

U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE - SIERRA NATIONAL FOREST

ENVIRONMENTAL ANALYSIS REPORT

An analysis of the environmental impacts of Off-Road Vehicle Use
on the Sierra National Forest.

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I. PURPOSE

The purpose of this environmental analysis is to describe the environmental impacts of Off-Road Vehicle Use on the Sierra National Forest and to select a plan for implementation. Executive Order 11644, the USDA Forest Service Final Environmental Statement on proposed Off-Road Vehicle Regulations and Administrative Instructions, Code of Federal Regulations (36 CFR 295.1-9), and the Forest Service Manual 2351 and 8300 provided direction in completing this process.

The goal, as stated in Executive Order 11644, is to select an ORV plan which will insure that the use of off-road vehicles on Sierra National Forest lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.

II. INTRODUCTION

Direction was given to public land management agencies by Executive Order 11644 to provide for a uniform approach to off-road vehicle use on public lands.

Section 1 states: "It is the purpose of this order to establish policies and provide for procedures that will insure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands."

In accordance with Section 4 of the Executive Order: "The respective agency head shall develop and publish regulations prescribing operating conditions for off-road vehicles on public lands. These regulations shall be directed at protecting resource values, preserving public health, safety, and welfare, and minimizing use conflicts."

Subsequently, the Secretary of Agriculture developed Section 36, Code of Federal Regulations "Use of Off-Road Vehicles", which pertained to National Forest System lands. This Code provided uniform direction for planning, public participation, public information, operating conditions, and monitoring the effects of off-road vehicle use. The regulations were issued on September 25, 1973.

The Chief of the Forest Service directed field units to work within the framework of the Secretary's Regulations to designate areas and trails for off-road vehicle use. This was to be accomplished, whenever possible, in connection with land management planning, but the target date for plan completion was December 31, 1976.

Direction by the Regional Forester, California Region, to the Forest Supervisors was to do ORV planning within the context of Forest and Unit Plans. This direction, and other specifics pertaining to off-road vehicle management, are contained in Regional Supplements to FSM 2351.3.

The Sierra National Forest is developing the Forest and Unit Land Management Plans. We had expected to issue the final environmental statement on these plans by December 1976. Because of the complexity of the planning process, the scheduled date for completion has been extended. Due to the delay in land management planning schedules, it was necessary to prepare an ORV plan as a separate project in order to meet the December 31 date. The current ORV plan is primarily an updating and revision of existing ORV management based on public input. This plan is subject to revision when land management planning is completed to reflect any changes indicated by the final land management plans.

The Sierra National Forest has had an ORV Plan since off-road vehicle controls were first put into effect in 1958. The controls have been adjusted and modified over the years to meet changing conditions and needs. These controls were originally developed with the participation of the public and have been helpful in allowing ORV use, while at the same time providing necessary protection to the basic resources.

Prior to the selection of a new Plan, both public and Forest Service comments and concerns about ORV's were analyzed. Through this analysis, critical issues were identified. As the possible alternative plans and variations were evaluated, efforts were directed toward the solution of these issues. Through this approach of focusing on critical issues, it is felt the best possible plan has been identified.

III. DESCRIPTIONS

A. Physical Geography

Size, Location and Area of Influence - The Sierra National Forest encompasses 1,395,553 acres; 1,286,080 acres of National Forest land and 109,433 acres of private, or other

publicly owned land. The Forest is approximately 72 miles east to west by 60 miles north to south. Forest elevations range from below 1,000 feet on the western boundary to almost 14,000 feet on Mount Humphreys on the eastern boundary.

The Sierra National Forest lies on the west side of the central Sierra Nevada Mountains. The Forest is bordered on the west by the east side foothills of the San Joaquin Valley, on the north by Yosemite National Park and, for a very short distance, by the Stanislaus National Forest, and on the east and south by the Inyo National Forest, Kings Canyon National Park, and the Sequoia National Forest.

The Forest is within a one-hour drive from Madera, a 1½-hour drive from Fresno, a 3-hour drive from Stockton, a 3½-hour drive from Bakersfield and a 6-hour drive from Los Angeles and San Francisco. The communities of Shaver Lake, Big Creek, North Fork, and Bass Lake are all within the Forest.

Geology - Geologically the Forest consists of the widespread granitic rock which form the core of the Sierra Nevada, having intruded in a molten state into the pre-existing rocks. The granitic core outcrops over large areas with some metamorphic remnants of the pre-existing rocks visible in local situations. In some areas the granite is overlain by volcanic rock or material deposited by glacial, or stream action.

Topography - The topography of the Forest varies from high, rugged mountains to rolling foothills. The topography of the higher elevations was formed by glacial action. Knife-edge ridges, sharp peaks, and steep-walled basins frequently containing lakes, all were formed by the abrading action of glaciers. The rolling topography in the lower elevations results from water and wind erosion.

Climate - The weather pattern in the Sierra Nevada is a result of the physical form and the geographic position of the range in relation to the San Joaquin Valley, the Coast Range, and the Pacific Ocean. The climate of the Sierra is extremely variable but has an overall character that makes it an ideal recreation area.

The average annual precipitation of the Forest is approximately 45 to 50 inches, ranging from 23 inches near Meadow Lakes to 82 inches near Iron Mountain. More than half the total precipitation falls in January, February, and March, while less than 3 percent is received in summer. Summers are usually dry, but summer showers are common in the higher

elevations. Snow begins at an ill-defined "snowline" near 4,000 feet and accounts for the majority of precipitation above that point.

The average annual temperature on the Forest ranges from 30°F. to 75°F. The mean temperatures are approximately 80°F. in the summer and 20°F. in the winter.

B. Air Quality

Investigations, now in progress, indicate that the Forest is experiencing increasing impacts from air pollution. Damage to sensitive trees from pollution is widespread in the Southern Sierra Nevada. An Air Resources Board Staff Report (Vegetation Damage Caused By Air Pollution in the San Joaquin Valley Air Basin, 1976) states that symptoms of "smog diseases" were worse in 1976 than in 1974. Ponderosa pine, Jeffrey pine, sugar pine, white fir, and black oak up to elevations of 8,500 feet showed symptoms of damage.

The San Joaquin Valley is the main source of air pollution in the Forest. Oxidants generated by activities in the valley are carried by prevailing airflow patterns into mountain areas. Pollution levels higher than those in urban areas have been recorded in the mountains. Besides causing damage to vegetation, smog results in considerable loss of scenic quality in the foothills and mountains.

Forest Service management activities, such as fuels reduction or type conversion, use fire to dispose of undesirable wood materials. Such projects can cause air pollution. They are planned and executed under conditions specified by the Air Resources Board. These activities may affect local air quality at times, but they rarely affect air quality within the broad San Joaquin Air Basin.

C. Soils

Most of the soils of the Sierra National Forest have evolved from granitic rocks which have weathered in place. In some small areas, mostly in the northern and southern portions of the Forest, soils have developed from basic igneous or sedimentary rocks. Also, small islands of soils derived from alluvium occur throughout the Forest, primarily in the higher elevations.

Soils found in the foothills (2,000 to 4,000 feet) are shallow, slightly acid, moderately coarse textured, and gravelly. These soils are sloping and subject to erosion. Foothill soils have a woodland-grass or brush cover and are important for grazing and wildlife habitat.

Soils found at intermediate elevations (4,000 to 9,000 feet) range from shallow to moderately deep, and are medium to coarse textured. They are also gravelly and acid in reaction. The primary vegetation covering these soils is brush, hardwoods, and coniferous forest.

Above 9,000 feet the ground is mostly rock land, although there are areas of glacially developed soils. These soils are normally shallow and gravelly.

Erosion is a natural process which becomes detrimental when man's intervention accelerates the process. Soils derived from granitic rocks which have weathered in place are particularly susceptible to excessive erosion where they occur on steep slopes. Erosion rates on the Forest are among the lowest in the state. The Forest Service makes erosion hazard analyses on all land disturbing projects.

D. Minerals

At least 180 reported deposits containing minerals of economic value occur on the Forest. Nearly all of these deposits have been explored and some have been past producers. A few are currently being explored and/or are being readied for production.

Most of the Forest is legally open to mineral entry and activity, subject to existing laws and regulations. Road access and development may be impeded in Roadless Areas. This is due to Forest Service commitments to protect wilderness resource values within these areas pending final land management determinations. In classified Wilderness, there are restrictions on the use of mechanized equipment. Also, concern for the preservation of wilderness values may serve to impede legitimate mining activity in these lands.

E. Water

Quality - The quality of surface water on the Sierra National Forest is excellent. The lakes and streams are generally clear and uncontaminated except during periods of high water.

Quantity - The Forest contains major portions of the drainage basins of the San Joaquin, Kings, Merced, Chowchilla, and Fresno Rivers. Runoff from the Sierra National Forest averages 2,478,973 acre-feet annually.

Reservoirs on the Forest have a storage capacity of almost 2 million acre-feet and a total surface area of over 18,000 acres.

Uses - The Sierra's water resource is very valuable for recreation, fish habitat, power generation, and irrigation. Before this water reaches the valley, it represents many miles of mountain streams and numerous lakes that are widely used for fishing and recreation. It is also the power source for 18 hydroelectric projects which have a combined installed capacity of 1,000 megawatts. A new hydroelectric project will provide an additional 1,000 megawatts.

F. Timber Resource

The Sierra National Forest contains 40 percent of the commercial forest land and 36 percent of the sawtimber volume on the National Forest lands of the San Joaquin Planning Area. It supplies 36 percent of the total timber harvested from these lands.

The Forest's timber resource consists primarily of: ponderosa pine, sugar pine, Jeffrey pine, white fir, red fir, and incense cedar. Other conifers occurring on the Forest include lodgepole pine, western white pine, Douglas fir, giant sequoia, mountain hemlock, juniper, white bark pine, limber pine, digger pine, and knobcone pine.

Hardwood species found on the Forest include black oak, blue oak, live oak, aspen, alder, dogwood, cottonwood, sycamore, and maple. Hardwoods are of little significance to the timber resource, but are of great benefit to wildlife for food and cover.

G. Range Resource

The Sierra's range forage resource contains 152,442 acres divided into 46 grazing allotments. These allotments provide more than 24,000 animal unit months (AUM's) grazing annually for about 6,200 cattle and 2,300 horses and mules. Except for some of the annual grass ranges in the foothills, areas suitable for grazing are small and are intermingled with extensive acreages not suitable for grazing and/or are not producing forage. Opportunities to apply intensive management systems to the grazing resource are quite limited.

H. Sensitive Plants

The Federal Endangered Species Act of 1973 directed the Secretary of the Smithsonian Institution to develop a list of sensitive plants. The list has been published but there have been no formal designations of threatened or endangered plants. Nineteen species of plants which are considered by the Smithsonian Institution or the California Native Plant Society to be either rare, threatened, or endangered have been recorded on the Sierra. A

listing of these plants is available in Forest offices and is included in the environmental analysis report for the Forest Land Use Plan.

I. Wildlife and Fisheries

Some 265 species of wildlife are known to occur on the Forest, with nearly every acre supporting animal species of some kind. Wildlife species are divided into four categories: big game; upland game; non-game; and waterfowl.

Big Game - The Forest has three big game species: deer, black bear, and mountain lion.

Deer - Five deer herds have been identified on the Forest. Habitat management plans have been prepared for each in cooperation with the California Department of Fish and Game. In 1975, 71,100 visitor days of hunting big game, almost entirely devoted to deer hunting were recorded on the Forest.

Deer numbers, like most forms of wildlife, fluctuate over a period of time. Higher populations existed in the mid-1960's but, since then, populations have declined to about one-fourth the 1965 levels. A current 10-year (1972-1982) intensive habitat manipulation and research program in the North Kings Deer Herd Unit is trying to determine the reason for, and to reverse, the decline in deer numbers.

Black Bear - The dynamics of bear populations on the Forest are not well understood. However, observations of bear and bear signs indicate that a healthy, viable population exists. Hunter take of black bear has averaged 25 per year over the past 5 years.

Mountain Lion - The lion population is composed of two segments. One segment is the year-round resident population found at elevations between 2,500 and 4,000 feet. The other is migratory, spending summers at elevations above 4,000 feet and moving down for the winter. The majority of the population winters below snowline, apparently depending to a large extent on deer for food.

Upland Game - Small Game Species - Upland game is generally well established, though their abundance varies among the species according to the amount of suitable habitat available. Common species are tree squirrel, cottontail rabbit, brush rabbit, black-tail and whitetail jackrabbit, mourning dove, bandtail pigeon, and both valley and mountain quail. Less abundant are Sierra grouse, wild turkey, and chukar partridge. In 1975, 10,700 visitor days were spent hunting upland and small game.

Non-Game Species - Non-game species are widespread and diverse. Common mammals include raccoon, pine marten, fisher, ring-tailed cat, mink, badger, grey and red fox, weasel, opossum, skunk, beaver, muskrat, bobcat, coyote, etc. Rodents found on the Forest include ground squirrels, packrats, mice, porcupines, gophers, moles, and marmot. Among the numerous species of birds occurring on the Forest are songbirds and raptors (hawks, owls, and eagles). Many species of reptiles and amphibians may also be found.

Waterfowl - Waterfowl use the Forest primarily during migration times and during the winter. Both natural and manmade lakes serve as resting areas during migration, and low elevation reservoirs are used as wintering areas by both ducks and geese. There is little potential conflict between forest management activities and waterfowl use of the Forest.

Fisheries - There are 30 species of fish on the Forest. Popular cold water game fish include rainbow, golden, brown, and brook trout, kokanee salmon, and several salmon hybrids. Warm water game fish include large and small mouth bass, blue gill, crappie, green-eared and red-eared sunfish, and channel and white catfish. Common non-game fish include squawfish, sucker, carp, golden shiner, hitch, speckled dace, and bullhead. Salmon and steelhead no longer run in the Forest's rivers due to stream diversion and reservoir construction.

The Sierra National Forest supported over 510,000 visitor days of fishing in 1975. Most of this was cold water trout fishing. Many miles of the Forest's streams are accessible only by trail or cross-country travel. Because of this, these streams generally support self-sustaining fisheries. However, virtually every stream adjacent to, or crossed by, a major Forest road has become over-fished. The demand for trout fishing has resulted in an extensive fish stocking program operated by the California Department of Fish and Game.

J. Rare, Threatened, and Endangered Animals

There is some confusion concerning this group of animals and their classifications. This is because the federal government and state authorities both maintain lists which do not always agree. Also, the classifications are used under specialized definitions. Threatened, endangered, or rare animals which occur on or near the Forest are:

<u>Animal</u>	<u>Classification</u>	
	<u>Federal</u>	<u>State</u>
Paiute Cutthroat Trout	Threatened	
Lahontan Cutthroat Trout	Threatened	
Limestone Salamander	Endangered	Rare
California Condor	Endangered	Endangered
Southern Bald Eagle	Endangered	Endangered
American Peregrine Falcon	Endangered	Endangered
Wolverine		Rare

Some unique or uncommon species have been identified on the Forest. They are the American osprey, the California spotted owl, and the prairie falcon. The American osprey and the prairie falcon are seen as occasional migrants near the larger reservoirs; but, there have been no consistent sightings during the nesting season to suggest they nest on the Forest. A 1975 survey located 23 pairs of spotted owls indicating a healthy population of the birds.

K. Wilderness Resource

Classified Wilderness - The Sierra currently has approximately 307,375 acres of classified Wilderness. This represents 53 percent of the National Forest Wilderness resource in the San Joaquin Planning Area. The Sierra's Wilderness land is located within its portions of the John Muir and Minarets Wildernesses, and also in the newly established Kaiser Wilderness. The Monarch Wilderness Proposal, now before Congress, would add 15,456 acres of Wilderness to the Forest.

Though recreation is but one of several objectives for which Wilderness is established and managed, it is the greatest use made of the Wilderness. Alpine and sub-alpine areas are particularly attractive to Wilderness users. The high lakes, meadows, and streams bordered by rugged peaks that overlook expansive vistas, provide a setting that draws a majority of recreationists. However, there are also large portions of Wilderness that lack these attractive qualities, or easy trail access, and so receive little or no recreation use.

Recreation also creates the greatest impact on the Wilderness resource. Problems that commonly occur with heavy use are lack of solitude, sanitation problems, site deterioration, damage to vegetation and an excessive number of fire rings.

Wilderness entry permits have been required by the Forest since 1971. Statistics relating to use within travel zones and at entry points, size of party, length of stay, etc., are available. Restrictions on size of party, initiated in 1973, imme-

diately improved opportunities for solitude. Controls such as better distribution of users by area and season are now needed to further improve the quality of the Wilderness experience and to protect the resources in popular areas.

Unroaded Lands - The Sierra has large roadless areas outside classified Wilderness. These back-country areas provide a wide variety of recreation opportunities in a primitive, undeveloped environment. Hiking, horseback riding, off-road vehicle driving, fishing, and hunting are popular in these areas. Some of the greatest conflicts the Sierra has recently experienced have occurred between various special interest groups demanding different uses of these areas' resources. Many special interest groups, from hikers to off-road vehicle users, vie with each other and commercial users for their share of the benefits. Most groups want to dedicate an area to their particular interest, discounting the wants and needs of others.

During the 1972 Roadless Area Review and Evaluation process, over 285,000 acres within several Inventoried Roadless Areas (IRA's) were identified for their wilderness qualities. Two IRA's were selected for formal Wilderness Study. The remaining IRA's are managed to maintain their wilderness values pending final land management determination. Formal Wilderness study will be recommended where wilderness classification appears to be the most suitable management alternative.

The classification (or status) and size of the Forest's Wilderness resource, and other related data is shown in Table 1.

TABLE 1
WILDERNESS RESOURCE
Sierra National Forest
December 1976

<u>Area</u>	<u>Status</u>	<u>Approximate Size (Acres)</u>
John Muir	Wilderness	242,415
Minarets	Wilderness	42,660
Kaiser	Wilderness	22,500
Monarch (High Sierra Primitive Area)	Proposed Wilderness	15,456
North Fork San Joaquin	New Study Area	33,580
Kings River	New Study Area	5,332
North Fork San Joaquin	Inventoried Roadless Area	6,400
South Fork San Joaquin	Inventoried Roadless Area	69,468
Dinkey Lakes	IRA	108,851
Kings River	IRA	20,918
Merced River	IRA	22,120
Five Non-Inventoried Roadless Areas	NIRA	22,940

L. Recreation Resource

About 30 percent of all recreation use of National Forest lands within the San Joaquin Planning Area occurs on the Sierra. Most of this use occurs during July and August. Overflow crowds on weekends are common in many popular recreation sites. In August, overflow crowds occur all week long at Bass and Huntington Lakes.

The Sierra has nine reservoirs which offer a wide range of water-related recreation opportunities and receive significant use. River sports, such as rafting and kayaking, have become popular activities on the Kings and Merced Rivers.

The Sierra has been used by off-road vehicle (ORV) users since the late 1940's. Four-wheel drive vehicles were the primary mode of off-road travel. In recent years, however, trail bikes, motorcycles, snowmobiles, and all-terrain vehicles have become popular.

There has been an upsurge in winter recreation on the Forest. China Peak, the only ski resort on the Forest, is presently expanding its facilities to accommodate greater numbers of downhill skiers. Cross-country skiing has grown considerably in recent years. The Forest has not had much cross-country skiing in the past, but heavy use in Yosemite National Park has caused many skiers to move into adjacent National Forest lands.

Snowmobiling occurs wherever snow conditions permit, except in Wilderness where it is prohibited. Snowmobile and other winter use activities causes some sanitation, parking, and safety problems near roadside parking areas and other areas used heavily by winter recreationists.

Using the Forest for recreation and education purposes has become increasingly popular with organized groups, such as Scouts, churches, and schools. Groups may use 22 organization camps which are privately run under Forest Service permit. These groups use the Forest for backpacking, hiking, fishing, and other activities. Permits are required in the Wilderness but other undeveloped areas have few restrictions on location, size of party, or activities. Group use of unroaded areas has increased considerably since group size was restricted in Wilderness.

M. Visual Resource

A wide variety of landscapes exist on the Sierra. Glaciation has created some very distinctive scenery in the crest zone, whereas the chaparral covered foothills have limited visual appeal. The sloping plateau between the crest and the foothills varies in its scenic quality, depending on local diversity in vegetation and landform.

A visual analysis was made of the Forest according to criteria established in the National Forest Landscape Management Handbook. This process established visual quality objectives (VQO's), for forest lands. VQO's are derived by measuring landscape variations against a set of criteria which include the public's concern for

visual quality. The VQO's are subject to change with management direction, but they represent a standard against which future land management proposals can be evaluated.

Since visual quality objectives are difficult to interpret in terms of land management objectives, a second analysis identified the visual absorption capability (VAC) of the various land units. VAC is defined as the physical ability of the land to support modification without adverse visual impact. Combining VQO and VAC ratings yield visual constraint indices which are used to develop constraints on various projects and activities that affect visual resources.

N. Special Interest Areas

Cultural Resources - Cultural resources are the result of man's past activities, both historical and prehistorical. The Sierra National Forest has inventoried 25 historic sites and 669 archaeological sites. Five of the Forest's cultural sites have been nominated to the National Register of Historic Places.

In managing cultural resources, the current emphasis is on recording and preserving cultural sites. During project planning, cultural resources are surveyed in sufficient detail to identify and preserve the sites.

Natural History Resources - The Sierra has four formally recognized and protected natural history areas. These are the Backbone Creek Research Natural Area, Carpenteria Botanical Area, Teakettle Experimental Forest, and the Kings Caverns Geological Area. Natural resources that may have the potential to be formally designated areas include groves of Giant Sequoia, rare plants, and geological or scenic areas.

Wild, Scenic, and Recreation Rivers - Two rivers running through the Forest have been considered for inclusion in the Wild and Scenic Rivers System. Preliminary reports on the Kings River (from its source to Pine Flat Reservoir) and on the North and Middle Forks of the San Joaquin River (from their source to their junction with the South Fork) were prepared in 1969-70. The study found that both the rivers met the basic standards of the Scenic Rivers System. Recommendations were then made that these rivers should be studied in greater depth at a later time. The South Fork Merced River has been suggested for an initial study, but no action has been taken.

Scenic and Recreation Trails - There are 1,265 miles of foot and horse trails on the Forest. Three hundred and ninety-two miles of these trails are within classified Wilderness. There are also about 80 miles of vehicle ways designated for off-road vehicles on 15 separate vehicle ways. Other than these vehicle ways, no trails have been designated or built to accommodate motorized vehicles. Also, road construction in the Forest has eliminated some trails, and/or their usefulness.

Thirty-six miles of the Pacific Crest Trail, established under the 1968 National Trails System Act, runs along the Sierra Nevadas in the John Muir Wilderness.

Hiking, off-road vehicle (ORV), and snowmobile use has increased dramatically in recent years. Because of this, demand for well-defined and maintained trails and use areas on the Forest also has increased significantly.

Scenic Highways - State Highways 140 and 168 have been proposed for inclusion in the State's Scenic Highway System. Highway 41 might qualify, but it has not been proposed as an addition to the System. Scenic values are considered and protected in planning activities which might affect these highways.

O. Landownership and Uses

Landownership - The Sierra National Forest contains 1,395,553 gross acres, of which 109,433 acres are patented as the result of various land disposal laws, such as the Homestead Act, 1872 Mining Act, and the Timber and Stone Act.

Southern California Edison Company, American Forest Products Company, Pacific Gas and Electric Company, and the Yosemite Mountain Ranch, Ltd., are major landowners, while the remaining private land is owned by several hundred different individuals. The pattern of private inholdings is generally irregular and scattered.

P. Fire Management

An average of 180 wildland fires occur on the Forest each year. Most are in the higher elevations and are caused by lightning. Generally, those occurring in the middle and lower elevations are the only fires that are a threat to the resources. Man-caused fires, starting in the lower elevations and sweeping into the coniferous forest zone, are the most damaging to resources and also the most difficult to control.

Residential development of private land adjacent to and intermingled with the Forest has expanded rapidly. Consequently, there has been a rapid growth of people living in the Forest. This is especially significant during the summer months when the Forest environment becomes highly flammable. Residential structures intermingled with the Forest also complicate wild-land fire control.

The primary objective for current fire planning is to reduce man-caused fires and to control fires at a size and cost which is commensurate with the area's resource values. Fire is a part of the ecosystem (see Glossary) of the Sierra Nevadas. Some vegetative species evolved with fire as a part of their environment and depend upon fire for their continued existence.

Q. Transportation Systems

The Forest's road system consists of 1,720 miles of road ranging from high standard two-lane, bituminous surfaced highways to narrow 4-wheel drive vehicle ways. The Sierra's trail system is discussed in Section N, Scenic and Recreation Trails. Presently, the Forest's transportation system is inadequately maintained primarily due to lack of adequate road maintenance funds. Vehicle ways are maintained by local 4-wheel drive clubs.

The Forest's transportation system supports and affects most uses and resources of the Sierra. Inadequate access is currently a constraint on management of the Forest's total resources.

The Sierra's road system is complemented by 208 miles of county roads and 54 miles of state highways. Madera County Road No. 222 is also Forest Highway No. 74 and State Highway Nos. 41, 140, and 168 are also portions of Forest Highway Nos. 45, 47, and 48.

R. Social and Economic Environment

The Forest contracted with the Center for Regional Studies at California State University, Fresno, for an economic base study of the Forest and its zone of influence. The study analyzed interacting economic forces in the study area. It developed a simulation model to evaluate the economic impact of land management planning decisions on the study area. It included data about resources, inhabitants and workers employed in the area.

The study area consists of the Forest and a 10 mile wide corridor immediately west of the Forest boundary. The study results are available in the Supervisor's Office, Fresno, California.

S. Noise

Sounds alien to a natural forest environment are evaluated by most people on a personal basis. Most sources of unnatural noise on the Forest are site specific (limited to the site) or widely dispersed and in most cases seasonal in nature.

Primary sources of site specific noises are chain saw and bulldozer noise on timber sales, boat motor noise on lakes, and people and vehicle noise in developed areas. Dense tree cover tends to keep chain saw and bulldozer noise very localized, while boating noise is more pervasive because noise travels easily across water.

Primary sources of dispersed noise are motorized vehicles and low flying airplanes. This type of noise has been cited as a basis for conflicts such as where campgrounds and summer home tracts are adjacent to heavily used highways and logging roads; where ORV users and hikers are using the same areas, and where cross-country skiers and snowmobiles are using the same areas. Aircraft noise, particularly military aircraft doing low flying maneuvers, has been recognized as intruding on backwoods and wilderness experiences. The military is cooperating with the Forest Service to limit these intrusions.

The State of California has a noise pollution law which is designed to control sound emissions to a safe level. Forest management direction calls for cooperation with this law.

T. Hazardous Substances

All solid waste generated within the Forest is collected and removed to disposal sites in the San Joaquin Valley. Sanitary wastes generated at high use recreation sites are handled by one of two means: septic systems with leach fields, or vault type toilets which are pumped periodically and the materials hauled to disposal facilities. Some earth pit toilets remain in use at low use recreational areas. However, Forest Service policy requires that these installations be replaced by other, safer means of handling sanitary waste as rapidly as funds are available for that purpose. Wilderness and back-country travelers are provided with material describing acceptable means of waste disposal.

Sewage treatment plants are being installed in those high use areas which cannot meet water quality standards by the previously described methods of disposal.

IV. DESCRIPTION OF SELECTED PLAN

- A. The selected plan varies only slightly from current ORV management. The changes from present management were primarily a result of the analysis of public comment at land management planning meetings, ORV plan meetings, and comments received on a draft ORV Plan mailed to over 300 individuals and groups. The public participation in the development of the final plan is discussed in the Consultation With Others section of this report.

Two working group meetings for primary interest groups were held in the fall of 1976 to provide final input into the resolution of the final ORV Plan. Representing their respective interests, these individuals provided data on use areas and use conflicts. They assisted in identifying constraints and areas of suitability. This information, along with public input received in other meetings and through letters, was used in the formulation of the final plan.

The final plan defines where ORV use is permitted and conditions related to ORV activity:

Category III - Open Use. Defined as areas and trails which are suitable for ORV use, restricted only by operating conditions set forth in the Code of Federal Regulations.

Category II - Limited Use. Defined as areas and trails which are suitable for ORV use under specified controls.

Category I - Non-use. Defined as areas and trail which are not suitable for ORV use because of adverse impacts or legislative constraints.

All roads and trails will be included and categorized for each type of use.

- B. Description of ORV Zones, Regulation, and Acres (Selected Plan)
See map in Appendix.

Zone A

Description of Area - Minarets, John Muir, and Kaiser Wildernesses and Proposed Monarch Wilderness.

Regulation - Category I - Closed to ORV use.

Acres - Approximately 322,831.

Zone B

Description of Area - Includes Roadless Areas on Forest, the existing motor vehicle control area (Watershed Protection Area) and the Teakettle Experimental Forest.

Regulation - Category II - Off-road vehicle travel on designated routes only, except over snow travel. Snowmobiles are not restricted to designated routes. Because of resource sensitivity or competing land uses, cross-country travel by wheeled vehicles is not allowed.

Acres - Approximately 294,500.

Zone C

Description of Area - Winter sports site at China Peak and snowplay area at Summerdale Campground.

Regulation - Closed to cross-country use by over snow vehicles; land and over snow travel on designated routes only. Because of competing land uses and resource sensitivity, cross-country travel by both wheeled vehicles and snowmobiles is not permitted.

Acres - Approximately 1,000.

Zone D

Description of Area - Lower elevation area of the Forest below the Watershed Protection Area.

Regulation - Snow travel and land travel open, except the use of vehicles may be prohibited in specific locations yearlong or during certain seasons of the year to prevent damage or reduce user conflicts.

Acres - Approximately 653,322.

Zone E

Description of Area - Winter use area on Tamarack Ridge adjacent to Highway 168.

Regulation - Over snow vehicle and other off-road vehicle use on designated routes only.

Acres - Approximately 1,000.

C. Operating Conditions and Travel Rules - See maps and plan in Appendix

D. Opportunities for Off-Road Vehicle Use

This Plan provides the following opportunities for the use of off-road vehicles on National Forest lands, roads, and trails within the Sierra National Forest.

1. Land Travel

- a. During the spring-through-fall period, when acceptable soil moisture conditions exist, approximately 1,600 miles of National Forest maintained roads in Zones B, C, D, and E are available for use or as access to unrestricted areas and designated routes.
- b. Within Zone B about 80 miles of ORV trails are available for land travel use during the summer and early fall months.
- c. The largest zone is D with an estimated 653,300 acres. Off-road travel is permitted during the spring-to-fall period, when soil moisture and fire weather conditions permit off-road travel. Within Zone D restrictions or closures of small areas, roads, or trails may be in effect on a permanent or temporary basis to protect resources. Examples of these "spot closures" would be around campgrounds, historic or archaeological sites, and animal or plant habitats requiring protection.
- d. When wet soil conditions require seasonal closure of all land travel in Zone D about 225 miles of designated all-season routes will remain open to use (45 miles Forest Service and 175 miles state and county roads).

2. Over Snow Travel

In Zones B, C, and D there are about 857,600 acres theoretically available to over snow travel. Approximately 450,000 acres of this acreage is below the normal snowline and hence not generally usable. The area is further reduced by distance by all-weather roads and the requirement of a minimum of 6 inches of snow on the ground before use is allowed.

Additional ORV opportunities will receive consideration where; (a) this use is compatible with other forest users, (b) there is a demonstrated need for this use, and (c) financing is available to develop and/or maintain the use.

TABLE 2

ACREAGE AVAILABLE BY USE CATEGORY

<u>Use Category</u>	<u>Type of Vehicle</u> ^{1/}				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Non-Use (I)	325,000		325,000		325,000
Limited Use (II)	857,653 ^{3/}		5,000		857,653
Open Use (III)	-0-		852,653		-0-
Total Acres	1,286,080		1,286,080 ^{2/}		1,286,180

^{1/} 1-Motorcycles; 2-Jeep (4-WD); 3-Snowmobiles; 4-All terrain vehicles; 5-Others.

^{2/} 5,000 acres have travel restricted to designated routes. Of the 852,653 acres considered as open use, approximately 450,000 acres is below the normal snowline.

^{3/} Zone D is considered as limited use because it is subject to seasonal or yearlong closures on a spot and/or area basis.

V. ENVIRONMENTAL EFFECTS OF THE PROPOSED PLAN

The selected ORV Plan affects the entire realm of National Forest activities and management. It affects air, water, and noise pollution. It affects soil, vegetation, wildlife, and recreation management. Primarily, it affects the type of recreation that people come to the Sierra to enjoy. These "people" effects can be either favorable or unfavorable, depending on the individual's perception of and/or interest in ORV use.

The environmental effects of ORV use on the Sierra National Forest are:

A. Air

There are temporary impacts on air quality from vehicle use. The impacts include dust created by vehicles traveling on dusty roads and trails or across areas that have loose soils and sparse vegetation. Emissions from internal combustion engines adversely

affect air quality, generally in localized areas. These impacts are usually of short duration. However, the amount is increased with concentrations of vehicles using a given area. The smell caused by off-road vehicle use is also objectionable to many non-motorized recreationists and is a cause of user conflicts.

The present level of ORV use is not significantly affecting air quality. Air pollution from ORV's is minor compared to what is blown in from the San Joaquin Valley.

B. Soil

ORV use has a high potential for affecting the soil resource. In order to protect the soil from unacceptable damage, the following criteria will be considered when designating areas, roads, or trails as open or closed to ORV use:

1. Soils having cryic (cold) soil temperature regimes are not suitable for cross-country wheeled vehicle activity. These soils provide short growing seasons, in which natural revegetation is very slow. Because these disturbed areas revegetate very slowly, they are subjected to the erosional forces caused by vehicles for long periods of time. Soils having high erosion potentials are not suitable for cross-country ORV activity; soils having moderate erosion potentials may also require ORV limitations and regulations.
2. Areas having high landslide hazards are not suitable for cross-country travel by ORV's. Such use may trigger an active landslide or activate a dormant slide. Areas of moderate landslide hazards require ORV limitations and regulations. (Landslide hazards on the Forest are recognized but are not considered to be of such severity as to seriously limit ORV activity.)
3. During the dry season, areas of high moisture or areas having shallow water tables are unsuitable for ORV activity. These areas include springs, seeps, and meadows. The effects of ORV activity in these areas are compaction, rutting, displacement of soil, removal of vegetation, and increased erosion.
4. During the wet season, soils of low trafficability are unsuitable for cross-country ORV activity. (Low trafficability means the soil can support only minimal traffic before damage occurs.) These soils have heavy loam to clay subsoils and occur mostly below 5,000 feet elevation. Loamy soils of moderate trafficability require ORV limitations and regulations.

Road damage is the present major impact from wheeled vehicles Forest-wide. This damage is primarily attributed to the use of wheeled vehicles (sedans, pickups, trucks, and four-wheel drive vehicles) on wet or saturated road surfaces. Most damage occurs at three times of the year: (1) during the deer and bear hunting seasons in areas below 7,000 feet elevation; (2) during the opening weeks of trout season; and (3) during the spring snow-melt periods at higher elevations. At these times unsurfaced roadbeds are subject to rutting and deformation. The result is accelerated erosion, in which the sediments eventually reach stream courses. Soil damage due to motorbike use occurs mostly on trails and in roadless, steep areas. Snowmobiles are causing little or no soil damage. A potential source of road damage, however, is the hauling of snowmobiles over unsurfaced roadbeds to reach the snow-covered areas.

To deal with this impact, it is necessary to regulate land travel during wet weather periods. The procedures used for determining the time of closures will be based on precipitation. The closure would take effect when it has been determined that sufficient precipitation has fallen to cause unacceptable damage to areas, roads, or trails if used by vehicles.

C. Water

ORV impacts to the watershed are similar to those of other man-made impacts. Soil erosion and decreased water quality occur if one or more of the following events happen: (1) the soil is disturbed or laid bare, increasing the velocity of the water striking or flowing across this soil, thereby increasing the water's ability to move soil and rock; (2) water becomes concentrated or the volume of the flow is increased, increasing the ability of the water to move soil and rock; (3) the infiltration and percolation rates of the soils are decreased by soil compaction or destruction of organic matter, hence, an increased rate of runoff.

If the above disturbances are prevented, little watershed damage occurs. The most sensitive areas are the streamside zones. These areas are affected by road location and construction, stock grazing, recreation facilities, logging, and ORV use.

Use of ORV's in some areas can rut roads and slopes and break down streambanks or cause loosening of soils in or adjacent to streams, resulting in erosion and siltation. Use of ORV's in stream channels will adversely affect habitats of fish and other aquatic life.

Undoubtedly, there is some effect on water quality by ORV users in the National Forest. However, there is no data available on

the Sierra National Forest that accurately measures the amount of pollution and sedimentation that can be directly attributed to this activity. Indications are that ORV use of the forest contribute only a minor amount of the pollution or sedimentation occurring in watercourses on the Sierra.

D. Vegetation

Impacts from vehicle use includes damage to young trees by running over them, breaking the tops of trees, etc. Areas particularly susceptible to this kind of damage are forest plantations. Some damage of this type has been done by four-wheel drive vehicles and motorcycles, but the total amount is minor.

During the winter months, when young trees are dormant, they are susceptible to permanent damage when struck by vehicles, particularly when tree tops protrude through the snow. This kind of damage is presently minor. Research in the Midwest indicates that snowmobiles can adversely affect vegetation, as well as significantly lower the soil temperatures (A Continuing Study of the Ecological Impact of Snowmobiling in Northern Minnesota, W. J. Wanek; Bemidji State College, Bemidji, Minnesota). The adverse effects of temperature on ground vegetation begins to be sharply reduced when the ground is covered by 4 to 8 inches of snow cover (Proposed Off-Road Vehicle Management Plan for Toiyabe National Forest, R-4; October 1975).

With the much greater amounts of snow and warmer temperatures found in the Sierra, vegetation damage or changes in soil temperature due to snowmobile use is now considered to be a minor concern.

Meadow vegetation, when the soils are wet, is particularly susceptible to damage. Forest-wide damage to meadows from vehicles is considered to be minor due to existing regulations, publicity on the damaging effects, and increased law enforcement.

Another zone where vegetation is very susceptible to ORV damage is in the sub-alpine areas (above 7,000 to 7,500 feet). The area above this elevation has cryic (cold) soil temperature characteristics that make the re-establishment of vegetation very difficult. The cryic soil temperature line corresponds very closely to the existing Forest Watershed Protection Area boundary (labeled Zone B under the current plan). Present damage to vegetation by ORV use in this area has been minor. This is the result of public acceptance of the designated route system that has been in effect in this area since 1958 and law enforcement actions.

No plant species have, as yet, been declared threatened or endangered under the terms of the Endangered Species Act of 1972. However, there are 19 plant species on the Forest that may be classed as threatened or endangered. Until the final list is obtained, these species will be protected. ORV use will be regulated to the extent necessary to protect those plants. This may include spot, area, or route closures or adjustments in use.

E. Wildlife

It is recognized that some animals are relatively unaffected by ORV use. Examples are coyotes, rabbits, and squirrels. The degree of effect of noise on wildlife will depend upon the animal's ability or lack of ability to adapt to increased noise levels and disturbance. Research data and knowledge of ORV impacts on wildlife are lacking on most species. However, the following are assessments of this impact on known ranges, habitat, and life histories of deer on the Forest.

Deer - Fawning Range - These important habitats are mostly above 5,000 feet elevation and are found primarily around moist meadows, streams with good riparian habitat, and springs and seeps. ORV use presently is felt to be adverse only in the case of meadow habitat where trails or high use areas contact these deer propagation areas. The extent is not known but it is known that there are critical time periods where noise and disturbance are detrimental to fawn survival.

Deer - Winter Range - This is possibly the most important period of the year for deer, especially during severe winters. Winter range is found primarily on south-facing slopes below 4,500 feet. Because these areas seldom accumulate snow, the roads and trails are sought out for ORV use during the winter.

Adverse impacts to deer are caused when anything produces undue stress in the animals during the last stages of pregnancy. The more severe the winter conditions, the more detrimental is this stress due to the weakened condition of the deer. With severe winter conditions, poor forage condition, or other key winter range problems, ORV use may have to be curtailed in certain areas to minimize stress to animals. The present ORV plan provides for restrictions on vehicle use where there are conflicts with wildlife values. Both areas and specific routes can be closed if necessary to reduce conflict.

F. Fish

Direct adverse impacts result from vehicles crossing through streams or ORV use adjacent to water bodies, thus causing siltation. Such incidents are occurring on the Sierra. This can have

local effects on the fishery. Future increased or unrestricted ORV use would probably result in more fisheries impairment. In areas where vehicle use is restricted to designated vehicle ways, this impact can be kept to a minimum through route location controls.

Indirect effects of ORV use are probably affecting the fishery by bringing more people into remote areas. This tends to create heavier fishing pressure on suitable waters, thus reducing the size and quantity of fish caught by the individual. Vehicle use can be curtailed under the present ORV plan to reduce major conflicts where they occur. Since most of the Sierra's small lakes and streams accessible by vehicles are artificially stocked, there are few problems in maintenance of the fishery. There are some problems on several native trout stream fisheries where there are no stocking programs. Increased vehicle user pressures could seriously deplete these fisheries to a point where they are no longer self-sustaining. Adjustments in routes or areas can be made where these conflicts arise.

G. Outdoor Recreation

Vehicle users participate in a wide variety of outdoor recreation activities in the same manner as other recreationists, except they use ORV's for access to the more isolated and undeveloped areas. Under the present plan, access in parts of the Forest is restricted to designated routes. In other parts of the Forest, access can be curtailed or adjusted where conflicts with other resource activities or other recreationists occur.

ORV use, when added to other activities such as camping, hiking, horseback riding, and cross-country skiing, has resulted in conflicts in heavy use areas between vehicle and non-vehicle use. Examples of these conflicts have been in some areas between snow-mobilers and Nordic (cross-country) skiers and between hikers and vehicle users. On some trails, established foot and horse use is not compatible with four-wheel drive and motorbike use. On other areas (both winter and summer), the presence of machines and their associated noise, intrude upon the desired solitude of other recreation users. Noise appears to be the largest single factor of concern for "non-motorized" forest users. This also seems to be basically a one-way conflict, with many non-motorized users not wanting to be in close contact with motorized users objecting primarily to their mode of access to a back-country area.

Much of the conflict between recreation users is due to non-motorized recreationists moving into areas previously used by ORV's and now wanting them removed. Only in a few instances are conflicts due to an increased number of ORV's. It is assumed more conflicts will develop as more non-motorized recreationists

move into other areas now utilized by ORV users or ORV use increases significantly in any area used by the non-motorized group. The present ORV Plan has made allowances for user conflicts by establishing special control zones, such as Zones C and E, that are set up specifically to reduce critical recreation user conflicts. Zones B and D route and area designation requirements also provide for adjustment or closure of routes or areas when user conflicts cannot be resolved by other means. Vehicle noise emission controls are also in effect. With these controls and other controls that can be applied to non-motorized users, it seems that conflicts between the various types of recreation use and users can be minimized.

H. Visual Resources

On the Sierra, the primary visual impacts related to ORV users are the rutting of meadows and damage to low-growing vegetation in flat areas or on open slopes which are readily visible to the traveling public. Repeated use of the same area by wheeled vehicles frequently leaves virtually permanent marks. In the most sensitive area, particularly wet meadows, one passage of a wheeled vehicle with a "renegade" driver leaves long-lasting visual evidence. While not a major problem, this kind of activity is perceived by the non-motorized recreationist as an example of the "damage" done by ORV's. They see these activities as detracting from their own recreation experience and want this kind of activity stopped "to protect the environment". Therefore, a polarization of views presently exists between ORV users and non-motorized recreationists. This polarization will continue to exist. However, if non-motorized recreationists are made aware that the majority of ORV users have just as much concern for the environment as they, users may become less polarized. More communication between major user groups, increased publicity on rules, and enforcement of rules relating to vehicle use will help reduce the conflict.

I. Noise

ORV's and the resultant noise levels have an impact on animals and people using the same or adjacent areas and trails. This is a fairly common occurrence. It is most prevalent near heavily used recreation areas. Noise is also a major factor that tends to polarize motorized and non-motorized users.

A reduction of noise levels or the elimination of noise can be obtained by controlling ORV use in areas used heavily by other recreationists, in key wildlife areas, and in back-country areas where solitude is sought. Primary noise problems have been with machines where muffler and exhaust systems have been modified. Enforcement of the applicable equipment and noise standards of

state and federal agencies will greatly reduce the noise levels. This will have a beneficial effect on those users who find this offensive.

J. Cultural Resources

Any action by the Forest Service which may affect the cultural resources is subject to the National Historic Preservation Act of 1966, and Executive Order 11593 of 1971. These federal regulations call for protection of identified sites until studies by professional archaeologists can determine whether the proposed action would constitute an adverse effect to the resource. Mitigation measures (if needed) may include physical protection of the sites, by means such as fencing; or in extreme cases, salvage of the sites by archaeologists.

Land travel ORV use has the greatest potential for affecting cultural resources. If sufficient snow is present to permit snowmobile use, then most cultural resources would be covered by snow, and, therefore, protected. An exception would be historical structures, such as cabins. The potential for disturbance will be minimized by conducting surveys of proposed routes by professional archaeologists as a part of the environmental analysis for the route. Where sites are subject to disturbance, if mitigation cannot be accomplished, the route will be relocated.

K. Range

ORV use on roads, trails, and areas adjacent to grazing areas results in some disturbance of livestock. Gates can be left open and fences taken down to allow ORV access. This creates extra maintenance work for the permittee in keeping proper livestock distribution. Few problems have been noted between ORV users and livestock use on the Sierra Forest.

L. Safety

The Forest Service has a responsibility for public safety on National Forest lands. Increasing numbers of users and a mixture of transportation modes have resulted in increased hazard potential to the users in certain areas; i.e., four-wheel drive use on snow-covered roads has caused rutting which makes snowmobiling more difficult and can cause injuries. Some trails are not designed to accommodate mixed use; i.e., motorcycles and hikers or horsemen. Areas with avalanche activity can pose a threat to over snow vehicles. Some monitoring has been done to identify roads, trails, and areas where use mixes are compatible or must be separated and controls applied; i.e., Zones C and E

and spot closures in Zone D were established after identification of user conflicts and safety problems. More monitoring will be needed.

Public safety may be improved through controlled use of vehicles on roads, trails, and areas. Identifying and posting unsafe areas may be needed. Motorized user groups have stated they want to see education of the user public emphasized, rather than introduction of restrictive measures, wherever possible.

All in all, present ORV use has not resulted in major safety problems. However, increased ORV use would result in a greater search and rescue effort in both summer and winter. Non-motorized users have created the greatest need for search and rescue efforts in the past. This is the County Sheriff's responsibility, but does have impact on Forest Service administration.

M. Fire

The percentage of fires caused by ORV vehicles is a very low percentage of the total man-caused fires on the Sierra. Those occurring have been mainly attributable to defective muffler-spark arrester systems. With increased ORV use, the risks from exhaust system failure, smoking fires, and unattended campfires associated with this kind of recreation use can also be expected to increase. ORV user caused fires are expected to become a lesser percentage of the total forest man-caused fires as more and more restrictions are placed on vehicle use.

With continuation of the existing patterns of ORV use, the ability of the fire control organization to respond to emergencies will not be affected. However, increased ORV use without increased regulation could result in more presuppression and suppression costs, or in increased fire starts with the likelihood of larger burned acreages.

Any necessary controls would be accomplished under the Code of Federal Regulations, which describes the operating conditions for off-road vehicles on the Forest. Additional regulation of ORV use, as well as other types of use, may be placed in effect during periods of high fire danger.

N. Socio-Economic

ORV use is socially and economically significant in the central Sierra region. Rapid population growth is now taking place in Fresno, Madera, and Mariposa Counties. Part of the life style of many local residents includes ownership of a four-wheel drive vehicle. This vehicle is bought for general use, with part of this use being for recreation purposes. In the urban areas

within driving distance of the Sierra, most four-wheel drive vehicles are purchased primarily for recreation, although this vehicle can double as a second car. Sales have increased substantially in the last few years.

There are approximately 900,000 motorcycles (30 percent unregistered) in use in California. The best industry estimates are that 40 percent of these are either combination street and road vehicles or straight off-road vehicles used for off-road riding. Sale and use of these vehicles continues to increase in this area and benefit the economy.

Since the early 1970's the sale and use of snowmobiles on and near the Sierra Forest has not increased to any great degree and is almost static at the present time.

Organized events are becoming more popular for both four-wheel drive and motorcycle users. The Sierra National Forest issues two or three permits annually for motorcycle enduro races. Most four-wheel drive and motorcycle competition is conducted on private lands in the San Joaquin Valley.

Most indications seem to point toward increased sales of ORV's along with reductions in available areas on private and other public lands where they can be used. This would mean an increased demand for ORV use areas on the Sierra National Forest. As indicated previously, with increased uses of all kinds of recreation activities, conflicts between motorized and non-motorized users can be expected to increase.

VI. ADVERSE ENVIRONMENTAL EFFECTS OF THE SELECTED PLAN THAT CANNOT BE AVOIDED

Any recreational use of motor vehicles in the Forest results in some adverse effects which cannot be avoided. The environmental awareness of the vehicle driver, the season of the year, and the type of vehicle used all contribute to the level at which these adverse effects occur. If vehicles are used on the Sierra National Forest as shown on the selected plan, and the rules and policies are followed and enforced, many of the adverse effects will be eliminated or controlled. However, some will remain. The following are some of the expected adverse effects.

A. Soil and Water

Because there are ORV's used in the Forest, there will be times when soil and water damage will occur. Examples of damaging activities are excessive speed, hill climbing, operating equipment in a meadow or a stream, and by excessive wheel spinning.

Occurrences of this type of activity are expected to be isolated individual actions and not widespread. This expectation is based on past experience with ORV users in the Forest, which indicates they basically want to use the Forest and protect it from damage. It has been substantiated recently that the goals of Forest trailbike riders are getting away from an urban environment and appreciating nature. Activities which are nature-destructive and anti-social are not common. (See page 41, Off-Road Riding On Forest Lands as a Public Policy Problem, by A. E. K. Nash, University of California, Santa Barbara, 1975.)

B. Timber and Vegetation

Timber and vegetative production will be affected only on the small acreage dedicated to vehicle ways and any parking areas associated with trail heads. This amounts to approximately 150 acres, in Zone B of the selected plan and 150 acres in Zone D where intensive vehicle use occurs. Some trees along the trails will be injured; however, the small amount of timber and vegetation that will be affected is insignificant. Some snowmobile damage to timber will occur during the winter months under certain snow conditions. Plantations will be the main area where top breakage could occur. This damage is expected to be insignificant, as long as the controls available in the ORV plan are exercised.

C. Fish and Wildlife

Some land will be taken out of wildlife production. This includes the approximately 300 acres occupied by designated Vehicle Ways and parking areas and where intensive vehicle use occurs.

In addition to the above acreage, there will be additional land affected by ORV noises and may create an adverse effect on the wildlife utilizing the area. It is not felt that the effects on the wildlife resource will be major or that it will be irreversible. Public utilization of the wildlife resource may be affected more than the occurrence, density, or behavior of the animals themselves. Again, if research or study indicates a significant adverse effect on the wildlife or fishery resources, the present plan allows for closures and adjustments in use to mitigate this adverse effect.

D. Noise

Noise pollution will continue to be a problem. Even though mufflers and spark arresters are installed, typical sound levels from off-road motorcycles are still two to three times greater than the noise from typical sound levels of passenger cars. Enforcement of the decibel levels set by federal and state agencies will reduce the noise level considerably. ORV noise may effect wildlife, but the effects are not completely known. In general, few, if any, of the reported or suggested effects of noise on animals would benefit the animal or increase his chances for survival. We know noise does bother the person who visits the Sierra National Forest for the solitude it provides. It is expected that some non-ORV users will continue to express their objection to ORV use in the forest regardless of the sound levels attained.

More research into the effects of noise on wildlife is needed. (See NTID 300.5, "Effects of Noise On Wildlife and Other Animals," U.S. Environmental Protection Agency, December 31, 1971, USEPA.)

VII. ALTERNATIVES TO THE SELECTED PLAN

Several alternatives to the proposed action were considered. They are described as follows.

- A. Retain the Status Quo. This alternative restricted vehicle use to designated vehicle ways and transportation system roads in the Forest's Watershed Protection Area and allowed unrestricted vehicle use in the lower elevations of the Forest below the Watershed Protection Area. This was rejected because:
1. It has not been practical to require winter snowmobile travel to follow the vehicle routes that were established for summer travel in the Watershed Area. Few conflicts have developed over the years between snowmobile use and other resource activities. The only conflict the Forest has observed are near a few popular winter use areas. Off-road parking has been a problem and there are some limited user conflicts between snowmobilers, cross-country skiers, and general snow-players. The ability to enforce a policy of restricting snowmobiles to designated routes on a Forest-wide basis would be prohibitive based on the small amount of snowmobiling occurring, the absence of any major conflict with other uses, and the cost to enforce.

2. The old procedure for handling vehicle use in the lower areas of the Forest did not provide for closures of areas or routes when problems with soil erosion, wildlife disturbance, site deterioration, watershed damage, vegetative damage, recreation user conflicts, and noise pollution occurred. There are areas and routes where some of these problems have occurred on a seasonal basis. The increasing volume of use has become too great in some locations during certain seasons of the year to allow unrestricted use. There was a need to have policy and procedures set up that would provide for seasonal or year-long closure or adjustment of routes or areas when indiscriminate uncontrolled use caused unacceptable damage or conflict.

B. Complete Closure to Off-Road Vehicle Use Except On Public Roads

This alternative would restrict all cross-country travel both winter and summer, close all vehicle ways, trails, and all non-public road system roads to vehicle use. Vehicles would be allowed to travel on system roads only. This alternative was rejected because:

1. The Forest Service feels that off-road vehicle travel is a legitimate use of parts of the Sierra National Forest as long as unacceptable environmental damage does not occur, conflict with other recreation users can be minimized, and there is no conflict with law, policy, or regulation.
2. The operation of off-road vehicles under controlled conditions should not result in unacceptable environmental damage.
3. Hard surface gravel and graded roads do not provide the type of experience most off-road vehicle operators desire.
4. It is impractical to expect snowmobilers to only use system roads closed by snow. Many unsafe conditions exist on parts of snow-covered roads due to snow deposit patterns in the winter months, which make travel extremely hazardous.

C. Prohibit All Cross-Country Vehicle Use and Restrict Travel to Designated Routes

This alternative would place the same restrictions that have been in effect in the Watershed Protection Area on all of the Forest outside of Wilderness. All non-road system routes would have to be designated and signed if they were to be used for ORV routes. This alternative was rejected for the following reason:

1. The lower area of the Forest has a massive network of old non-system roads, trails, old railroad grades, logging spurs and skid roads, and fire trails. These are primarily the result

of past logging activity. This area has been used for many years by vehicle users, with most of the use confined to travel on the old roads, fire lanes, etc. Very limited cross-country travel has occurred, though allowed, because of terrain, vegetation and the abundance of trails, roads, etc., that are available. Resource damage and user conflicts have been minimal. Adopting this alternative would require designating and signing all routes that are open to use. There would, of necessity, have to be separate designations for snow and land travel. The designation and signing job would be monumental and extremely costly. Patrol and enforcement would also be costly. It would be more practical to sign only the closed routes or areas in this part of the Forest. The signing of closed routes would be done initially on all problem routes and areas, with additional seasonal or yearlong closures signed as the need or season dictated.

2. Due to a minimum number of conflicts, there has been a lack of need for further restrictions of vehicles on the forest. Where this need has occurred, restrictions have been applied (i.e., restrictions shown in Zone D as spot closures or adjustments, Teakettle Forest and adjustments in routes in Zone B). With the increased law enforcement and regulation setting abilities available to the Forest Service, it is now easier to adjust or control use where conflicts occur on either routes or areas.

VIII. RELATIONSHIP BETWEEN LOCAL, SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The local, short-term uses of the Sierra National Forest are dispersed recreation; such as hunting, fishing, wildlife viewing, off-road vehicle touring, horseback riding, hiking, and ski touring, and concentrated recreation use; such as camping and picnicking. Timber harvest, wildlife harvest, watershed protection, visual quality, and opportunities for solitude are also short-term uses.

The long-term productivity of these uses should increase through better land use planning as a result of long range land management plans. It is unlikely that either long or short term productivity of the Sierra National Forest for any of the uses noted, will be significantly increased or decreased by the adoption of the selected ORV plan.

There are enough controls built into the plan to make adjustments in use if either short term or long term environmental damage is occurring. The procedures for delineating designated routes, closing routes, roads, or areas on a seasonal or yearlong basis, are restrictive enough to allow immediate adjustments where damage or conflicts arise.

Soil movement or compaction, interference with wildlife or fishery values, and conflicts with non-ORV users are only a few of the situations that could result in an adjustment in ORV use. If environmental damage is demonstrated on any area or route in the future and the control of vehicle use causing the damage becomes impossible for any reason, a new analysis of the situation will be made and new policy formulated for ORV use.

IX. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

There are no apparent irreversible or irretrievable commitments of natural resources. This ORV policy can be changed at any time, resulting in the reversal of any resource commitment.

The current use of roadless areas by ORV's does not reduce these areas' potential for wilderness classification. Additional ORV routes cannot be introduced into these areas until land management planning is completed. Where use is confined to designated routes, there is a physical commitment of resources in the areas occupied by the ORV route. The ORV route itself is less available for wildlife and timber production; it is dedicated to vehicle use. If the routes were abandoned, there would be a time period of several years for the area to restore itself naturally. There could be a need for seeding and erosion control and land shaping to bring the route back to natural conditions. Funds used to develop and maintain these routes will be lost if the policy of use is reversed at a future date, unless some other use is made of the trails.

X. CONSULTATION WITH OTHERS

ORV use on the Sierra Forest is also being included as a part of the land management planning process. The initial public involvement was initiated through mailing and public meetings designed to secure input into Forest Land Management Planning. Input was requested and received pertaining to vehicular use of the Forest. When it was determined in early 1976 that the Forest Management Use would not be completed prior to December 31, 1976, a separate effort was launched to secure public input strictly related to off-road vehicle use on the Forest. The main intent of this effort was to secure public input regarding the ORV management that was in existence at that time and what modifications, if any, should be made in this management.

The record of responses and the names of groups and individuals responding are not included in this report but are in Sierra National Forest files.

The following is a summary of documents that have been distributed and opportunities for public involvement that have taken place:

- A. July 8, 1974. Sierra National Forest Land Management Planning brochure mailed to public for informational purposes. 1,750 copies were distributed.
- B. September 3-11, 1974. Five public meetings held in Fresno, Shaver Lake, Bass Lake, and Mariposa to explain planning process and gather public input on issues and concerns in the management of the Sierra National Forest. Exhibit 5 shows public feelings towards resource outputs and services on the Sierra National Forest, as gathered from the five meetings.
- C. October 19, 1974. Public working group organizational meetings for those individuals who expressed a desire to work closely with the Forest in developing the Land Management Plan. Meeting included the final decision on planning unit boundaries and the display of resource inventory overlays. It also established the opportunity for the public to evaluate and comment on the overlays.
- D. February 11, 1975. Mailed 200 copies of the Forest situations proposals, procedures document to individuals on working group mailing list for review and comment.
- E. April 11, 1975. Mailed 150 copies of draft of "Proposed Forest Management Direction" to individuals on working group mailing list for review and comment.

- F. Early May 1976. Sierra National Forest Off-Road Vehicle Plan and map mailed to public for information purposes. See Appendix B.
- G. June 12, 1976. Public informational and input meeting held in Fresno to discuss ORV planning, the plans and maps sent out earlier and secure both oral and written public input. Approximately 30 individuals, groups or agencies responded.
- H. August 27, 1976. Letter sent out to original mailing list of 300, plus additional names secured since that date, summarizing the input received to date as a result of the May mailout and the June 12 meeting. See Appendix C.
- I. September 28, 1976. Working group meeting of representatives from key user groups to discuss input into ORV management to date and resolve any areas of disagreement between user groups. The meeting included a discussion of changes made in the map and rules as a result of public input received since the June 12, 1976 meeting.
- J. December 6, 1976. Working group meeting with same objectives as September 28 meeting. Received final input from groups.
- K. Various meetings of organizations and individuals with Forest Service representatives have also taken place to exchange information on the planning process and work done to date.

XI. ENVIRONMENTAL STATEMENT RECOMMENDATIONS

Based on this environmental analysis report, the selected alternative will not have a significant effect on the environment. Therefore, an Environmental Statement will not be prepared for this project.

Sotero Muniz
SOTERO MUNIZ
Forest Supervisor
Sierra National Forest

4/20/77
Date

XII. APPENDIX

- A. Selected Plan and Map
- B. Letter Mailed May 1976
- C. Letter Mailed August 1976

Dear Friend:

We are holding an information meeting at Fresno Fashion Fair Community Hall (basement) (Shaw Avenue between First and Fresno Street) on June 12, 1976, at 9 a.m., to discuss off-road vehicle planning for the Sierra National Forest. We invite your participation and comments. If you prefer to comment in writing, the preaddressed page attached to this map can be cut out and mailed. We need your comments by June 19, 1976.

BACKGROUND

Direction was given to public land management agencies by Presidential Executive Order 11644 to provide for a uniform approach to off-road vehicle use on public lands.

Section 1 states: "It is the purpose of this order to establish policies and provide for procedures that will insure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands."

In accordance with Section 4 of the Executive Order, "The respective agency head, shall develop and publish, regulations prescribing operating conditions for off-road vehicles on public lands. These regulations shall be directed at protecting resource values, preserving public health, safety, and welfare, and minimizing use conflicts."

Subsequently, the Secretary of Agriculture developed Section 36, Code of Federal Regulations - "Use of Off-Road Vehicles" which pertained to National Forest System lands. This Code provided uniform direction for planning, public participation, public information, operating conditions and monitoring the effects of off-road vehicle use. The regulations were issued on September 25, 1973.

The Chief of the Forest Service directed field units to work within the framework of the Secretary's Regulations to designate areas and trails for off-road vehicle use. This was to be accomplished whenever possible in connection with land use planning but the target date for plan completion was December 31, 1976.

Direction by the Regional Forester, California Region, to the Forest Supervisors was to do ORV planning within the context of the Forest and Unit Plans. This direction and other specifics pertaining to off-road vehicle management are contained in Regional Supplements FSM 2351.3.

The Sierra National Forest is about halfway through the development of the Forest and Unit Land Use Plans. We had expected to issue the final environmental statement on these plans by December 1976. Because of the complexity of the planning process, the scheduled date for completion has been extended to spring 1977. Public involvement has been and will continue to be solicited in all phases of plans development. Your comments regarding off-road vehicle use on the Forest will be considered in any changes made to the current off-road vehicle plans.

The off-road vehicle plan for the Sierra National Forest shown on this map coincides, for the most part, with existing vehicle designation and regulations. This plan and future revisions to it will define where ORV use will be allowed using the categories listed.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Sierra National Forest
Federal Building, 1130 O Street, Room 3017, Fresno, California 93721

8200
August 27, 1976



Dear Sir:

In May approximately 300 copies of a proposed interim plan to regulate Off-Road Vehicle (ORV) use on the Sierra National Forest were mailed to a cross-section of national forest users and governmental agencies having land or natural resource management responsibilities. Subsequently, on June 12, the ORV plan was presented at a public meeting in Fresno. Several comments were made at that time. The purpose of the enclosed report is to share what we have heard you say, to clarify what is being done and why, and to advise you about what happens next.

Sincerely,

Sotero Muniz
SOTERO MUNIZ
Forest Supervisor

Enclosure

UPDATE: SIERRA NATIONAL FOREST ORV PLAN

WHAT'S HAPPENED?

Several of the responses indicate a review of the reason for preparing the ORV plan and the direction received for preparing it would be helpful.

Executive Order 11644, signed by President Nixon on February 8, 1972, directed all federal land management agencies to prepare plans that "will insure that the use of off-road vehicles on public lands will be controlled and directed to protect the resources of those lands and to minimize conflicts among the various users of those lands." This is a clear mandate with which the Sierra National Forest must comply.

The Secretary of Agriculture and the Chief of the Forest Service subsequently issued regulations governing use of ORVs on all national forest system lands and established procedures for preparing ORV plans. A deadline for completion of December 31, 1976 was also established.

The purpose of the executive order was to have the land management agencies determine which lands were suitable for ORV use and which were not. Since this determination is an integral part of land use planning, Forest Supervisor's were directed to develop ORV plans in conjunction with Forest and Unit Land Use Plans, provided that the task was completed by the established deadline.

The original schedule for completion of the Sierra National Forest Land Use Plan was well before the deadline. As a result, and because ORV use was already controlled or prohibited on at least half of the Sierra National Forest, no effort was made to prepare an ORV plan separately. By April of this year, however, it became evident that a new approach would be required.

After considerable discussion, we decided that the best we can do prior to the end of this year is to prepare an interim ORV plan, using the existing controls as the nucleus of the plan. A final ORV plan would be implemented in approximately one year, after land suitability is determined for all national forest uses through the land use planning process.

We made this decision for two reasons. First, not all the information upon which to determine where exclusions or restrictions of ORVs is necessary to prevent resource damage or user conflicts was available. Second, a major change in ORV controls, separate from land use planning activities, would require a separate Environmental Statement (ES). This would be costly and would divert our ef-

2.

forts away from land use planning to planning for a single user activity. We believe that an ORV plan prepared prior to the Land Use Plan would not be satisfactory and would need to be revised within one to two years.

WHAT DID YOU SAY?

We have received feedback in three different ways. The first responses were in writing. They came from eight organizations and twenty-two individuals. About two-thirds were submitted by individuals or organizations residing more than 100 miles from the Sierra National Forest.

The majority of the written comments favored additional restrictions on ORV use. ORV users expressed general satisfaction with the plan as presented, though several comments were made asking for additional ORV trails and that replacement mileage be established whenever trails were eliminated.

Those seeking greater restrictions questioned ORV travel in Zone B, the size of Zone D where restrictions are limited, the lack of sizeable areas closed to snowmobiles other than classified wilderness and primitive areas, and the continued use of all or portions of certain existing ORV trails.

Most of the people attending the public meeting on June 12 were ORV users. Statements made revealed that ORV enthusiasts are not in agreement on what controls are acceptable to them. Suggestions were made that permits be required prior to use of ORV trails, and that more organized motorcycle events be allowed as a means to reduce individual use elsewhere.

We have had informal meetings with local leaders of the Sierra Club, the Sierra Snowmobile Club, and the 4WD Club of Fresno. The Sierra Club indicated the interim plan needed more controls. The other two organizations indicated they only used a relatively small portion of Zone D for their activities.

In reviewing your comments, the need for clarification of the status of the ORV trails shown on the map and their relationship to Inventoried Roadless Areas (IRAs) was indicated. The ORV trails shown on the flyer distributed in May are not new or proposed trails. All have existed for several years and most predate the implementation of ORV controls in 1958. We do not plan to authorize any new ORV trails until the Sierra National Forest Land Use Plan is completed.

3.

The ORV trails predate the inventory of roadless areas. With the exception of the motorcycle trail in the South Fork Merced River IRA, a corridor adjacent to the ORV trails was excluded from IRA boundaries. Therefore, the ORV trails shown are not and never have been within the boundary of an IRA.

The exclusion of the ORV trails has been questioned since the inventory of roadless areas was done in 1972, on the grounds that an ORV trail is a relatively minor impact on the land that would not in itself disqualify an area from wilderness classification. It should be noted that many of the same people have apparently reversed themselves by insisting that continued use of the ORV trails will make an IRA unsuitable for future classification as wilderness.

A few people stated that ORVs have no legitimate place in a national forest. We recognize that as a strongly held belief, but without the backing of legislation or overwhelming public opinion, we can not adopt such a position as Forest Service policy.

WHAT NEXT?

An interim ORV plan must be ready by December 31. Since we wish to avoid preparing a separate ES, we have looked primarily at those suggested modifications which could be adopted now. These are the comments we are considering for inclusion in the interim plan:

1. Increase minimum snow depth for snowmobile travel from 6" to 12".
2. Require permits for use of ORV trails.
3. Authorize more competitive events in Zone D.
4. Delete the 2-wheel ORV trail from the map in the South Fork of the Merced River. (Motorcycle use in this area predates the roadless area inventory. However, the motorcycle trail is not designated an ORV trail and should not show as such.)
5. Rewrite the ORV plan brochure to improve understanding.

The present ORV rules governing the Watershed Protection Area require that all ORV travel be restricted to permanent roads and designated ORV trails. These rules were written before any snowmobiles used the Sierra National Forest. The main concern, when the rules were written in 1958, was to control wheeled ORVs.

Since snowmobile use has never been heavy on the Sierra National Forest, and there have been few complaints or user conflicts reported in the past, we have not required them to operate solely on roads and ORV trails. A sudden change in policy, making snowmobiles adhere to the same rules as wheeled ORVs, would be unfair and difficult to support if challenged in court.

4.

We propose establishing an "open" area for snowmobiles within part of the Watershed Protection Area on an interim basis. This area would be determined mutually with Nordic skiing interests. Outside of the "open" part of the Watershed Protection Area, snowmobiles would be required to remain on permanent roads and designated ORV routes

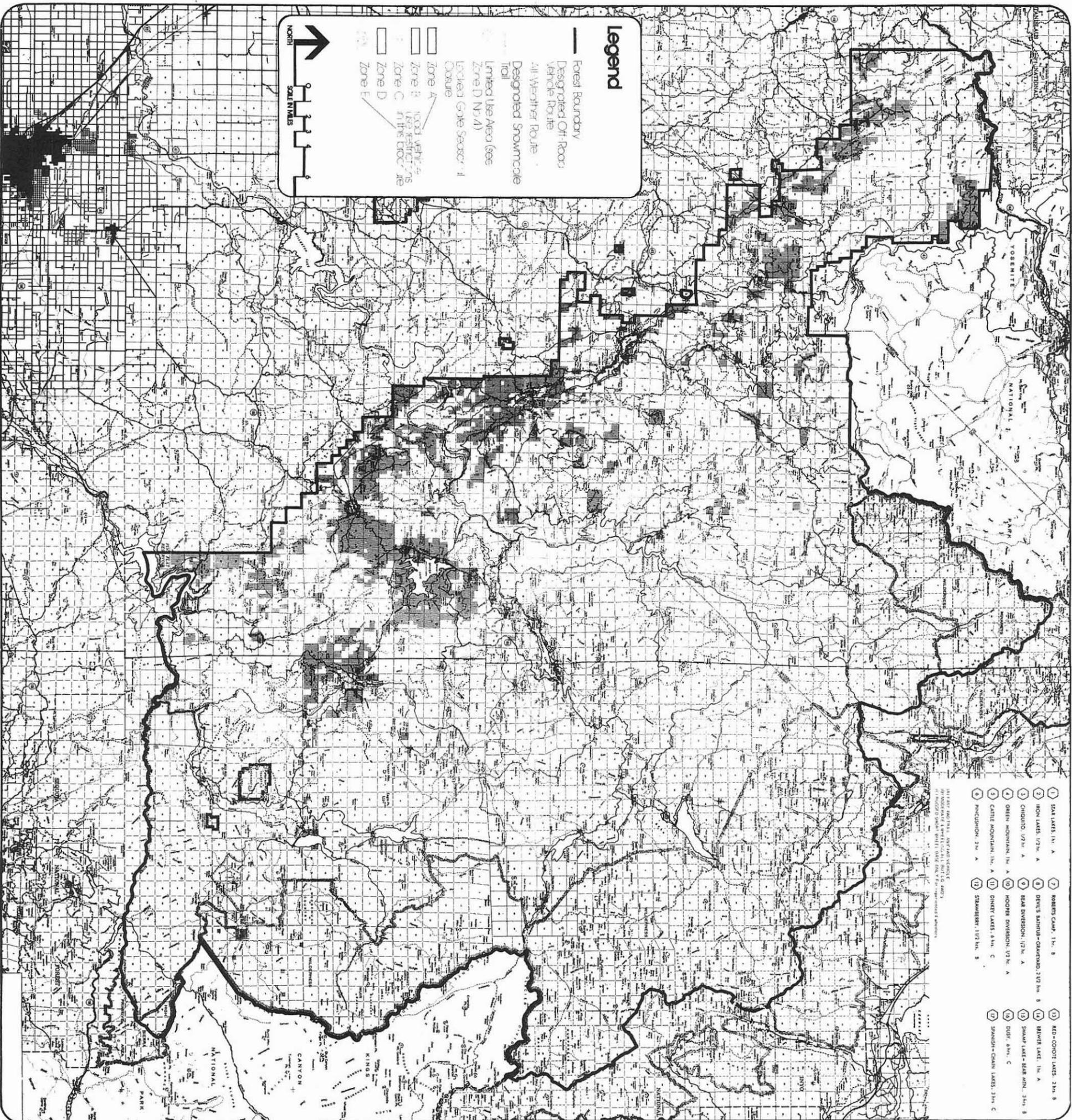
The remaining suggestions should not properly be decided upon until the impact of all present and proposed land uses have been evaluated through the land use planning process. The following suggestions are being actively considered as the land use plan develops:

1. Establish permanent zones from which snowmobiles are excluded to avoid conflicts in popular cross-country skiing areas. (Snowmobilers have identified those areas most important to them. We need the same information from cross-country skiers.)
2. Reduce the size of Zone D, and possibly even eliminate it. (It may be that ORV users would prefer to have established trails, rather than large areas without use restrictions. One large 4WD Club has taken this position. Trailbikers are not as well organized, and we have less information about what they would like. We know that conflicts result between motorcyclists and others in and near campgrounds. We are not sure, however, whether conflicts are occurring elsewhere.)
3. Eliminate, shorten, or reroute existing ORV trails in Zone B. (The Dusy Trail from Courtright Lake to Thompson Lake is most frequently identified for elimination. Other ORV trails suggested for elimination were the Crown Valley Trail to Spanish and Chain Lakes, the trailbike route in the South Fork Merced River to Kissler's Cabin site, and several short trails or trail segments approaching within a mile of classified wilderness boundaries. We recognize several problems with the Dusy Trail and will be exploring the desirability of elimination, retention, relocation, or restriction of this and all other ORV trails as we complete work on the land use plan. Our preferred alternative in the Draft Environmental Statement for the Rancheria Management Unit would retain the Crown Valley Trail. Other alternatives would eliminate all or parts of the trail. We are currently seeking public comment on alternative land use plans for the Rancheria Management Unit.)
4. Establish additional ORV trails and areas for hill climbing and competitive events in Zone D. (This has been suggested as the best way to control ORV use in other areas where it is not desirable.)

5.

ENFORCING THE PLAN

The Forest Service's ability to control ORV use under any type of plan was questioned by several correspondents. This raises an important point which all ORV enthusiasts should recognize if they want to retain the privilege to use their vehicles on national forest lands. Enforcing any type of law or regulation is difficult without full public cooperation. This is particularly true when visitors are dispersed over a large area. The executive order places the burden on ORV users to show that they are not damaging public lands or disturbing other visitors. Frequent violations of ORV regulations will undoubtedly result in strong pressure to legislate ORVs off of all federal lands.



Legend

- Forest Boundary
- Designated Off-Road Vehicle Route
- All-Weather Route
- Designated Snowmachine Trail
- Limited Use Area (see Zone D No. A)
- Limited Gate Seasonal Closure
- Zone A
- Zone B
- Zone C
- Zone D
- Zone E
- Zone F

0 1 2 3 4
MILES

NORTH

- ① STAR LAKE, 1 1/2 M. A
- ② HORN LAKE, 1/2 M. A
- ③ CHICOITO, 1/2 M. A
- ④ GREEN MOUNTAIN, 1 1/2 M. A
- ⑤ CASTLE MOUNTAIN, 1 1/2 M. A
- ⑥ HITCHCOCK, 2 1/2 M. A
- ⑦ ROBERTS CAMP, 1 1/2 M. B
- ⑧ PINE'S BALMIST - OAKWOOD, 3 1/2 M. B
- ⑨ BEAVER LAKE, 1 1/2 M. A
- ⑩ SWAMP LAKE - BEAR MTN., 2 1/2 M. B
- ⑪ DOSE, 8 1/2 M. C
- ⑫ SPANISH - CHAIN LAKE, 3 1/2 M. C
- ⑬ STEWART, 1 1/2 M. B
- ⑭ RED-CORNET LAKE, 2 1/2 M. B
- ⑮ SWAMP LAKE - BEAR MTN., 2 1/2 M. B
- ⑯ DOSE, 8 1/2 M. C
- ⑰ SPANISH - CHAIN LAKE, 3 1/2 M. C
- ⑱ STEWART, 1 1/2 M. B

DESCRIPTION OF TRAVEL ZONES

- ZONE A** - This zone is composed of classified wilderness and primitive areas that have been established by Congressional or administrative action.
- ZONE B** - This zone includes the designated Roadless Areas on the Forest, the existing motor-vehicle control area and the Tackelle Experimental Forest.
- ZONE C** - This is the winter sports site of China Peak and the snowplay area of Summitdale Campground.
- ZONE D** - This is the largest zone and includes all of the land between the western Forest boundary and Zone B. The area varies from heavily timbered lands to brush and oak-grass type.
- ZONE E** - This zone is a small area on Tomcawk Ridge adjacent to Highway 168, used as a staging and play area for snowmobilers, cross-country skiers, and snowplay groups.

VEHICLE USE RESTRICTIONS

These restrictions in no way affect the lawful use of State or County Highways and only apply to National Forest lands and easements. Use of private land is controlled by the owner and subject to such restrictions as the owner may wish to enforce. Vehicle use of any Forest Development Road is authorized unless specifically restricted.

- ZONE A - Non-Use:** Wilderness and Primitive Area. Motorized use not allowed.
- ZONE B - Limited Use:** Off-road vehicle travel on designated routes only, except over-the-snow travel.
- 1. Snow travel is permitted with at least 6 inches of snow and there is no contact between the machine and the ground.
- 2. Land travel is subject to springtime closure as late as July 1 due to soil conditions.
- 3. On some designated routes, motor vehicles with a tread width greater than 40 inches are prohibited.

- ZONE C - Limited Use:** Closed to cross-country use by over-the-snow travel on designated routes only (skl areas and snowplay areas).
- ZONE D - Limited Use:** Snow travel and land travel open, except as specified below in 1 through 5.
- 1. Land travel will be subject to seasonal closure. Below 5,000 feet, the normal season of use is about May 1 to November 1; above 5,000 feet, the opening of roads and trails could be delayed as late as July 1, depending upon soil moisture conditions. Summer land travel is subject to closure during periods of high fire danger.
- 2. On some designated trails, motor vehicles with a tread width greater than 40 inches are prohibited.
- 3. Snow travel is not permitted when snow depth is less than 6 inches and machines are likely to make contact with the ground.
- 4. All vehicle travel adjacent to recreation sites, designated on the map as Limited Use Areas, is restricted to designated routes.
- 5. Special problem roads, trails, and areas are subject to restricted use and will be signed indicating restriction or closure.

- ZONE E - Limited Use:** All off-road and over-the-snow vehicle travel on designated routes only.

SEASONAL RESTRICTIONS

WHY SEASONAL CLOSURES

The ORV Plan recognizes that adverse impacts on the land, incurred from vehicle use during the wet season, justify a need for seasonal regulations. A program of vehicle use controls, based on seasonal conditions, has been adopted. Some of the lands in the National Forest below 5,000 feet are clay type soils; these soils, when wet, are the most susceptible to damage. Since precipitation is relatively uniform, a soil-moisture relationship was deemed the most practical way to assess vehicle impacts on the Forest.

Soils may be viewed as moisture reservoirs. With the onset of the wet season (October 1 to April 30), soils begin to recharge their water supply or "wet up." Finally, the reservoirs overflow and the soils become "saturated." A soil-moisture relationship, somewhere between the dry and saturated states, was determined to be the point where damage becomes unacceptable. This point is then converted to inches of precipitation.

On the Sierra, the seasonal closure will normally take place during the second or third week in November. This was established by reviewing precipitation records over a period of years. As subsequent monitoring is done, this standard will be re-evaluated.

The seasonal opening of lands and roads to vehicle use will also be dependent upon the soil-moisture relationship.

WINTER TRAVEL

Safety

Be aware of the hazards of winter travel. Harsh conditions of wind, cold, snow or whiteout can turn an outing into a tragedy. Knowledge of the area, weather, route, and the limitations of your body and equipment, plus a little common sense, can insure a safe and enjoyable trip.

LEAVE WORD — Before you leave, notify a responsible person of:

1. Your planned route of travel. Mark it on a map for them.
2. Your planned departure time.
3. Your planned time of return. **BE SURE YOU CHECK BACK IN.**

When someone is overdue, notify the County Sheriff in the trip area. If the missing person returns later, be sure you advise the Sheriff.

CLOTHING AND EQUIPMENT

Layers of clothing are best. A good quality windbreaker and wind pants are excellent. Avoid tight-fitting clothes and boots which may restrict circulation. Take extra socks and gloves or mittens, warm cap, matches in a waterproof container, candle, firestarter (000 steel wool works well), nylon cord, general purpose knife, high-energy food, plastic tarp, space blanket, a signal mirror, first-aid kit, wide tape for repairs and metal container for melting snow.

Snowmobilers should carry tools and snowshoes as well as the normal emergency and survival gear.

AVOID BECOMING LOST BY:

1. Taking a good map. Learn to read it and know how to locate your position.
2. Learning to read a compass and believing it.
3. Checking weather forecasts and avoiding storms.

It is easy to become disoriented in the whiteouts of winter and when physically exhausted.

IF YOU ARE LOST, INJURED OR YOUR EQUIPMENT HAS FAILED — Keep calm, decide on a plan. Trust your compass. Stay together, if possible. If not, send at least two people for help.

Don't abandon your snowshoes or skis. Build a fire and shelter — stay warm.

Mark your base camp so it is visible from the air. Distress signals — three smokes, three blasts of a whistle, three shouts, three flashes of light, three of anything that will attract attention.

HAZARDS

Avalanches — Snow avalanches may occur at any time during the winter. Avoid mountainous terrain after heavy snowfalls or prolonged periods of high wind. The safest routes are on ridgetops and slightly on the windward (side toward the wind) side, away from cornices. If you cannot travel on ridgetops, the next safest route is out in the valley, away from the bottom of slopes.

Avoid frozen lakes.

Wind, Temperature, and Moisture — Here are some things to watch out for when traveling in the back country in the winter: Frostbite — Hypothermia — Altitude Sickness — Hyperventilation.

Brochures listing symptoms and treatment of the above are available. Ask for them and be familiar with them when planning a trip.

Good Manners

The National Forests are large, but sometimes those traveling by skis, snowshoes, dogsleds, and snowmobiles must share the same routes and areas. Please use common sense and courtesy when encountering others. Here are some suggestions:

1. Park your vehicle off the road.
2. Respect the property and privacy of others.
3. Snowmobiles should operate at minimum speed near skiers or snowshoers.
4. Skiers and snowshoers should yield the track to oncoming or overtaking snowmobiles.
5. Snowmobiles are not permitted on developed ski areas. Check with the ski area manager regarding ski touring and snowshoeing.
6. Use gates when traveling through fenced lands.
7. Campgrounds — Avoid hitting tables, stoves or other improvements covered with snow.
8. **WHAT YOU PACK IN, PLEASE PACK HOME.**
9. Signs and trail markers are for direction and use of the area. Please protect them.
10. Vegetation can be damaged if you ride over small trees and bushes.
11. If you encounter animals, stop and allow them to move off the trail. The energy needed to survive in cold and snow can make unnecessary disturbance harmful or fatal to wildlife.

SUMMER TRAVEL

Safety

Dry grass will ignite at about 400°F. The temperature of an exhaust pipe at the first bend after the manifold is about 1000°F. These temperatures make the off-road vehicle a fire hazard. Follow these precautions while traveling off roads:

1. Never stop in tall grass or brush. Avoid any situation in which natural fuels come in contact with hot parts.
2. Clean grass and other debris from skid pans or other under-vehicle grass catchers.
3. Don't spin wheels — resulting friction and sparks can cause fire.
4. Don't overfill fuel tanks. Gas expands when warmed. Park on the level or with filler cap uphill.
5. Locked or excessively used brakes can heat to ignition temperature.

Maintenance problems or vehicle modifications can cause fires:

1. Wheel bearings can heat up from lack of grease or because of failure.
2. Watch for fuel leaks.
3. Make sure exhaust system is properly routed and insulated; check floor boards, wiring.

ADDITIONAL FIRE SAFETY PRECAUTIONS:

1. Do not operate any vehicle with an internal or external combustion engine without a properly installed spark arrester or exhaust system.
2. Smoke only in cleared areas. Do not smoke while traveling, except in enclosed vehicles equipped with ashtrays.
3. No fireworks or tracer bullets are allowed in the National Forests.
4. Special fire restrictions or closures may be in effect in some areas. Check with Ranger offices for information.

Good Manners

The following tips and few restrictions should help the motor vehicle user enjoy National Forests safely and without damaging natural surroundings. Drive with other Forest visitors, wildlife, and the environment in mind.

1. **WHAT YOU PACK IN, PLEASE PACK HOME.**
2. If you intend to build a campfire, obtain a free Campfire Permit at any Forest Service office. Be sure to clear a 10-foot circle to mineral soil. **USE CARE WITH FIRE — MAKE SURE IT'S DEAD OUT** when you leave.
3. Should you plan to visit a wilderness area, a Wilderness Permit is **required**.
4. Respect the solitude. Many visitors come in search of quiet and serenity afforded by the open space. