsites does not imply that large areas will be devoted to designated campsites, nor that they will be strung indiscriminately along backcountry trails. On the contrary, only a small portion of the entire backcountry will be devoted to camping and these areas (only in the moderate use zone) will provide a much better environment for wilderness camping. Many of the more heavily used camping areas will be replaced with a minimum of 100-foot spaced campsites which will better protect the resource and much of the space now deteriorated by indiscriminate camping will be restored to a natural appearance by planting and reseeding.

A list of the total acreage of forested flat land in specific backcountry areas, each area's camping potential under the designated campsite concept and the proposed amount of land to be devoted to camping follows:

The Yosemite backcountry comprises approximately 725,000 acres.

Glen Aulin

Total acreage of flat land with dense lodgepole pine and western hemlock forest (includes approximately 6 acres around the high sierra camp and along Alkali Creek and areas of land from the second bridge down to California Falls on both sides of the Tuolumne River): 140 acres.

Total acreage suitable for camping (maximum) (includes 3 acres on both sides of Alkali Creek and lands below the second bridge 220 feet wide and spotted on both sides of the river down to California Falls): 63 acres.

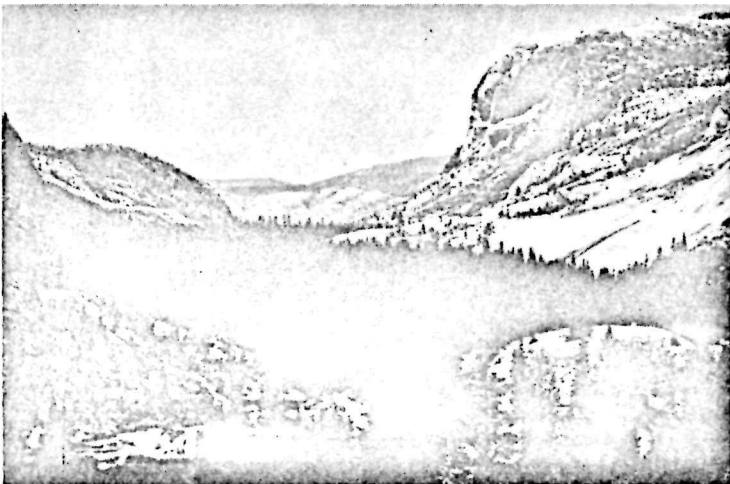
Acreage taken up by high sierra camp: 1.3* acres.

Acreage to be devoted to designated campsites under this proposal: 8 acres.

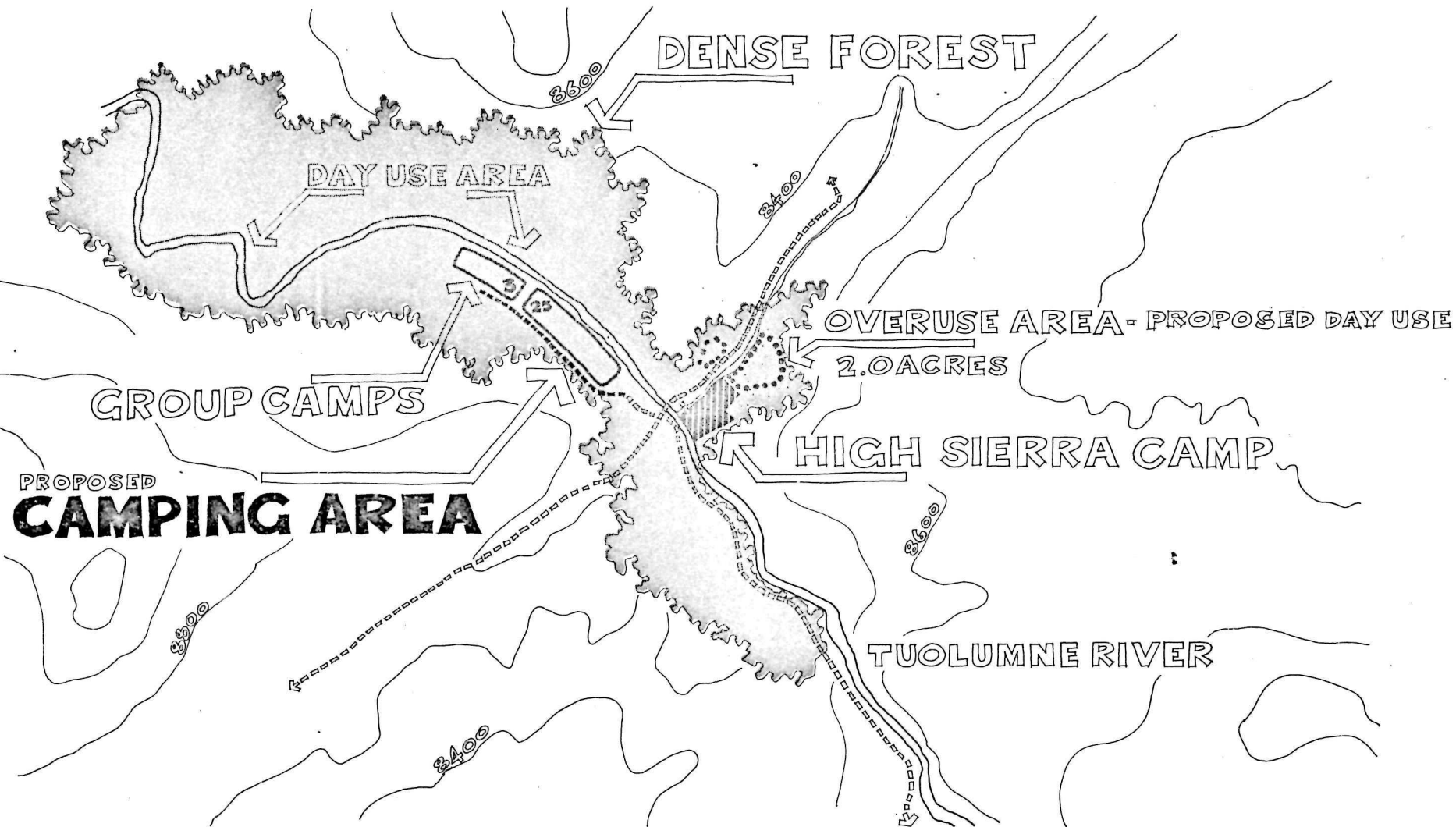
Miles of trail between camp areas without spot camping, from Glen Aulin to:

Cathedral Creek, 4.0 miles; May Lake, 8.0 miles.

*Note: All high sierra camp figures include the total area devoted to the camp, (i.e. tents, sewage facilities, corrals and barns).

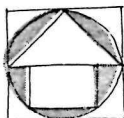


Many large areas of heavily forested flat land with plenty of downed timber and fresh water exist in the Yosemite backcountry to accommodate the wilderness camper. This large forest below Glen Aulin on the Tuolumne River is a typical example.



GLEN AULIN

BACK-COUNTRY STUDY
YOSEMITE NATIONAL PARK



9-10-69

SCALE 0 200 1200

Vogelsang

Total acreage of flat land with areas of lightly forested lodgepole pine and white bark pine (includes flat land around Booth Lake, 6 acres; Vogelsang High Sierra Camp and Fletcher Lake, 12 acres; Townsley Lake, 8 acres. Flat area below the high sierra camp for 2,000 feet toward Emeric Lake, 45 acres):

71 acres.

Total acreage suitable for camping (maximum) (excludes Boothe Lake, Townsley Lake, Vogelsang High Sierra Camp, and all areas below the camp except for a 220-foot-wide strip along Fletcher Creek): 39 acres.

Acreage taken up by high sierra camp: 2.0 acres.

Acreage to be devoted to designated campsites under this proposal: 8 acres.

Miles of trail between camp areas without spot camping from Vogelsang to: Lewis Creek, 3.0 miles; Merced Lake, 8.0 miles; Emeric Lake, 4.0 miles; Merced Lake, 8.0 miles.

BOOTHE LAKE

GROUP CAMPS

PROPOSED
CAMPING AREA

HSC

UPPER
FLETCHER
LAKE

TOWNSLEY
LAKE

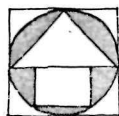
KEY

 CAMPING UNIT

 PROPOSED TRAIL

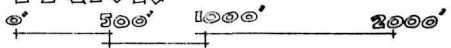
 EXISTING TRAIL

VOGELSANG



BACK-COUNTRY STUDY
YOSEMITE NATIONAL PARK

9-10-69

SCALE 

May Lake

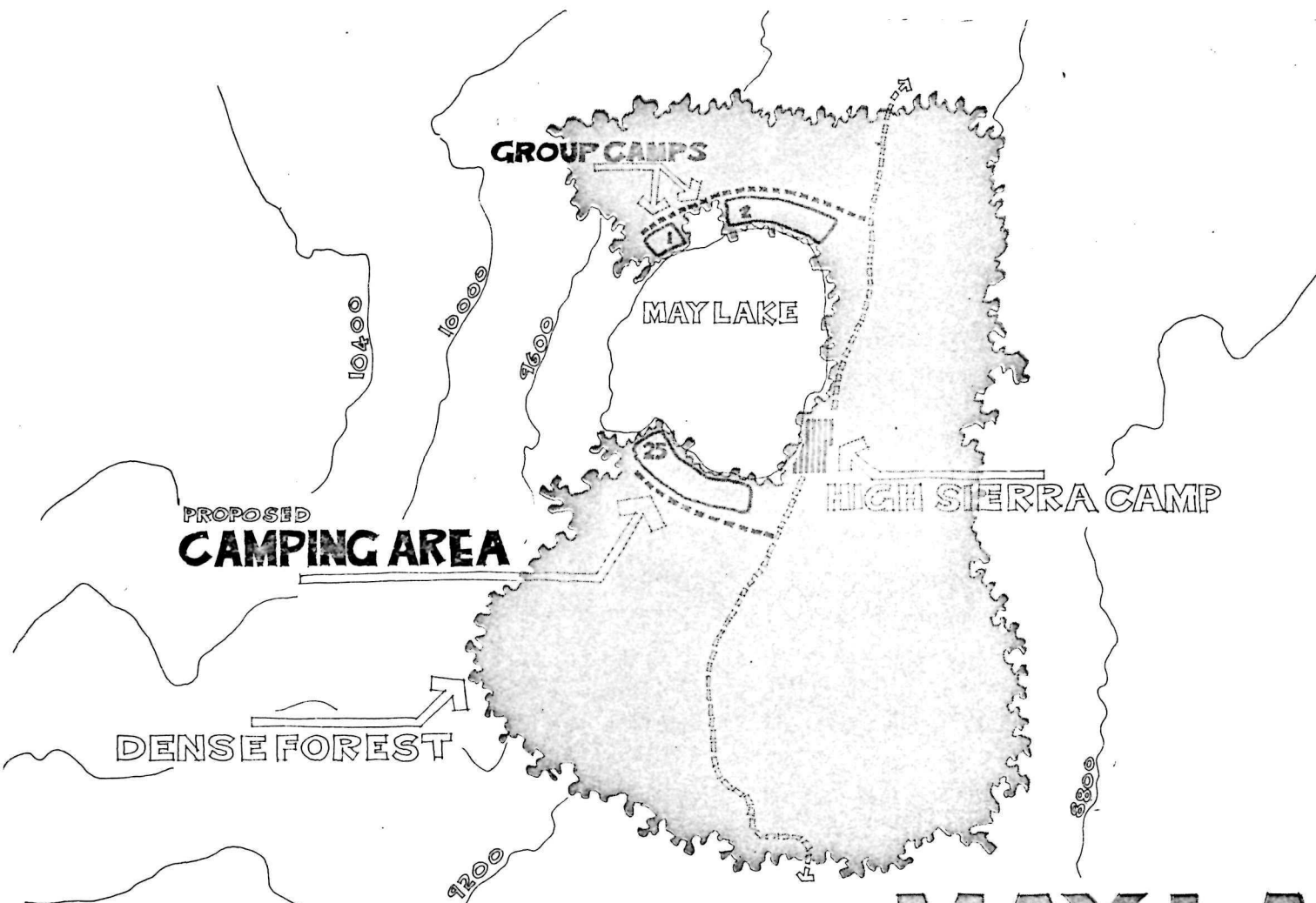
Total acreage of flat land with dense lodgepole pine forest (includes existing camping area at south end of the lake, the high sierra camp, land along the northeast and north end of the lake and 10 acres of land along the fork of Cathedral Creek): 37 acres.

Total acreage suitable for camping (maximum) (Identical to flat land acreage except excludes the high sierra camp land): 26 acres.

Acreage taken up by high sierra camp: 1.8 acres

Acreage to be devoted to designated campsites under this proposal: 8 acres.

Miles of trail between camp areas without spot camping, from May Lake to:
Cathedral Creek campsite, 5.5 miles;
Glen Aulin, 8 miles.



MAY LAKE



BACK-COUNTRY STUDY
YOSEMITE NATIONAL PARK

9-10-69

SCALE 0' 500' 1000' 2000'

Sunrise

Total acreage of flat land with dense lodgepole pine forest and meadows (includes high sierra camp, meadows and tabled lands southwest of camp): 51 acres.

