

RECREATION PLACES

A Description of Recreation Sites

at Whiskeytown

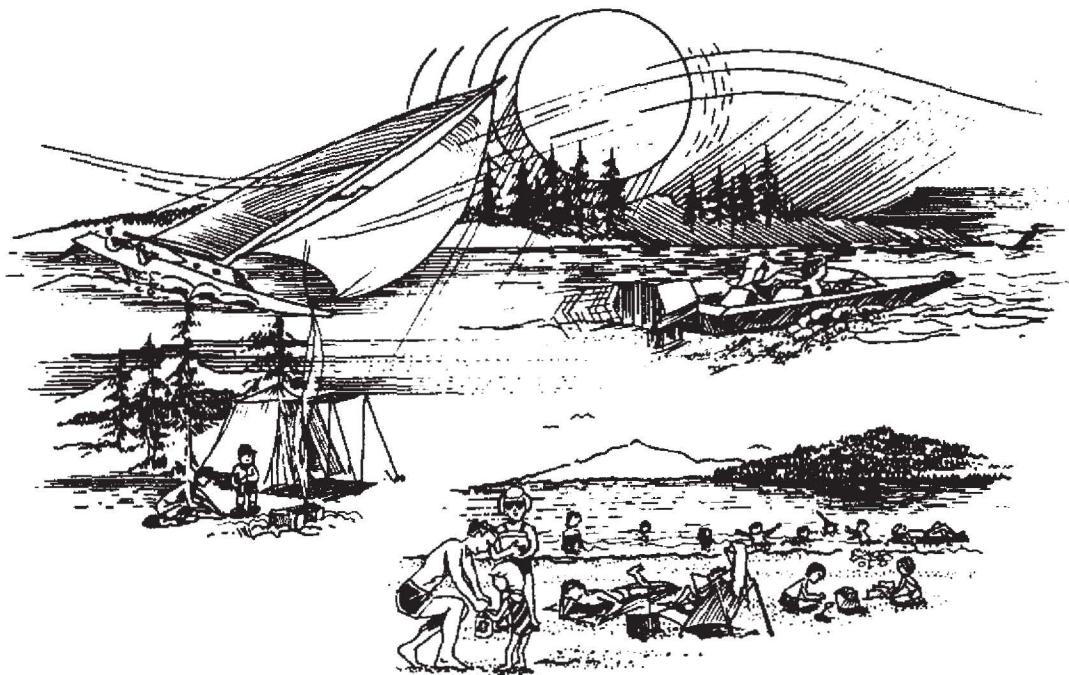
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ERRATA SHEET

Recreation Places: A Description of Recreation Sites at Whiskeytown

Definitions:

INTERGROUP CONTACTS: Social interaction initiated by one or more individuals of one social group with one or more individuals from another social group.

INTRAGROUP CONTACTS: Social interaction among members of the same social group.

On the following pages intergroup should be substituted for intragroup:
p. 7, 10, 18, 21, 34, 36, 41.

On the following pages intragroup should be substituted for intergroup:
p. 7, 13, 18.

RECREATION PLACES

**A Description of Recreation Sites at the Whiskeytown
Unit of the Whiskeytown-Shasta-Trinity National Recreation Area**

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RECREATION PLACES

Recreation experiences are made up of a myriad of factors including the personal background and cultural orientation of individual participants, the expectations individuals bring to a specific recreation outing, the social group within which the recreation experiences take place, and the biophysical environment where the event or outing occurs. In the most general terms, a recreation experience is a combination of the social and biophysical environments.

In recent years this joint interaction of social and biological factors on recreation experiences or leisure behavior has received greater attention. Such terms as leisure settings and recreation places have emerged to convey the interrelationship of people, recreation activity and the environment. Field and Cheek (1974), for example, discussed the recreation of leisure settings. Leisure settings are the social environments created by people as they apply their particular brand of leisure lifestyle upon the biophysical environment. Leisure settings reflect the social meanings assigned to a place by people. The definitions of leisure settings are based upon the joint interaction of people and the biophysical environment they encounter no matter how temporary or permanent the association with the environment becomes. Leisure settings

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The description of leisure settings and recreation places used here is an adaptation from a more complete discussion appearing in D.R. Field, M.E. Lee and K. Martinson, "Human behavior and recreation habitats: conceptual issues". Pp. 227-231. In: Riparian Ecosystems and Their Management: Reconciling Conflicting Uses. USDA For. Serv. Gen. Tech. Rep. RM-120. 1985.

associated with a given environment can be few or many depending upon the number and kinds of social groups present at any one time. Leisure settings are linked to recreation places, the biological or physical resources set aside for recreation.

Recreation places are those "habitats", watersheds, bays, shorelines, picnic areas, campgrounds, parking lots, roadside pullouts, restaurants, subalpine meadow campsites, lake campsites, etc., -- created in part by a land management agency accomodating human use. These places may have intended recreational value given by management, but until people occupy and adapt to the space provided, social environments or leisure settings do not occur. There can be numerous recreation places within designated recreation areas such as National Parks and Forests, just as there can be numerous leisure settings established within and among recreation places.

Figure 1 describes the relationship between people, culture and human behavior and the biophysical environment. In addition, it illustrates that recreation places are provided by management and that leisure settings result from the joint interaction of people, culture and those recreation places.

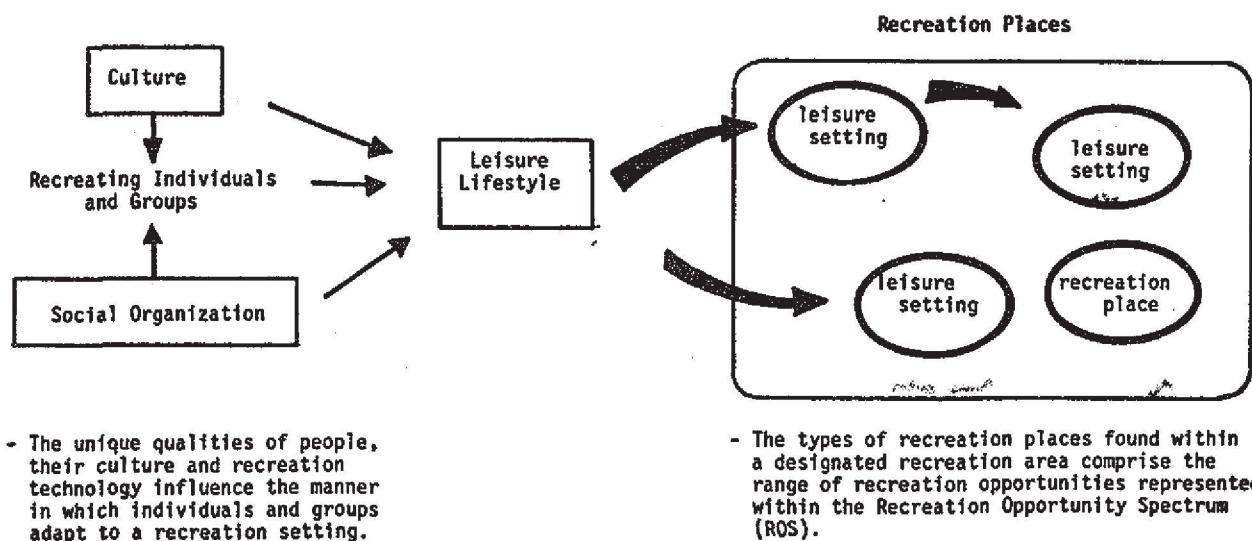


Figure 1. The relationship of people and recreation places for creating leisure settings.

The recreation place people choose to visit can influence and somewhat define the activities they choose as well as the behavior and subsequent experiences that may occur there. The recreation place and its potential influence on recreation experiences is the focus of the Recreation Opportunity Spectrum (ROS). ROS is a framework for understanding the relationship between recreation experiences and the environment. ROS defines a range or spectrum of recreation opportunities, ranging from primitive to urban, that land managers can provide to meet a diversity of recreation opportunities (e.g., Carhart, 1961; King, 1966; Shafer, 1969; and Wagar, 1966). Operationalized, ROS is a system which enables public or private recreation managers to inventory and classify land and water areas according to their capability to provide recreation "potential" as defined within the agency guidelines. Both the USDA Forest Service and USDI Bureau of Land Management have adopted a planning system (Recreation Opportunity Planning) which uses the ROS to inventory and manage their recreation resources (Buist and Hoots, 1982).

Recreation opportunity places, as described by ROS, are composed of three primary elements: the physical attributes -- natural features such as vegetation, bodies of water, and topography; the perceived social environment -- the types of leisure settings people and activities can create; and the management prescription -- the level and types of development, rules and regulations provided by managers (Clark and Stankey, 1979; Stankey and Brown, 1981). These elements, existing in various combinations, can be used by managers to provide diversity in recreation opportunities, and it is these elements over which they have most control.

By offering a variety of "combinations" of such elements where recreationists can pursue a variety of activities (social and physical), recreation managers can provide for the widest possible achievement of desired experiences. This variety in types of recreation places an area provides represents the choices people have when considering outdoor recreation opportunities. Though ROS can be used by land managers to describe what a particular recreation place is like and what visitors might expect to find there, it cannot describe or predict an individual or group choice, behavior, or subsequent experiences that will occur at a particular recreation place (Clark, 1982).

The study of recreation behavior at the Whiskeytown Unit of the Whiskeytown, Shasta, Trinity National Recreation Area includes description of the people who visit the area, how they visit the area, the recreation activities they choose to participate in, the experiences they have, and an examination of the relationship of people to the biophysical environment, (i.e., leisure settings and recreation places).

This report describes 16 recreation places the National Park Service has created at Whiskeytown for public use and around which the research was organized. Consistent with the ROS definition of a recreation place, this report includes a discussion of (1) the biophysical environments at each of the 16 sites; (2) the management activities associated with each site; and (3) a description of the potential social setting at each of the 16 places.

These sites were chosen to reflect the variety of physical settings, activities occurring there, and in levels of management and development at locations around Whiskeytown Lake. Among the 16 sites are four beach

locations, three boat launch sites and four shoreline locations. These sites, along with the Tower House Historical District and the Powerhouse area, capture much of the day use activity at Whiskeytown. The other chosen sites included the two R.V. camping areas and the tent camping area.

A brief discussion of the size, location, and predominant activities is presented for each site, followed by a description of the physical, social, and managerial setting characteristics. A detailed discussion of the vegetation characteristics is also given for each site. Vegetation was sampled in the following manner: (1) the center of human activity was chosen for a starting point; (2) four, 50 m transects were established from that location, two in opposite directions and parallel to the shoreline, while the other two were inland, 45° right and left of the starting point. Vegetation was sampled using a modification of a line transect, point quarter technique (Mueller-Dombois and Ellenberg, 1974). The types and amount of ground cover were recorded for each transect. At the same time, the amount and species of canopy cover was recorded in a continuous manner along that transect line. In addition, the volume and the species of canopy cover was recorded. In the analyses, transects parallel to the water are treated separately from the 45° inland transects. There is also a brief description of the evidence of human impact at each recreation place.

SITE 1

Tower House

The Tower House Historic District provides a variety of recreational opportunities in a rural setting. Totaling 20 acres, this site attracts visitors interested in exploring historic sites, hiking, fishing, gold panning, or just relaxing by the creek.

Located one mile west of Whiskeytown Lake along Highway 299, the Tower House area is accessible directly from the highway or from a short one-lane dirt road.

Physical

Three creeks join together at Site 1; Mill Creek and Crystal Creek both flow into Clear Creek. A rich zone of natural riparian vegetation exists along the creeks, as well as numerous pines, oaks, willows, and a wide variety of shrubs. Several ornamental (non-native) plants are located near the Camden House, and the remnants of a once extensive apple orchard are still visible. A large grass field exists near the barn and is adjacent to the pine and oak forest extending into the hills.

The center of activity chosen for this site was the footbridge over Willow and Crystal creeks. The parallel transects followed the southern banks of the creeks while one 45' transect went through the Tower House yard and the other along the entry road. There was no ground cover along the creek banks, while the 45' transects averaged 40%. The mature riparian vegetation along the creeks provided this site with an extensive canopy cover ($X = 66\%$; $SE = 6.1$), and also a large vegetation volume ($X = 4.1 \text{ m}$; $SE = .48$). The average height that vegetation was entered on the transects was 8.2 m ($SE = .95$) and it was exited at an average of 11.0 m ($SE = .51$). The dense canopy at this site inhibited shrub production, and the 3% shrub

cover was well below the 14% average of all sites.

Social

Use levels are generally quite low at the Tower House area. User density is also quite low and there are rarely more than two parties there at one time. When interpretive programs are presented, use levels and user density increase for short periods of time.

Because of low use level, intragroup contacts are often non-existent. Intragroup contacts are defined as social interaction initiated by one or more individuals of one social group with one or more individuals from another social group occupying the same recreation habitat. Intergroup contacts are defined as social interaction among members of the same social group. However, visitors are often willing to interact with others. It is common for gold panners to chat momentarily with each other as they seek out their favorite areas along the creek.

Managerial

Although the presence of management activities is obvious, there are few services provided for visitors. Seven historic buildings exist and are presently being remodeled, so tools, equipment, and supplies are apparent. A fence exists around the Camden House with numerous "Keep Out" signs. Two portable vault toilets and a trash can are located in the parking area. There are no tables, fire-grills, or drinking water sources.

Interpretive programs occur at the Tower House Historic District which include tours of the Camden House, gold panning demonstrations, and special school programs around the El Dorado Mine area.

Visitor behavior is restricted by various "Keep Out" signs around the Camden House and by rules governing allowable gold panning techniques. The

Tower House area is seldom patrolled by park rangers.

Human Impact

Signs of recent human impact are minimal. There is little litter and erosion. Gold panners are allowed to use small shovels, and in areas along the banks of the creeks where digging has occurred, holes are visible.

SITE 2

Powerhouse

The Powerhouse area provides a variety of recreation opportunities, in a wide range of settings. Although fishing is the predominant activity, visitors also swim, sunbathe, and picnic in this area.

Located at the west end of Whiskeytown Lake, the site is accessible by a two-lane paved road. There are also several small spur roads which lead to the shoreline.

Physical

This site totals 75 acres and ranges from well trimmed lawns to secluded areas with abundant native vegetation. Visitors are found at either sunny grass areas, or fishing next to marsh or shaded wooded areas.

There are many open areas where people can park cars near the shore. The density of roads along the shoreline is more numerous than any of the other 15 sites. A wide variety of natural vegetation and some ornamental plantings grow around the lake and where Clear Creek enters. The lawn area is the only extensive grass covered portion of the park which visitors can use. The 47.2% average ground cover at the site was due, in part, to this lawned area. Although the lawn area is quite open, the numerous trees along the shoreline and inland at other locations within the site resulted in an average canopy cover of 34.6%. Shrub cover was also moderate (average = 10.3%), as was volume of vegetation (average = 2.1 m) and the height at which the canopy was entered (average = 4.6 m) and exited (average = 6.8 m).

Social

The Powerhouse area receives moderate to heavy use. All season long local fishermen can be found recreating. Because the site is large and has an extensive amount of shoreline, user density is relatively low.

There is little intragroup interaction at Site 2. Groups attempt to claim territorial rights to areas by the placement of their vehicles, equipment, and accessories. Natural vegetation provides ample screening.

Many older visitors come to the Powerhouse area because there is good access to the water including several areas where one can drive to the lake's edge. This is beneficial for those who have difficulty carrying gear any distance.

Managerial

The power generation plant is the most obvious structure on the site and includes a large building fenced with barbed wire, two large water inlet pipes, and a high voltage tower. Services provided include drinking water, flush toilets, trash cans, and picnic tables. However, except for a few tables and trash cans, all services are on the south side around the picnic area; the west and north shorelines have no water or toilet facilities. A decorative fountain exists but is not in use.

There is little regimentation of visitor behavior; visitors generally go where they want and do as they wish. The area around the power plant is closed to the public at all times. The Powerhouse area is occasionally patrolled by park rangers.

Human Impact

There is a moderate amount of human impact at Site 2. Heavy use along the shore has caused soil erosion in several areas. Litter in the form of old fishing line and other human refuse is found in many spots. Trash and

toilet paper are common, especially on the north shoreline areas.
Occassionally fish skeletons can be seen in the water where people have
cleaned their days catch.

SITE 3

Highway 299 - Powerhouse to Whiskey Creek Road

Site 3 provides several areas to swim and sunbathe away from developments and human concentrations. There is one area in Site 3 with a swinging rope which is quite popular with teenagers, and considerable socializing occurs there. However, there are numerous small, secluded areas and visitors can easily achieve their desired level of satisfaction for a variety of social affiliations.

This site takes in the northwest shoreline of the lake and follows Highway 299 between the Carr Powerhouse road and the Whiskey Creek road, excluding the Oak Bottom developments. Although many visitors simply park in pull-offs along the highway, there are two dirt roads which lead closer to the shore.

Physical

Site 3 encompasses 215 acres, with the rope-swing being the center of human activity. This site contains natural vegetation, with Canyon live oak, digger pine, manzanita and toyon being the dominant species. Poison oak and Ceanothus sp. are abundant only away from high use human areas. The volume of vegetation (average = 3.4 m) is quite high while the overall height is low (average entry = 2.8 m; average exit = 4.1 m). This results in a dense, low-lying vegetation which is difficult for visitors to penetrate. Because of this, visitor access is generally limited to abandoned roads or, as is more usually the case, make-shift trails leading to the shore, but visitors have little difficulty in finding adequate shade protection.

Social

Although use is moderate, this is one of our largest study sites and people tend to space themselves out causing user density to be quite low. The exception to this low user density is at the popular rope swing area where visitors congregate.

Little social interaction occurs along this highway section. Groups go out of their way to avoid contacts with others. Because there are several coves along the Site 3 shoreline, people can easily get away from the presence of others and claim a large amount of territory for themselves. However, much intergroup social interaction occurs at the rope swing area as people talk with members of their group and encourage others to jump from the rope into the lake.

Managerial

Management provides few services along Site 3; there are no toilets, tables, fire-grills, or drinking water sources. There is one water pump station which is well hidden from view. A jogging/exercise trail exists from the Oak Bottom area to the Carr Powerhouse area, but it is poorly maintained and is infrequently used.

Signing is minimal, consisting of only a few "no parking" signs. Visitor behavior is not regimented and the area is seldom patrolled by park rangers.

Human Impact

Signs of human impact include soil erosion on make-shift trails, elimination of vegetation on trails and along the shore, and litter. As people seek out secluded spots, they make rough trails down the banks to the shore. They also clear away vegetation along the shoreline to expand their useable recreation space. Litter is abundant in spots and consists

of cans, bottles, trash and toilet paper. Human impact is most obvious at the rope swing area where erosion and litter are quite apparent.

SITE 4

Whiskey Creek Road Shoreline

Site 4 extends from Highway 299 to the inlet of the Whiskey Creek. This area is accessible by a two-lane paved road, and provides both developed and undeveloped areas to picnic, swim, or sunbathe. Visitors can either walk down dirt paths to the shoreline from Whiskey Creek Road or use the picnic area access near the Whiskey Creek boat launch.

Physical

Site 4 totals 50 acres and is quite diverse in its vegetational composition. The remote areas along the road contribute to a moderate ground cover (average = 16% along the beach and 42% inland). Like Site 3, the vegetation is quite low (average entry = 2.4 m; average exit = 3.8 m) and has little volume (average = 1.6 m³) typical of a dense chaparral habitat (average shrub cover is = 12% along the beach but 82% inland). Canopy cover (average = 18%) is sparse, and shading for visitors is minimal.

Social

Use at Site 4 is moderate to high. The shoreline is generally within 100 ft. of the roadway and can be accessed quickly. The picnic area receives considerable use and has a higher user density than the undeveloped shoreline.

Intergroup interactions occur as people pass other groups on the way to their desired location. Although people attempt to claim areas as their own, many visitors end up sharing a beach area with others.

Managerial

The undeveloped shoreline section offers no services except for a few trash cans which are located at the pullouts along the road. The developed picnic area has flush toilets, fire-grills, picnic tables, drinking faucets, covered picnic tables, lighting fixtures, a handicapped fishing dock, and paved parking.

Visitor behavior is slightly regimented in that people cannot camp in the picnic area, are allowed to have fires only in the provided fireplaces, and are supposed to leave the center parking spaces for vehicles with boat trailers. The area is occasionally patrolled by park rangers.

Human Impact

Human impact in the undeveloped areas is mainly in the form of litter and erosion. Some trails are very steep and heavily eroded and many of the shoreline areas are totally cleared of vegetation. At the picnic area, human impact is mainly soil compaction and the elimination of wooden debris from the ground. Nearly all pieces of wood have been picked up and used for fires, and many living trees show scars where people have cut or torn away branches for fires.

SITE 5

Whiskey Creek Boat Launch

Whiskey Creek Boat Launch provides a facility for visitors to launch a variety of water vehicles including ski boats, fishing boats, canoes, row boats, and jet skis. Sailboats are rarely put in here because of poor winds on the Whiskey Creek arm of the lake, and because the Highway 299 bridge restricts the passage of larger sailboats.

The Whiskey Creek Boat Launch is accessible by a two-lane paved road, and is located near the north end of the Whiskey Creek arm of the lake.

Physical

Site 5 is the smallest of our study locations, encompassing only two acres. The paved launch minimizes vegetation, but on the sides of the launch ground cover averages 49%. There is little canopy (average = 19%) or shrub (average = 11%) cover at this site. What vegetation is present, is of low stature, being entered at an average of 1.1 m (SE = .27) and exited at an average of 5.81 m (SE = .64) along the beach. There was no vegetation recorded on the 45° inland transects.

Social

Use levels, and user density levels, tend to fluctuate depending on time-of-day and day-of-week. Almost all activity occurs in daylight hours with midday, evening, and weekends being peak use times.

Nearly all activity occurs at the launch pad as visitors launch or withdraw the boats. Some non-bathing use occurs just south of the launch area as people swim or wade in the shallow water. The boat launch is frequently used as the CDFG fish stocking location, and following a stocking visitors often congregate around the launch site to fish. This

area is often used by people in wheel chairs as they can easily access the water. Some boat preparations and checking is done in the parking area.

Visitors spend little time at the boat launch, as they are anxious to get on with their boating recreation. Social courtesy dictates that people load or unload their boats quickly when others are waiting.

Because the launching of a boat normally requires two or more persons, there is much interaction at boat ramps. Usually this is intergroup interaction. Intragroup interaction also is common as people share the boat dock, talking of favorite fishing or skiing areas, or assist others with their boats.

Managerial

Whiskey Creek Boat Launch area consists of a cement launch pad (30' wide), a floating boat dock (30' long), and a paved parking lot. A handicap drinking faucet is also located at this site, and a picnic area and flush toilets are within easy walking distance. Several trash cans are available.

Regimentation of visitor activities includes not parking near the launch pad, parking vehicles with trailers only in the specially designated center area of the parking lot, and not allowing fishing or swimming from the boat dock. Cars without trailers are not supposed to park in the center area of the parking lot, however, this rule is frequently violated and citations are rarely given. Whiskey Creek Boat Launch is regularly (on weekends) patrolled by park rangers.

Human Impact

Because this site has been hardened by cement and pavement, only slight erosion occurs, and this is concentrated just south of the launch ramp where the non-boating activity is common.

Litter in the area is minimal as there are nearby trash cans and people spend little time there. Some aluminum cans and bottle caps are visible in the water near the boat dock. Some gas and oil is spilled near the dock, and this occassionally leaves a thin film on the water surface.

SITE 6

Highway 299 From Whiskey Creek Arm to Information Center

Site 6 extends along a two and a half mile section of Highway 299 between the Visitor Information Center and Whiskey Creek Road. There are several pulloffs where visitors can park. This site offers extensive shoreline recreational opportunities away from developments and other people. The numerous coves and lagoons provide swimmers and sunbathers areas to seclude themselves from other visitors.

Physical

The 75 acres of Site 6 are composed of dense chapparal vegetation (shrub cover average = 49%). Manzanita, snowberry, toyon, buckeye, and poison oak are the principal shrubs. Canopy cover (average = 30% along the beach; 26% inland) is formed by black oak, canyon live oak, digger pine, and incense-cedar. The volume of vegetation, 3.56 m (SE = .72) along the beach and 1.48 m (SE = .29) inland, is typical for dense chapparal sites. Moreover, the vegetation is quite low, being entered at .93 m (SE entered at an average of 1.23 m (SE = .25) and exited at 2.46 m (SE = .27). Because of the thick vegetation, access to the shore occurs mostly on the make-shift trails. Because swimming and sunbathing are the most common activities, many shaded areas go unused.

There are four lagoons on the north side of the highway which offer experiences unique from the lake: the water is generally warmer and calmer, and there is no interference from boats.

Social

Site 6 receives a moderate amount of use. This site offers the closest lake access to Redding and, therefore, receives use from visitors

who often stay only for short periods of time. Because of the large land base, user density remains low. Visitors space themselves out among the many shoreline areas and tend to claim areas as their own territory.

Little intragroup interaction occurs at Site 6. Groups avoid contact with each other and have no reason to interact except at parking areas.

Managerial

Management activity is very low. Several trash cans are provided along the shore, and there is one portable vault toilet. There are no other management services such as formal trails, picnic tables, drinking water sources, or fire-grills. A large, fenced in, water control tower is present at the east end of the site.

Signing is minimal, consisting only of a few parking restriction signs along the highway. Visitor behavior is not regimented, and other than along the main road, the area is seldom patrolled by park rangers.

Human Impact

Soil erosion occurs along many of the steep make-shift trails that visitors use to get to their recreational places. Bank erosion is also apparent in several areas, but appears to be due mainly to wave action.

Litter is the most obvious sign of human impact. Broken glass, cans, and pieces of trash can be seen in almost all areas. Some toilet paper and human fecal material can be found among the bushes.

SITE 7

HQ1 - Information Center to Dam

Site 7 allows visitors the chance to enjoy the shoreline away from the developments and large crowds associated with the formal development beach areas. Site 7 activities include swimming, sunbathing, and picnicking.

This site includes the shoreline on the east side of the lake and extends from the Visitor Center to the dam. The site totals 65 acres and is bisected by a two-lane paved road.

Physical

Most use occurs at one area known locally as "East Beach, "Sunset Beach", or "Flat Beach", and this was the area we chose as the center point for our vegetation transects. There is no ground cover along the beach, but inland it averages 26%. Canopy cover (average = 11%) and shrub cover (average = 7%) were low. However, away from the beach vegetation structure is more similar to sites 3, 4, 6 and 8. At all other locations in this site the vegetation is dense and access to the shore is limited to a few, well used trails.

Social

This area receives moderate use, mostly in the form of local residents who are acquainted with the area. Although much of Site 7 is unused because of the limited access, the East Beach area is heavily used and results in moderate user density.

Social interaction is low, as people tend to keep to themselves. Along the East Beach several other groups are usually present, yet visitors space themselves out and can effectively claim small portions of beach territory. Several coves on the north section of study site area provide

natural screening from other groups.

Managerial

Management provides few services to visitors at Site 7. There are trash cans and two portable vault toilets at the East Beach area, but there are no water faucets, picnic tables, or fire-grills.

Visitor behavior is not regimented. Dogs are allowed and are often present. The area is seldom patrolled by park rangers.

Human Impact

Signs of human impact are minimal at Site 7. Some litter exists, but the trash cans generally help eliminate this problem. Where trails are present they are not steep and erosion is minimal. Most of the vegetative material is unmarred and in a natural condition.

SITE 8

HQ2 - Dam to Brandy Creek

Site 8 provides opportunities for visitors to enjoy the lake away from developments and crowds of people. Although hiking, jogging, and nature study are available along the Davis Gulch Nature Trail, the primary activities at Site 8 are swimming and sunbathing.

Extending from the dam to Brandy Creek Beach, this is the largest of our study sites. But much of this area is unused because it is accessible only by boat. The 15 acres closest to the dam are the most heavily used, and are accessible by a two-lane paved road.

Physical

Site 8 totals 275 acres, the majority of which is not accessible to the visitor. The shoreline areas, which in most cases are accessible only by boat, have little ground cover (average = 6%), but moderate shrub (average = 32%) and canopy (average = 31%) covers. Although the shoreline vegetation is not thick (average volume = 2.3 m; SE = 0.32), it is fairly high, being entered at an average of 2.4 m (SE = 0.33) and exited at 5.2 m (SE = 0.49). The inland vegetation is much higher, being entered at an average height of 5.89 m (SE = 0.89) and exiting at 9.81 m (SE = 0.57). The inland vegetation volume is also greater ($X = 3.25$; $SE = 0.44$) than along the shoreline. This study site contains some of the largest Ponderosa pines that we encountered.

Social

The area receives moderate use and user density is low. Most use occurs near the dam where the shore is close to the roadway; in other areas the roadway is a considerable walking distance and high above the lake.

Visitors tend to be local residents who are familiar with the area.

Social interaction is low. There are several coves and points extending into the lake for people to use. Visitors often expect some privacy and seclusion and tend to space themselves out among the various areas. People's actions demonstrate that they feel they claim large areas of territory to themselves and are reluctant to share an area with others.

Managerial

There are few management developments along Site 8. The Davis Gulch nature Trail exists and there are some trash cans and two portable vault toilets; however, there are no drinking water sources, tables, or fire grills.

Visitor behavior is not regimented and, other than the main road, the area is seldom patrolled by park rangers.

Human Impact

Considerable shoreline erosion is apparent, but much of it appears to be caused by wave action. Erosion on trails to the shore is minimal. Although some litter is present, it is not readily apparent in most places.

SITE 9

Brandy Creek Boat Launch

The Brandy Creek Boat Launch area is often used as a recreation site, as well as a place to launch boats. Although water skiing and fishing boats use the facilities, Brandy Creek Boat Launch is extremely popular with sailboaters and windsurfers because of its desirable wind. This boat launch is also easier for sailors to maneuver in and out of than are the other two launch sites in the park.

Located five miles southwest of the Visitor Information Center, Site 9 is accessible by a winding two-lane paved road. Some local boaters prefer not to use Brandy Creek Boat Launch because the narrow, curving road is difficult to drive.

Physical

Brandy Creek Boat Launch area encompasses a total of eight acres, most of which is a parking lot. Except for a small picnic area and an unimproved strip of shoreline, the site is totally paved. The shoreline consists of sand, dirt, and pavement and is devoid of ground cover. The quarter acre picnic area contributes to the 12% total ground cover on the 45° inland transects. There are no shrubs at this site. Black oak and Ponderosa pine provide 18% canopy cover, with the vegetation being entered at an average of 9.45 m and exited at 13.89 m.

Social

Use is high at Brandy Creek Boat Launch, and is concentrated on weekends. User density is moderate with most visitor use occurring at the strip of shoreline and the boat ramp area.

The Whiskeytown Sailing Club meets informally at Site 9. Several sailing races are held annually, the largest being over Memorial Day weekend.

Social interaction, especially among sailors, is high. Visitors often talk and examine other peoples' equipment as they set up or take down boats. Most interaction occurs along the shoreline or in the parking lot. Windsurfers and sailors often interact as they wait for better wind conditions.

Managerial

Brandy Creek Boat Launch area is well developed and offers the following services: small store, gasoline for boats, flush toilets, lighting fixtures, telephone, picnic tables, and boat ramp with courtesy dock. Nearby is a dry dock boat storage area and boat moorage spaces.

Visitors behavior is controlled by management in that they must park in designated spaces and cannot fish or swim from the courtesy dock. The surrounding water area is posted as a "no wake" zone.

Human Impact

The small picnic area shows signs of extensive use and in some areas bare ground is visible. The strip of shore east of the boat ramp is heavily used by windsurfers and is only dirt and rock in several areas.

Litter is minimal at Brandy Creek boat Launch. There are several trash cans around the site within easy distance of users. The store charges a deposit on the aluminum cans it sells and this helps reduce litter by encouraging people to return them.

SITE 10

Brandy Creek "Teen" Beach

Referred to as the Brandy Creek "Teen" Beach, Site 10 provides a busy beach environment with swimming, sunbathing, and people-watching as the basic recreational activities.

Located five miles from the Visitor Information Center, the Teen Beach totals six acres. Most of this area is a paved parking lot which is accessible by a two-lane road.

Physical

The main physical features of this site are a sandy beach and a paved parking lot. There is no ground cover and virtually no shrub cover. There is some shading available (average = 13% canopy cover) from planted Ponderosa pines and introduced ash, but most visitors prefer the unshaded areas.

Social

Brandy Creek Teen Beach receives high use and has high user density. On peak days, over 500 people gather along this beach. Social interaction is high. In fact, many visitors come here mainly for social interaction. Most visitors are local residents who know that this is the most popular youth "hang-out" at Whiskeytown Lake. Both intragroup and intergroup interaction is high as people associate among themselves and seek associations with others.

Many groups are either all male or all female. As the average age of the group increases, the group tends to become mixed sexes. It is not uncommon for people to cruise the beach, looking for people they know or simply viewing others. There is much display of personal appearances, and

rarely do you find exceptionally unattractive or overweight people at Teen Beach.

Peoples' location on the beach is somewhat affected by other people or by management actions. On a normally crowded day visitors set up the towels and chairs in the middle strip of the beach, thus allowing people to easily walk in front of, or behind, them as they cruise the beach. Often boaters spend some time at the Teen Beach but are restricted to landing their boats on the northern end of the beach. These groups set up their equipment and supplies in a small area between the roped off swimming area and the old boat ramp.

Managerial

Management influence is apparent at the Teen Beach. Services provided include trash cans, flush toilets, drinking water, paved parking, and lighting fixtures. Nearby is a hiking trail, a concession stand, showers, and lifeguards. A small picnic area exists at the south end of the beach.

Visitor behavior is fairly regimented. Visitors must park in designated spaces, most of the water area is roped off to exclude any boats, no fires are allowed on the beach, and dogs are prohibited. The area is frequently patrolled by park rangers who drive through the parking lot and walk the beach.

Human Impact

The predominant sign of human impact is litter. Although there are several trash cans available, and although maintenance people pick up litter on a regular basis, small pieces of trash can be seen along the beach. The water is also littered with some trash and aluminum cans and tends to smell of tanning oils.

The ground near the picnic area is heavily impacted. Because of such high use, there is essentially no vegetation on the ground beneath the trees.

SITE 11

Brandy Creek "Lifeguard" Beach

Site 11 is referred to as the Brandy Creek "Lifeguard" Beach due to the presence of two lifeguard towers. This site provides picnicking, sunbathing, and swimming opportunities.

Located on the south side of the lake, the Lifeguard Beach is adjacent to the Teen Beach. The site totals eight acres and is accessible by a two lane paved road.

Physical

Approximately 92% of this site lacks ground cover. Most of the vegetation is around the picnic area and includes black and canyon live oak trees, and digger pines. With 80% crown closure inland and a 39% average closure over the beach, most visitors could have shade if they desired. But many visitors prefer to lay in the sun. The volume of vegetation over the picnic area ($X = 6.40\text{ m}$; $SE = 0.81$) and its height (enter at an average of 5.18 m ; exit at an average of 13.2 m) contribute greatly to the available shade at this location. Because of high use and management influences, the shrub vegetation density is low (0% shrub cover) and it is, therefore, quite easy to move through the site. Much of the picnic area is along Brandy Creek, which enters the lake at this site.

Social

Site 11 receives high use and has a high user density. Although adjacent to the Teen Beach, the Lifeguard Beach has a much different social environment. Whereas the Teen Beach is mostly single generation groups, the Lifeguard Beach is mainly multi-generational, or family, groups. Because different types of groups use this beach, the established norms and

behavior patterns are quite unlike those at the Teen Beach.

Social interaction is moderate. Unlike the heterosexual interaction at Teen Beach, interaction here is mainly between young children who tend to make friends easily. Most adults do not seek interaction with those outside their group.

Families frequent this site because lifeguards are available to help provide a safe swimming environment for children. Many adults never go in the water, or go in briefly to play with and watch their children. Because they are not as concerned with excessive tanning, most groups set up in the shaded areas instead of the sun. Many older people also use this beach.

Managerial

There are many management services at the Lifeguard Beach. Besides two manned lifeguard stands, there are flush toilets, a dressing room, showers, a snack bar, picnic tables, fire-grills, and water faucets. There is also a floating platform in the water for people to jump off of.

Visitor behavior is fairly regimented. No fires or dogs are allowed on the beach and people must park in designated spaces. Because the water area is roped off from the rest of the lake, no boats can land at the Lifeguard Beach.

Human Impact

Receiving much use, the area is heavily impacted. Almost no ground vegetation exists and there is considerable soil compaction. Numerous trees have broken branches where people have tried to gather firewood. Litter is also apparent but is mainly on the beach area.

SITE 12

Brandy Creek R.V. Area

The Brandy Creek Recreational Vehicle area is a no-fee camping area for self-contained R.V.'s. Meal preparation, relaxation, and overnight camping are the predominant activities.

Site 12 encompasses approximately seven acres along a wooded hilltop ridge. Access is by a two-lane paved road located one-half mile away from the Brandy Creek Boat Launch. There are thirty-six R.V. spaces divided between five separate sections along a dead end road.

Physical

Although much of the site consists of the roadway and R.V. pullouts, vegetation at Brandy Creek R.V. area includes various age classes of pine and oak trees. Using the R.V. sump as our starting location for vegetation sampling, we found an average ground cover of 38% along the parking lot edge, and 61%, on the 45' transects in from the sump. This site had 39% canopy cover over the R.V. lot, and 69% away from the lot. There is, therefore, considerable shading near the road, but many R.V. sites are still exposed to the midday sun. This site also had the tallest ($\bar{X} = 16.88$ m, SE = 1.20 on lot; $\bar{X} = 12.62$ m, SE = 1.21 away from lot) and greatest volume ($\bar{X} = 6.22$ m; SE = .97) of vegetation that we measured at any site.

Social

Use levels are low to moderate at Brandy Creek R.V. area. Although it is free, it is farther away from the water than is the Oak Bottom R.V. area, and the road between the Whiskeytown Visitor Center and Brandy Creek R.V. area is steeper and narrower than is the the road to Oak Bottom.

Visitors space themselves out fairly evenly, and this helps keep user density low. Intragroup interaction is very low as visitors appear to respect other groups' desires for privacy. Intragroup interaction may increase in the spring and fall seasons when the area is used more by people who stay for long period of time (i.e., people who live year round in their R.V.'s).

During the summer of 1985, at least three National Park Service employees and one group of roofers working in Redding lived at the Brandy Creek R.V. area. These people had chosen Brandy Creek R.V. area for financial, rather than recreational reasons.

Managerial

Management provides limited services at Brandy Creek R.V. area. Trash cans, water, and sewage disposal area available, but there are no electrical hookups, tables, fire-grills, or drinking faucets. A steep dirt path leads to the Brandy Creek Picnic area and a short paved trail leads to the road around the lake, but both are unmarked and receive little use.

Visitor behavior is regimented in that users are supposed to park between the white lines designating spaces and are not supposed to set up any tents or have open fires. However, users quite often place their vehicles and equipment into adjoining spaces, and tents are occasionally erected. Park rangers frequently patrol the area but do not appear to enforce the "no tent" rule even though it is clearly marked.

Human Impact

Human impact is minimal at Site 12. Most of the site is covered by pavement and people spend much of their time in other areas around the lake. Because no fires are allowed, the nearby woods still contain much dead and down vegetation material. However, some soil compaction and

clearing has occurred near the R.V. spaces where people set up chairs, tables, and other equipment. A few trees show scars where visitors have hammered nails into them.

SITE 13

Oak Bottom R.V. Area

The Oak Bottom Recreational Vehicle area is an overnight camping fee area for self-contained R.V.'s. Camping, meal preparation, and relaxation are the primary activities at this fee area.

Totaling roughly three acres of level, paved parking area, Oak Bottom R.V. area offers a clean camping experience close to concessions, a boat launch, and a marina. The site contains 46 designated R.V. spaces and is part of a larger parking lot which also accommodates parking for vehicles and boat trailers.

Physical

A narrow strip of dry weeds with occasional manzanita is found on the north side of the parking lot. Two small "islands" exist at each end of the parking lot, both containing two young shade trees. The site is almost totally covered with pavement, and there is essentially no vegetation (ground cover = 2%; canopy cover = 3%; shrub cover = 0%).

Social

Use levels are moderate at Oak Bottom R.V. area. Users' length of stay varies from overnight to more than one week. Many users of Site 13 bring boats with them. For this reason visitors tend to cluster together near the east side of the parking lot to be close to the shore.

Intragroup interaction is much higher at Oak Bottom R.V. than at Brandy Creek R.V. area. Users are closer together and have no natural separations between them, and are, therefore, much more aware of other visitors' actions. Unlike the Brandy Creek area, flush toilets are available and so people pass others going to or from the restrooms. The

outdoor showers available at Oak Bottom Beach are used by many R.V. owners in the morning, and this provides another way in which forced interaction occurs.

A distinct pattern of locating vehicles is established at Site 13. Those using the middle space nearly always park on the west side of their space with the front end of the vehicle pointing north. They set up their chairs and other equipment on the east side because there is no natural shading and in this way their vehicles block out the hot evening sun. They point their vehicles north because almost all R.V.'s have their doors on the passenger side and this allows their doors to be on the east side where their outside activity occurs.

Managerial

Oak Bottom R.V. area is run by a private concessioner. Concession management provides two dumpsters as trash receptacles. Flush toilets and water taps are also located on the site. There are no electrical or sewage hookups although a dump station is close by. There are no tables, fire-grills, or drinking faucets. Within walking distance is a marina, snack stand, store, telephone, and boat ramp.

R.V. users are restricted to the north half of a large parking lot and are required to occupy only one space.

Site 13 is frequently patrolled by park rangers.

Human Impact

Since Site 13 is nearly a hundred percent pavement, further human impact is essentially non-existent. The strip of vegetation to the north of the parking lot, and the two parking lot islands, show signs of heavy use and are bare in many places. Litter is minimal at the Oak Bottom R.V. area.

SITE 14

Oak Bottom Tent Campground

The Oak Bottom Tent Campground provides the only developed car-camping experience near the lake. Common activities include meal preparation and consumption, general relaxing, and overnight sleeping.

The tent campground is located within the Oak Bottom developed area along Highway 299. The site totals 14 acres and has 106 campsites. Several campsites are on the shore and can be accessed by boat; other campsites are accessible by a paved one-way loop through the campground and several paved pathways leading to individual campsites.

Physical

Starting points of our vegetation transects at Site 14 were campsites D7 and B4. These areas had extensive ground cover along the shoreline (71%), but it was one of the few sites where it decreases inland (31%). This site had the greatest canopy cover (70%) that we measured, whereas shrub cover (29%) was average. Vegetation volume ($X = 3.66$, $SE = .49$ along the shore; $X = 4.12$, $SE = .44$ inland) was moderately high, as were average entry (4.54 m) and exit (8.10 m) heights. The extensive cover vegetation at this site ensured that nearly all campsites were shaded, while the moderate shrub layer provided each campsite with privacy.

Social

Use levels, and user density, are very high at Oak Bottom Campground. Often on weekends all campsites are occupied.

Social interaction varies considerably as different visitors bring different expectations and desires for social contact with them. Many users try to maintain a high level of privacy and tend to ignore the

presence of others; several groups go as far as hanging rows of tarps between their camps to keep people from easily looking in. Other campers tend to acknowledge and even seek the acquaintance of those around them; this can extend from polite social greetings to sharing in recreational activities (water skiing, interpretive programs, etc.) to looking forward to seeing "The Smiths" again next year at the campground.

Much social interaction takes place around the restroom areas. There are only two restroom buildings where visitors use the sinks or toilets, gather water for camp, or empty trash. Social interaction here is mainly polite formal interaction consisting mainly of non-verbal communication (i.e., waiting for others, smiles of acknowledgement, etc.). Interaction is highest in the morning as visitors attend to their grooming and hygiene needs.

Managerial

The Oak Bottom Campground is a fee area run by a private concessioner. Services provided include flush toilets, water faucets, and trash cans at two central locations, and a picnic table, fire-grill, and tent pad at each campsite. Other signs of management include a water pump building, paved trails to campsites, cement posts with site numbers, and several signs explaining that some sites can be reserved.

Visitor behavior is fairly regimented. People cannot drive their vehicles on the paved trails and are not supposed to bring toilets into the area. Campsites are designated and must be reserved at the Camp Store. Many sites can be reserved, and those visitors without reservations often end up in less desirable spaces (i.e., far away from their cars). There is also an 11 pm curfew in the campground, at which time all noise and non-camping activities are supposed to end.

Human Impact

Each campsite receives much use and, therefore, is down to bare ground in most areas. The natural vegetation also shows scars from nails in trees, carved initials, and broken branches. Although small pieces of litter are present, most of the litter is picked up by either the campers themselves or by employees of the campground concessioner.

SITE 15

Oak Bottom Beach

The Oak Bottom Beach area provides a sandy beach environment where swimming, picnicking, and sunbathing are common activities.

Site 15 is located in the Oak Bottom developed area between the tent campground and the boat dock. The site totals seven acres and is accessible by a two-lane paved road.

Physical

The Oak Bottom Beach area is 100% bare ground or sand. We chose the middle of the beach at water-line as our major use center, and as a result none of the 50 m transects encountered any vegetation. The vegetation that does exist at this site is located around the picnic area and includes pine and oak trees as well as a few manzanita bushes.

Social

Use level is high but user density varies from low to high. Use is concentrated close to the water along the beach, but many groups use the picnic area adjacent to the beach.

Visitors tend to be local families who come because of the presence of lifeguards, or visitors who are staying in either the tent or R.V. campgrounds. Social interaction is moderate. People interact politely as they go to or from the campground, concession stand, restrooms, or parking area. Little intragroup interaction occurs at the beach as people space themselves out along the sand.

Managerial

There is much management influence at Oak Bottom Beach. Services provided include showers, flush toilets, drinking faucets, telephones, a

concession snack bar, covered picnic tables, fire-grills, paved pathways, and two manned lifeguard stands. Swimming and lifesaving demonstrations also occur here. The parking area is regularly patrolled by park rangers.

Visitor behavior is fairly regimented. No dogs or fires are allowed on the beach, and boats are restricted from entering the area.

Human Impact

Natural ground cover no longer exists at this site due to heavy visitor use. All twigs and sticks have been removed for use as firewood. Several trees have missing branches. The area is well cleaned up by maintenance crews, but some litter still occurs.

SITE 16

Oak Bottom Boat Launch

Site 16 is located in the Oak Bottom developed area between the beach area and the marina. Access to the site is by a two-lane road. Although Oak Bottom Boat Launch is used most by tent and R.V. campers who have brought boats, many day use visitors also launch there. A variety of boats are launched from this site, including fishing boats, ski boats, sail boats, windsurfers, and jet skis.

Physical

Oak Bottom Boat Launch totals three acres in size, however, much of this is a paved parking area. All of the vegetation at this site is along the shoreline. Ground cover averages 51%, canopy cover 18%, and shrub cover 28%. The average volume of vegetation is 1.64 m ($SE = .67$), and is mainly medium stature Digger pine, being entered at a mean height of 2.75 m ($SE = 1.03$) and being exited at 8.32 m ($SE = 1.15$). Shrubs at this location are blackberries, toyon, and manzanita.

Social

Although user density can be high at times, Site 16 is generally only moderately crowded. Most visitor use is concentrated around the boat ramp and courtesy dock, with little continuous activity occurring in the parking lot or along the shoreline. Rarely do visitors have to wait before launching or taking out their boats. The south shoreline is occassionally lined with moored boats. These boats commonly belong to R.V. campers or tent campers who do not have a campsite on the shore.

Managerial

Oak Bottom Boat Launch consists of a cement launch ramp, a courtesy dock, a fish-cleaning sink, and a paved parking area. Nearby, at Oak Bottom beach, are flush toilets, showers, telephone, water faucets, and a snack bar.

Regimentation of visitors includes no fishing or swimming from the dock and no parking near the boat ramp. Park rangers frequently patrol the area.

Human Impact

Human impact at Site 16 is concentrated along the south shoreline. The soil is compacted and eroding from extensive use, and some small trees have been pulled down because visitors have tied their boats to them. Litter is not often visible in the area.

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APPENDIX I

List of Scientific Plant Names Used in This Paper

Buckeye (California scrub)	- <u>Aesculus californica</u>
Alder	- <u>Alnus rhombifolia</u>
Manzanita	- <u>Arctostaphylos</u> sp.
Incense-cedar	- <u>Calocedrus decurrens</u>
Ash	- <u>Fraxinus dipetala</u>
Toyon	- <u>Heteromeles arbutifolia</u>
Ponderosa pine	- <u>Pinus ponderosa</u>
Digger pine	- <u>Pinus sabiniana</u>
Canyon live oak	- <u>Quercus chrysolepis</u>
Black (California) oak	- <u>Quercus kelloggii</u>
Poison-oak	- <u>Rhus diversiloba</u>
Blackberry	- <u>Rubus penetrans</u>
Willow	- <u>Salix</u> spp.
Snowberry (spreading)	- <u>Symphoricarpos acutus</u>