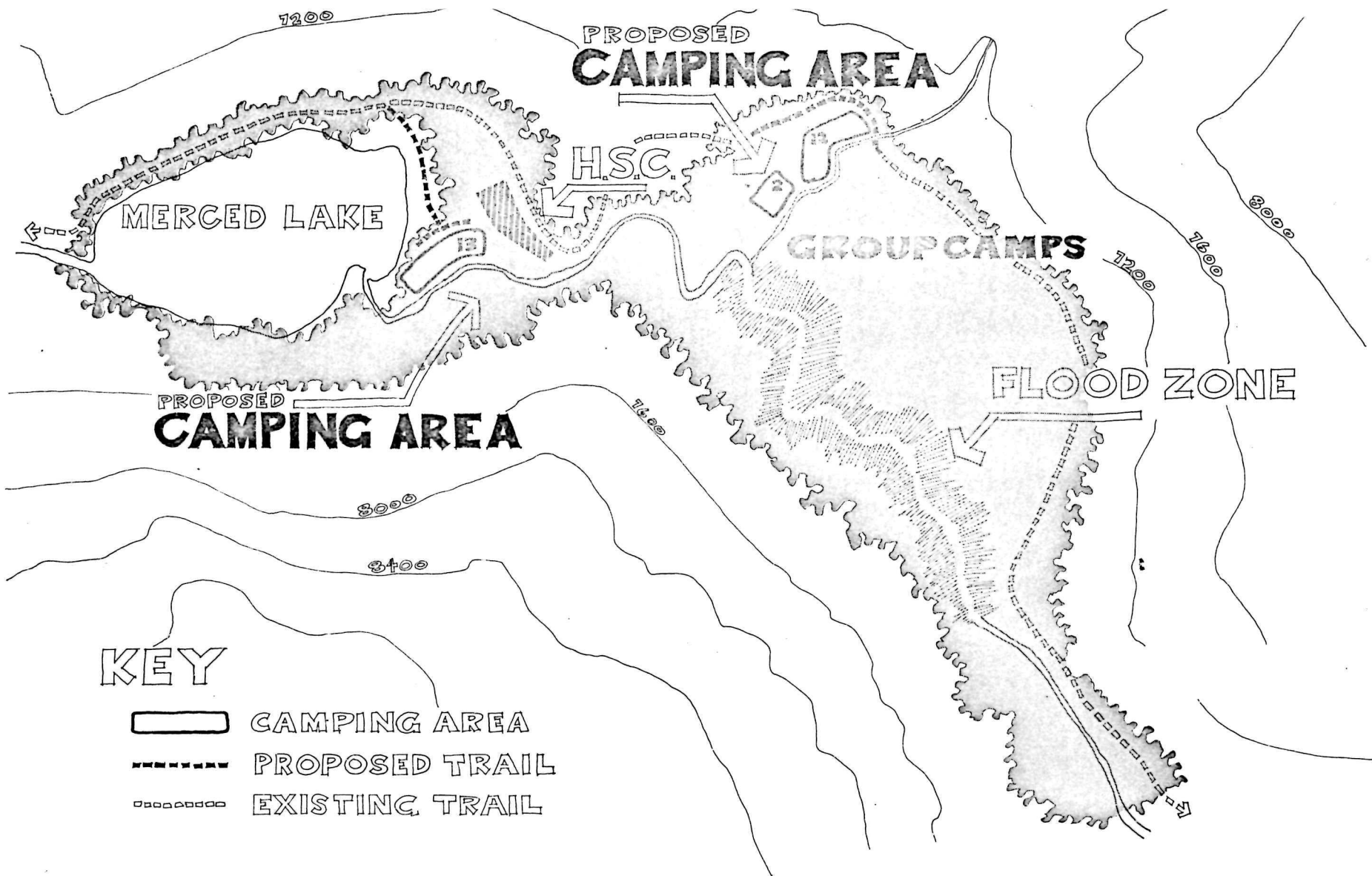
Total acreage suitable for camping (maximum) (identical to flat land figure with exclusion of the meadows): 13 acres.

Acreage taken up by the high sierra camp: 3 acres.

Acreage to be devoted to designated campsites under this proposal: 8 acres.

Miles of trail between camp area without spot camping, from Sunrise to:

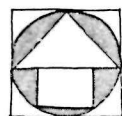
Echo Valley, 6.0 miles; Merced Lake, 8 miles; Sunrise Lakes, 1.0 mile; Lower Cathedral Lake, 5.0 miles.



KEY

-  CAMPING AREA
-  PROPOSED TRAIL
-  EXISTING TRAIL

MERCED LAKE



BACK-COUNTRY STUDY

YOSEMITE NATIONAL PARK

9-10-69

SCALE 0' 500' 1000' 2000'

Little Yosemite Valley

Total acreage of flat land in association
with coniferous forest and meadow
(includes all flat land within the Little
Yosemite Valley): 2,720 acres

Total maximum acreage suitable for
camping (excludes meadows, the flood
plain and areas with decomposed
granite soils): 47 acres.

Acreage to be devoted to
designated campsites under this
proposal: 27 acres.

Miles of trail between camp areas, without
spot camping, from lower Little Yosemite
Valley camping area to:

Upper Little Yosemite Valley camping
area, 2.0 miles; Echo Valley, 7.0 miles; Merced
Lake, 9.0 miles;
Sunrise High Sierra Camp, 8.0 miles.

Design of Designated Campsite Areas

The success of the designated camping concept depends entirely on how well a campsite meets a person or a group's needs. If the site is inadequately planned then a camper will simply remodify his camping environment. Consequently, a landscape architect should be responsible for their design and construction supervision. The sites should be as flexible as possible to meet various camper needs in addition to being well sited for providing a wilderness camping experience.*

Cleanup

Once designated campsites are implemented, a cleanup crew should eliminate the miscellaneous sites along trails which have been constructed. This will provide a pristine wilderness appearance along the trail. Rocks and logs that had been used as campsite building materials should be removed from designated camping areas.

Designated Gas Stove Area

It is as important to provide designated camping sites in timberline areas as in forests; more so if snags of whitebark pine are present and campfires are allowed. Although Yosemite is not a high alpine park, it has a limited number of moderately used camping areas near timberline. In these areas, such as upper Lyell Base Camp, sites should be designated with a small, nondescript base of natural materials for gas stoves. The base will allow those carrying a gas stove and pots to use the base as a flat surface on which to steady their stove and prepare a meal. Although unlikely, if the downed wood supply in a forested area became inadequate and growing vegetation was threatened, a gas stove would then be recommended for the area. To facilitate the change, the primitive fire rings would be filled (i.e. soil cement) to serve as a gas stove base.

* See Appendix "C"



To adequately protect areas where persons camp near timberline, a designated site especially suited for gas stove use is recommended.

CARRYING CAPACITY FOR VISITOR USE ZONES

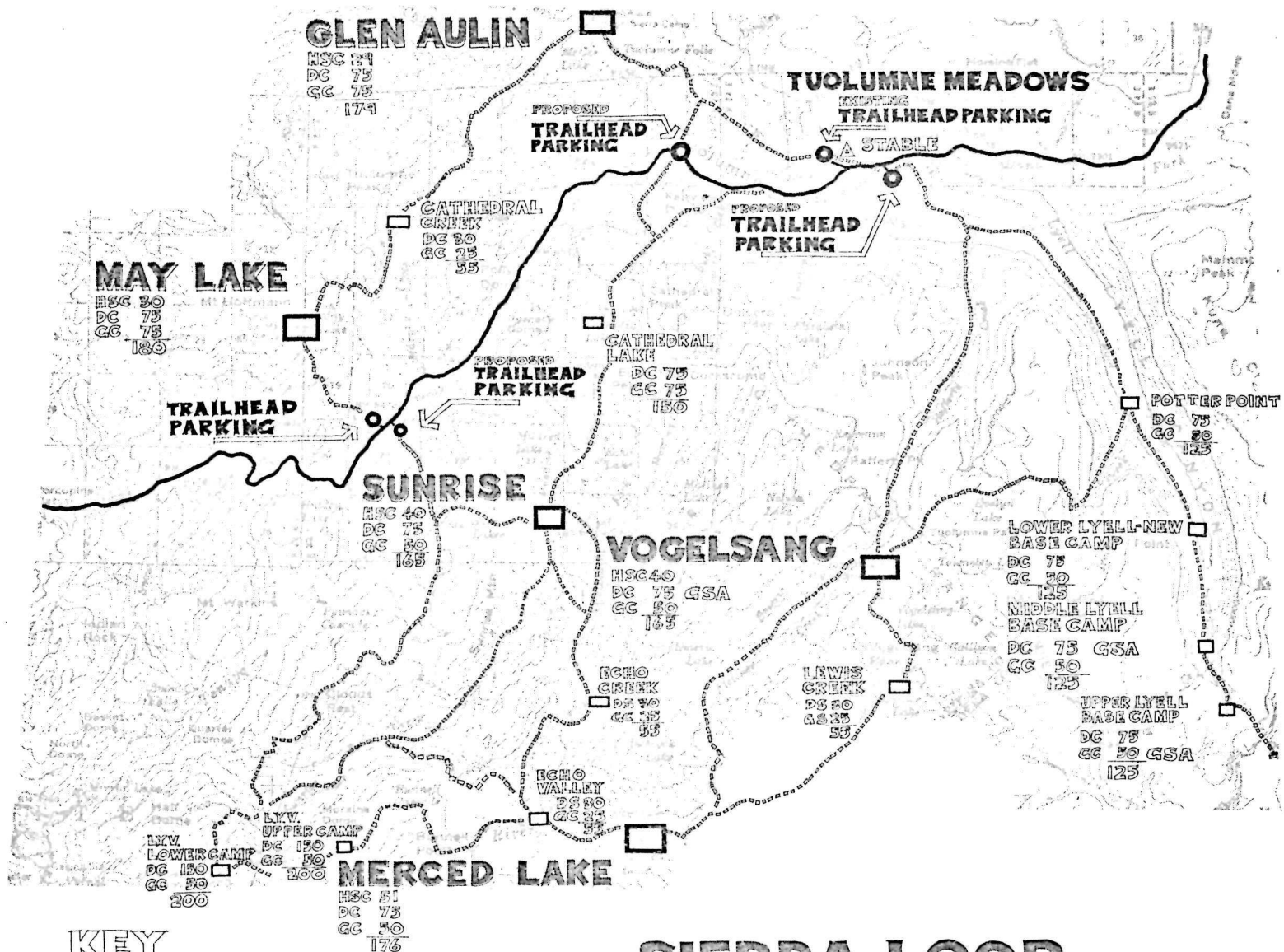
Moderate Use Area

Merced Lake is the most popular overnight area in the Yosemite backcountry with 51 persons being accommodated in the Merced Lake High Sierra Camp* and approximately 50 or less persons in campsites in the vicinity of the high sierra camp. (Campers are represented by 30 or less people in 12 sites and 20+ people in one group site.) A maximum capacity of approximately 180 people is recommended for all areas of the Yosemite backcountry. Using Merced Lake as an example, 51 guests would continue to be accommodated in the high sierra camp. Individual sites would be doubled from 12 to 25 to accommodate 75 people (3 per site), and group sites doubled from 1 to 2 and accommodate 50 persons (25 maximum per site). The recommended capacity is based on:

- (1) the high sierra camps remaining at their present capacity. There is a certain charm about their present size which should be preserved and all high sierra camps are at capacity without more elaborate sewage treatment facilities.
- (2) the large dense forests in such areas as Merced Lake offer desirable wilderness camping conditions for additional visitors;
- (3) 180 persons in one area can be adequately managed by two patrolling rangers;
- (4) doubling campsite use will not require developed water supplies, centralized dishwashing areas or sophisticated sanitary facilities which are inconsistent with the proposed designated campsite concept;
- (5) roughly doubling the number of campers hiking around the high sierra loop trail will not greatly alter the hiking experience since these trails are frequently used now.

Although 180 is the maximum capacity of any area of the backcountry, each area should be considered individually and this capacity will have to be reduced if some unforeseen problem should develop. Designated campsites and group site are to be monitored for any undesirable condition which suggest minor changes. Recommended capacities for a number of areas are shown on the map on the adjacent page using the above mentioned criteria and other factors for potential campsites such as their relationship to water supply, terrain, adequate screening, and other design factors.

* A high sierra camp is a concession operation of framed tents where beds are provided and meals are served to guests. The only access to these camps is by hiking or horseback.



KEY

BACK-COUNTRY CARRYING CAPACITIES SHOWN IN NUMBER OF PERSONS ACCOMMODATED IN EACH CAMP OR CAMPING AREA

HSC - HIGH SIERRA CAMPS - EXISTING
DC - DESIGNATED CAMPSITES - PROPOSED
CC - GROUP CAMPSITES - PROPOSED
CS - GAS STOVES REQD.

*A NUMBER OF UNATTENDED CAMPFIRE SITES EXIST AROUND THE SIERRA LOOP. THESE WILL BE REPLACED BY DESIGNATED CAMPSITES. NO FACILITIES, DEVELOPED WATER SUPPLIES ETC. ARE PROPOSED.

SIERRA LOOP JOHN MUIR TRAIL



BACK-COUNTRY STUDY
YOSEMITE NATIONAL PARK

4-22-64

SCALE 1" = 1 MILE

Intermediate Use Area

In the intermediate zone a much smaller capacity is recommended, using sites as the measure of capacity rather than total numbers of individuals, although the maximum number of individuals allowed in any site would be 25 (aesthetics-sanitation). Group sites are used because the majority of users of this zone are groups. However, individual parties could use these sites, also. Sites would be spaced a minimum of 300 feet apart, in forested locations. The following capacities in sites are proposed as selected examples of intermediate zone capacities: Benson Lake, 3 sites; Rogers Lake, 4 sites; Neall Lake, 1 site; Smedberg Lake, 4 sites; Tilden Lake, 4 sites; Matterhorn Canyon, 8 sites; Chain Lakes Upper, 1 site; Chain Lakes middle, 4 sites; Chain Lakes lower, 4 sites.

Light Use Area

Capacity of the light use zone should not be a problem for some time. The recommended capacity is one party per lake per night. Entrance into this zone when regulations becomes necessary will be by special use permit with the individual filing his intended route and overnight stops with the park. The issuer will then direct additional wilderness users to other areas so that their paths do not meet.

RESERVATION

When there is consistent capacity of several backcountry campsites, a reservation system similar to that used at Rocky Mountain National Park should be implemented. The system consists of one person, a dispatcher, with a master camping book which lists all backcountry campsites. Persons wishing to camp in the backcountry contact a ranger for a permit. The ranger radios the dispatcher giving the proposed itinerary of the hiker. The dispatcher checks his book and informs the ranger that a site is available and a number is given. If the area is full the dispatcher suggests an immediate alternative.

Total Backcountry Carrying Capacity:

Moderate use zone (potential camp- sites)	(people per party)	(total persons)
654 individual	av. 3 per site	1,862
33 group sites	av. 15 per site	495
5 high sierra camps		190
Intermediate use zone*		
(potential campsites)		
131 sites	av. 15 per site	1,965
Light use zone**		
(potential campsites)		
64 sites	av. 5 per site	<u>320</u>
Total daily capacity figure		4,832

*Note: This zone is primarily used by groups 7-25 people per party, with the time, equipment, and experienced leadership necessary to visit the area.

**Note: This zone is regulated to be used by small groups limited to a maximum of 10 per party.

The above figures will be part of an entire park capacity figure. With the large amount of land area involved, the infrequency with which people visit the remote parts of the backcountry and existing patterns of use, this overall figure is academic at this time. What is important is the capacity for specific backcountry areas where there is consistent use. The capacities for these areas have been covered in the text.

TRAILHEAD PARKING

If use is doubled in the moderate use area, then trailhead parking needs to be doubled along the Tioga Road and at Hetch Hetchy. Under the proposed scheme the existing trailhead parking at the Tuolumne Meadows High Sierra Camp will be used solely for the camp and two additional 75-car parking areas will be constructed along the camp entrance road east of the ranger station. Soda Springs parking will remain to serve Parsons Lodge and Young Lakes. If it could be negotiated it would be desirable to terrace a 50-car trailhead parking area east of the new stables and out of view of the meadows. The parking area at Soda Springs could then be substantially reduced in size and visual intrusion on the meadows (if Parsons Lodge remained) or obliterated (if the lodge was ever removed).

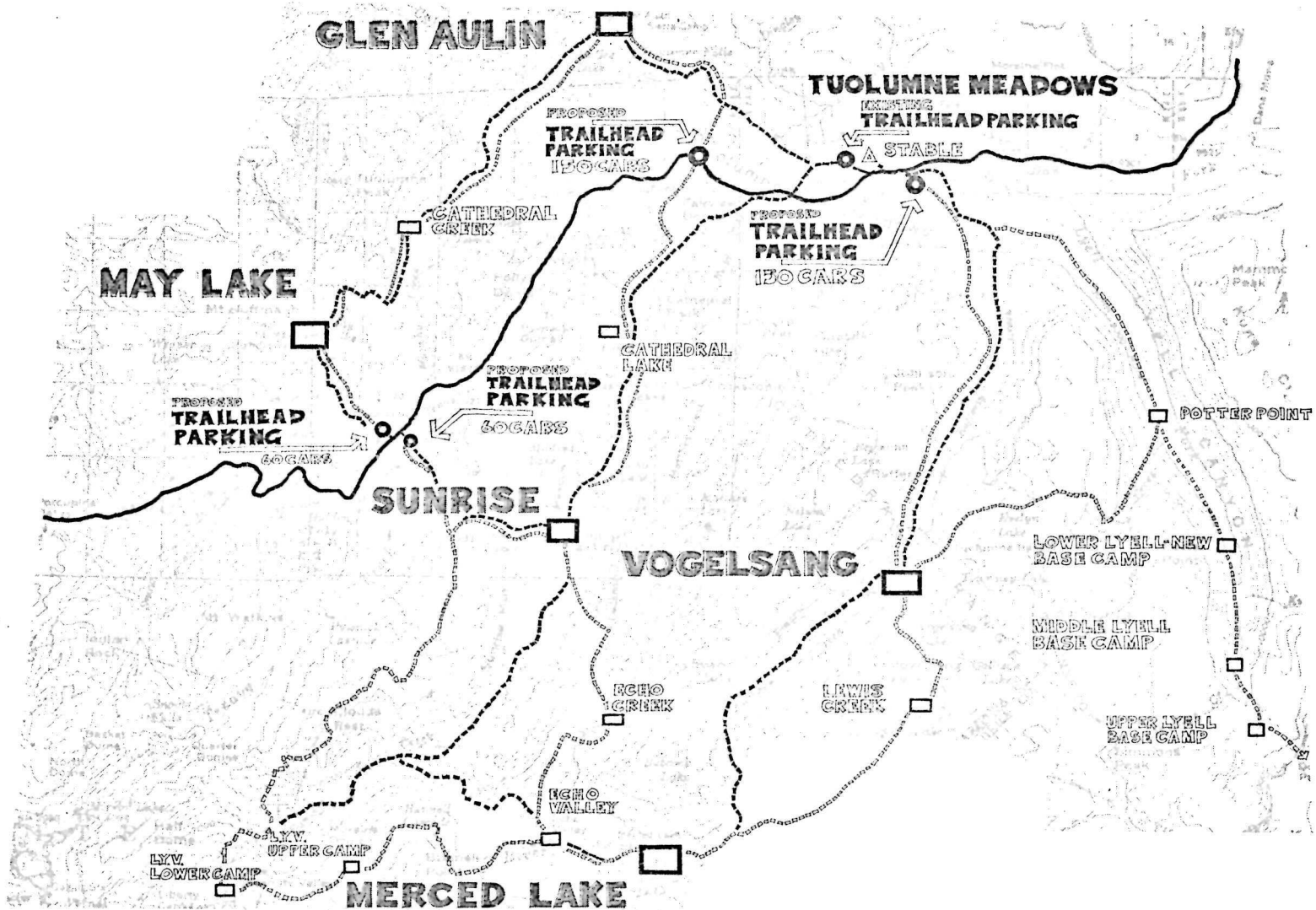
At the end of the service road, on the north side of the Tioga Road 1/8-mile west of Tuolumne Meadows, a 150-car parking area is recommended. This parking area would be the trailhead to Glen Aulin, Cathedral Lakes and Sunrise High Sierra Camp. The existing parking area for Cathedral Lakes would be obliterated. New trails would be constructed to connect this parking area to the Soda Springs-Glen Aulin trail and the Tuolumne Meadows-Cathedral Lake trail. Parking for Tenaya Lake, May Lake and Ten Lakes should also be doubled. The existing Ten Lakes parking should be obliterated and a new parking area for 100 cars constructed in the same vicinity north of and off the Tioga Road.

Trailhead parking for 150 cars is recommended for the Hetch Hetchy area.

Locations for these parking areas are now being selected and described in greater detail in the Yosemite Master Plan and developed area drawings.

HORSE USE AND HIGH SIERRA CAMPS

If the high sierra camps remain and stock parties are a continued use and stock remains to be the best way to service the high sierra camps, then approximately 40 miles of new trails should be constructed to facilitate the separation of hikers and stock. All existing dual trails around the loop would be used and new trails would closely parallel (within one mile) the existing trail, thus not opening additional wilderness to trails. In some instances for short distances where it would be impossible or impracticable to build a dual trail, the existing trail would serve both uses. If the camps should close or saddle trips were discontinued, the trails would provide new backcountry camping areas, one-way hiking trails and trails with fewer hikers on them.



LEGEND

- PROPOSED USE**
- EXISTING TRAIL - HIKING
 - - - - - EXISTING TRAIL - HORSE USE
 - PROPOSED TRAIL - HIKING
 - . - . - PROPOSED TRAIL - HORSE USE

SIERRA LOOP JOHN MUIR TRAIL



BACK-COUNTRY STUDY
YOSEMITE NATIONAL PARK

9-22-64

SCALE



SIGNING

When Congressional wilderness is enacted, a standardized sign similar to the Forest Service wilderness entrance signs should welcome persons to the Yosemite wilderness. These signs should be placed at all major entrances to the wilderness as well as the less popular entrances such as Chiquito Pass, Bond Pass, and the entrance between Cherry Lake and Lake Eleanor. At the time these are erected, the array of signs, wires, and notices which have collected over the years should be removed and simplified and attractive entrances to the Yosemite wilderness developed.

PROTECTION OF REMOTE BACKCOUNTRY CAMPSITES

Overnight stationing or grazing of stock in backcountry camping areas should not be allowed. At remote, yet popular, camping areas where space is at a premium, as at Benson, Smedberg and Rogers Lakes, small corrals should be provided to retain stock. The corrals would be convenient to the camping area, yet off the main trail. A minimum of feed would be flown into these corrals in early season by helicopter. A stock party packing in would be required to pay an advanced fee for the feed and would use his share when he arrived at one of the corrals. These corrals would be very limited in number, constructed only where absolutely necessary to protect campsites and would be an integral part of the grazing-management program for the backcountry.

EDUCATION OF THE WILDERNESS TRAVELER

With the increasing numbers of inexperienced travelers coming to hike in the Yosemite backcountry, it is important to educate them to basic habits which will make their trip more enjoyable and help them to properly use the wilderness. Enforcement is not the answer, as manpower is limited and regulations are of least concern to the visitor who is going in wilderness to (among other things) be free. The newcomer to the backcountry is primed to be educated. He is probably middle class, fairly well educated, and has invested considerable money in equipment to enjoy his wilderness visit. He probably wants to do the right thing, but often does not know what that is. A grass roots approach is suggested, where the Park Service would provide this information at trailheads. It could be in a simple brochure or perhaps printed on plastic cards with "wilderness survival" on the front and "wilderness etiquette" on the back. This information needs to directly relate to the wilderness traveler's journey (i.e. how to have clean cans to packout, how to wash dishes in the backcountry) so that he can discuss it with a friend in the quiet evening hours around a campfire, try it out for himself, or show his son that this is the way it should be done and why.

Also, wilderness education needs to be conveyed in the park's visitor centers, by continued public contacts, and influencing policy decisions in such groups as the boy scouts who, in some instances, have outdated procedures not in the best interests of preserving wilderness.

SANITARY FACILITIES

Sanitary facilities should be provided in the Yosemite backcountry where the Park Service finds them necessary and desirable. They should be wooden, 3-hole pit toilets (3 holes requiring less servicing than a single toilet). The toilets should be located out of view from main trails and camping areas and a minimum of 150 feet from any water supply.

With increasing numbers of people in the wilderness, sanitation is one of the largest problems facing wilderness management. It is a particularly difficult problem because no matter what is done it will be expensive in terms of manpower and money and at the same time wilderness waters will be used by more people for washing, drinking, cooking, fishing, and swimming. The intent of the Congressional Wilderness Act is to always provide pristine wilderness lands and waters for public enjoyment within designated wilderness; a "pristine" level versus a tolerable level where pollution exists but has not reached a level of public hazard. A long range management direction should be explored to implement a program which would allow sanitary waste to be flown or packed out of the Yosemite wilderness. Such an operation might consist of a wooden structure similar to a pit toilet (3 holes) but instead of sewage leading into the soils, a neoprene tube (similar to those used to haul industrial fuels) would be attached to each hole. The tubes would be installed early in the season by helicopter before trails opened and would be capped and attached to a cable with other tubes and flown to a dumping facility at the end of the season. Or smaller neoprene tubes might be used, which could be handled by two men and conveniently hung on either side of a mule. This would be limited to designated campsite areas.

STATISTICS

With more and more backpackers entering the Yosemite wilderness, the management of these visitors and protection of the backcountry becoming increasingly challenging, and the House and Senate hearings to be held to establish Congressional wilderness in Yosemite, it is important that the park undertake a program which will provide decision makers with good visitor statistics on the Yosemite backcountry. The backcountry fire permit data is inadequate and it seems that a backcountry user permit with self-registration might be more effective.

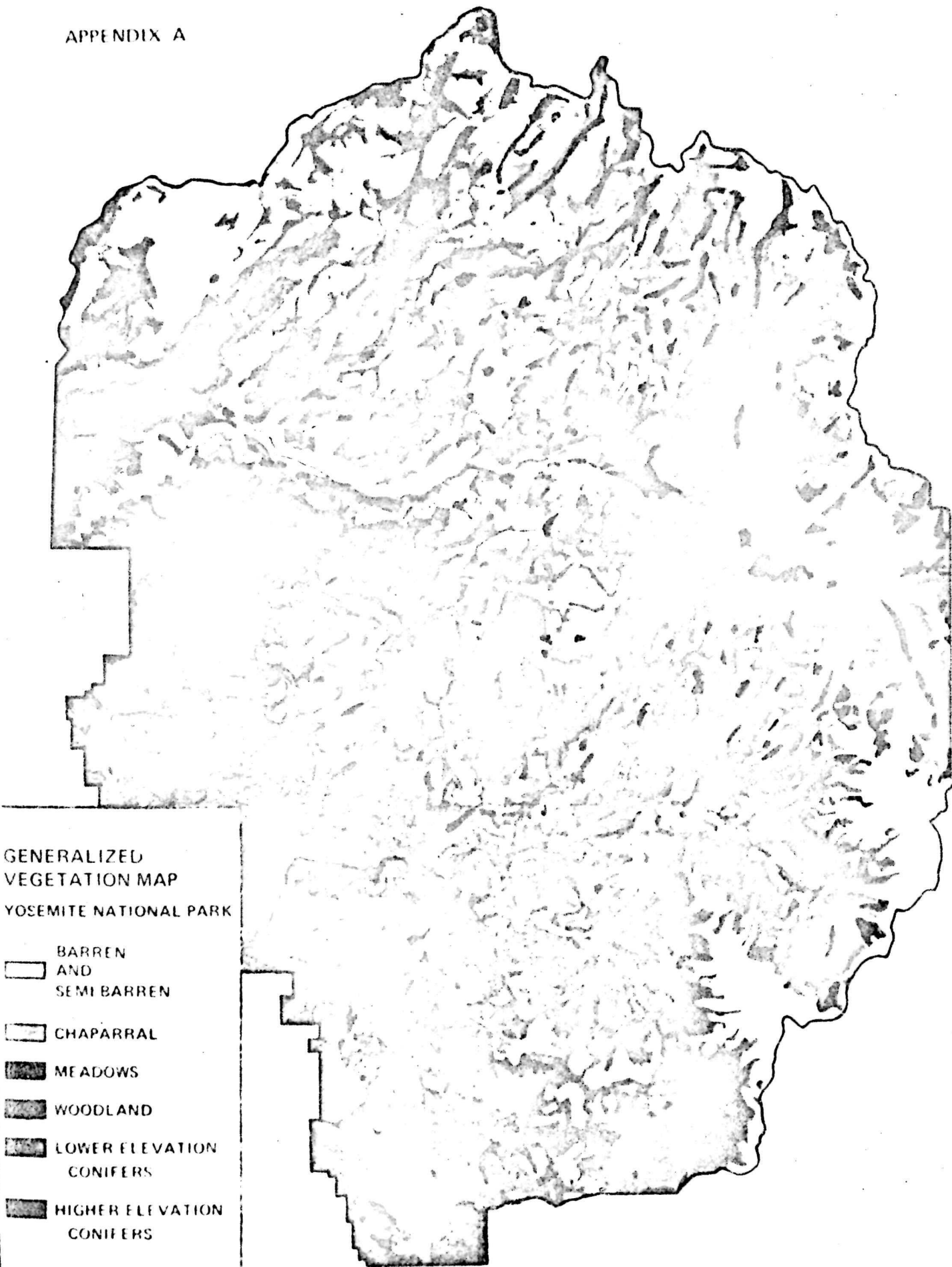
A joint cooperative program with an electronics firm, such as RCA, to develop a battery-operated electric eye counter might also be explored. The U. S. Forest Service is now involved in such a program and anticipating the day when a tape can also be included in the counter to record the number of visitors on a given day. Estimated cost of the devices now being developed is approximately \$200.00 per unit. A self-registration stand in designated camping areas might also be incorporated to record visitation. A page sheet for each day with the designated site number and a sign-in-blank behind the numbered site would show that a particular site was occupied and would keep a record of the sites used and on what days.

In remote trail head entrances, such as Bond Pass, Chiquito Pass, and Fernandez Pass, a self-registration stand should be provided.

GARBAGE REMOVAL

In terms of visual appearance the Yosemite backcountry is cleaner now than in past years. This is primarily due to the continual patrol work done by the Park Service, cleanup trips by conservation groups, and hopefully a more educated public. Garbage left behind by hikers and stock parties should continue to be burned and non-burnable trash packed out of the wilderness. Continued effort should be made to show the public how to have "clean" garbage to pack out and ideas such as providing heavy plastic garbage sacks at trail heads should continually be explored.

APPENDIX A



APPENDIX B

WILDERNESS ZONING GUIDELINES

Moderate Use Area

Overnight Accommodations: Self-selected campsites, designated campsites and high sierra camps. The type of accommodation will depend on the plan for the area.

Trails: A high standard trail well-constructed, maintained in good condition at all times, 4 feet wide to facilitate many hikers and to allow for two persons to leisurely converse about the wilderness they are viewing while hiking in this zone.

Horse Use: Horses are to travel on designated trails and be kept overnight in specified grazing areas and corrals. Emphasis will be given to spot packing.

Sanitary Facilities: A pit toilet and other types of primitive sanitary facilities will be provided to maintain sanitary conditions.

Campfires: Campfires will be allowed in designated and self-selected sites where firewood is sufficient. A gas stove will be required in designated sites near timberline.

Group Use: Groups to be held to 25 persons or less in this zone. This is as a convenience to other campers and to limit potential sanitation problems. Larger groups are subject to breaking up in groups of 25 or less.

Signs: Areas will be well signed, giving directions, trail distances, and elevation changes. Designated camping areas are also signed.

Trail Heads: Where appropriate at moderately used trail heads (primarily Tuolumne Meadows), a comfort station, containing flush toilets, basins, and mirrors, are to be provided for persons to clean up before returning home. Adequate paved parking areas, well off the main road, are also to be provided.

Bridges: Any bridges constructed in this zone will be well designed and harmonize esthetically with their surroundings. They should be a pleasure to see and to cross and not exist simply as an utilitarian means of overcoming a barrier. Natural and nonnatural materials are to be used for bridge construction.

Intermediate Use Area

Overnight Accommodations: Self-selected campsites and designated campsites.

Trail: Lower standard than the moderate use area. Maintained in good condition as funds and personnel allow; 3 feet wide, generally signed. Cairns to mark the trail in some locations.

Horse Use: Horse parties are free to travel all trails and crosscountry and graze in appropriate areas. Stock party size and appropriate grazing areas are to be regulated within the continuing backcountry grazing program. Corrals will be provided where needed for protecting campsites.

Sanitary Facilities: Pit toilets are to be provided only in the few areas requiring this facility.

Campfires: Campfires are allowed in recommended National Park Service camping areas. A few well placed primitive campfire pits are to remain; excessive or poorly placed campfire pits are to be obliterated by trail crews or patrolling rangers. A gas stove is required in timberline areas. Designated campsites, a minimum of 300 feet apart, will be implemented when such measures become necessary.

Group Use: Groups to be held to 25 persons or less for the same reasons as listed under the moderate use zone.

Signs: Signs should appear only at trail junctions and trail heads and will be limited to giving direction and trail distances.

Trail Heads: Limited trail head parking would be provided as needed along park roads.

Bridges: Where appropriate, primitive bridges or structures would be provided to aid horses and hikers to cross streams or crevasses. Bridges are to be made from natural materials in the vicinity of the bridge site. No metal bridges are to be constructed within this zone.

Light Use Area

Overnight Accommodations: Self-selected campsites.

Trails: No trails will be constructed in this area or indicated on U.S.G.S. maps. Existing trails, all of which would be for light use should not be maintained.

Horse Use: Saddle parties and spot-packing would be excluded from this area.

Sanitary Facilities: No sanitary facilities would be provided in this zone.

Campfires: Campfires could be constructed where safe (fire hazard) to do so. After use, campfires are to be dismantled and the area carefully rearranged to its natural undisturbed appearance. Gas stoves are to be used in timber line areas.

Group Use: Group use is subject to special approval as to numbers (10 maximum), route taken, experience and length of stay.

Signs: No signs should be in this zone. Visitors would navigate by observation and/or by a map and compass.

Trail Head: No "trailheads" will be constructed in or adjacent to this area. Emphasis will be placed on entering this area from as many places as possible.

Bridges: No constructed bridges or other man-made structures to assist in crossing of natural barriers would be provided.

In addition to these general guidelines for wilderness zoning, there are others the park staff will want to develop; ranger patrols, fire control, grazing, rescue, and helicopter use are some of these guidelines.

DESIGN FACTORS FOR DESIGNATED CAMPSITES

The layout of designated campsites, if they are to be effective, must consider:

Environmental factors—wind, sun, shade, soil and vegetation.

Visual factors—the proximity of near views and vistas and screening for privacy between campsites.

Social factors—circulation distance between campsites and screening for noise levels.

Individual needs—tall trees between which to stretch a rope for a plastic tent or several trees for tents, or a wide tree with an overhanging branch to hang food away from bears are examples.

The more sensitivity with which the camping unit is laid out, the greater will be its success. And its success will subsequently influence the amount of manpower needed for cleanup and enforcement.

APPENDIX D

ACCESS TO THE YOSEMITE WILDERNESS

With all backcountry resources being about equal in scenery, water, and fishing, the time it takes to hike or ride into an area, the accessibility of the route chosen, and limitations placed on the numbers of persons allowed, is all that will restrict the number of people in the Yosemite wilderness. The present use patterns should not change substantially with the development program and preliminary wilderness boundary proposed in the master plan. However, two other factors could substantially change backcountry user patterns. First is The Minarets Summit highway which would add another major paved road similar to the Tioga Road within 4 miles of the park's south boundary. Extension of a secondary access road at upper Chiquito campground and Quartz Mountain could put a backcountry user within a mile of the park boundary. The existing trail head is approximately 2 miles from the park boundary. The potential effect on the wilderness and the changes in management are obvious. The second factor which might change wilderness use is the existing mining road which leads to a claim on Cherry Creek near the park's north boundary. This road passes through a 6,443-acre deletion from the proposed Emigrant Wilderness which could potentially allow this road, at some future date, to be used for access into the east side of the Emigrant Wilderness and the park's most pristine north country. This road is not a public use road and every effort should be made by the park to work with the Forest Service to keep public use off this road, in the interest of both Services.



Benson Lake country—one of the many spectacular views to be seen along the trail from Ten Lakes to May Lake.



A small lake along the trail on the east side of Tuolumne Peak.



View of the north side of Mount Hoffmann from the south fork of Cathedral Creek.

INVENTORY NOTES

Samples of one of the areas of the backcountry inventoried May 15 to September 21, 1969.*

Trail Section: Happy Isles (Yosemite Valley) to Merced Lake ranger station.

Distance: 13.9 miles

Elevation change: 3,215 feet

Hiking time uphill: Hiking east approximately 8 hours

Hiking time downhill: Hiking west approximately 6 hours

The trail to Merced Lake (approximately 15 miles) is a good day's hike from Happy Isles. Many persons (probably half) prefer to make this distance a 2-day hike, camping in one of these campsite areas: (1) directly east of Nevada Falls, 12 sites; (2) an open area void of shrubs and ground cover, 1 mile above Nevada Falls, 15 sites; (3) in a heavily forested area at the upper end of Little Yosemite Valley, 14 sites and (4) Twin Bridges in Echo Valley, 5 sites. Most campsites are spaced approximately 30 feet apart which, for tree cover, affords some privacy but not a great deal. The closeness of the sites likewise conveys that probably not all the sites are utilized at one time, and that many parties camp with an empty campfire circle between them, with the empty campfire being used on another night. Only the camping area in the Upper Little Yosemite Valley is signed as a place to camp. In addition to these camping areas, there are several, perhaps 20, unauthorized campsites along the trail above Nevada Falls. These campsites, many in very undesirable camping areas, were made probably because of closing darkness, tiredness of the hiker, or more likely the hiker's lack of knowledge that much more desirable camping areas lay shortly ahead. The possibility that these campsites were made by campers who wanted to be alone seems unrealistic as they are constructed along the trail where many persons are hiking late into the evening.

Visual Quality

The trail from Happy Isles to Merced Lake is an exciting one, passing Vernal and Nevada Falls, several cascades and a dripping wall which hikers hike under. A variety of forest types, geologic features and many good vistas, enclosed views and panoramic views are also offered.

Use

Little Yosemite Valley is overused in one sense but not in another. The area receives very heavy use in the camping areas at Nevada Falls and at the lower end of Little Yosemite Valley. This overused appearance is from; ecological damage occurring because the campsites are too close together, approximately 30 feet; the campsites are in full view of everyone hiking or riding near Nevada Falls or through Little Yosemite Valley; and because the lower Little Yosemite Valley camping area is situated on a decomposed granite base which visually communicates an extremely overused appearance.

The total acreage now being overused through lack of planning is approximately 4 acres. Approximately 30 additional acres with good tree cover, heavily downed timber, plenty of fresh water from the Merced River, out of the flood plane and off decomposed granite soils exist in the Little Yosemite Valley. This acreage could be accommodating the backcountry traveler under much more desirable aesthetic and social conditions, through designated campsites.

Recommendation

For Little Yosemite Valley as part of the entire backcountry use plan, it should be recommended that the campsite areas at Nevada Falls and Lower Little Yosemite Valley be converted to day use to better provide for the increasing numbers hiking to the Nevada Falls and Lower Little Yosemite Valley area (approximately 100 at any given time). Two designated camping areas should then be established within Little Yosemite Valley. These are by far the most desirable places to camp but are not now utilized because of the abundance of downed timber in the area and existing camper patterns.

These sites should be implemented in units of 25 campsites each as demand necessitates and should be expanded until the valley's designated campsite carrying capacity is reached. This would be approximately 50+ sites in the lower end of the Valley and 50+ sites in the upper end of the Valley. When complete, 6,000 feet of trail will have to be relocated to provide the necessary screening between the campsite areas and the main trail.

*Written analysis from notes outlined in a notebook carried on all backcountry trips.

APPENDIX G

RECONNAISSANCE

This report is based upon 35 days of field observations in the Yosemite backcountry. Hiking covered 240 miles of park trails and 85 miles were covered by horseback. The entire park backcountry and Minarets Wilderness was flown in a light plane. A list of backcountry camping areas and important regional areas visited follows:

Babock Lake
Beehive Meadows
Benson Lake
Boothe Lake
Budd Lake
Cathedral Lakes
South Cathedral Creek
Chain Lakes
Chilnualna Falls
Cold Canyon
Echo Valley
Elizabeth Lake
Evelyn Lake
Fletcher Lake
Frog Creek
Grant Lakes
Kerrick Canyon
Lake Eleanor
Laurel Lake
Lewis Creek
Little Yosemite Valley
Lyell Base Camps
Matterhorn Canyon
Miguel Meadow
Miller Lake
Neall Lake
Nevada Falls
Poopenaut Valley
Rogers Canyon
Rogers Lake
Stubblefield Canyon
Smedberg Lake
Ten Lakes
Tilden Lake
Townsley Lake
Vernon Lake
Virginia Canyon
Washburn Lake
Waterwheel Falls
Wilmer Lake

Glen Aulin H.S.C.
May Lake H.S.C.
Merced Lake H.S.C.
Sunrise H.S.C.
Vogelsang H.S.C.

Important regional areas visited outside the park:

Agnew Meadows
Cecile Lake
Cherry Valley
Chiquito Pass
Devils Postpile
Ediza Lake
Iceberg Lake
Kennedy Meadows
Leavitt Meadows
Pine Crest
Saddlebag Lake
Shadow Lake
Twin Lakes
Virginia Lakes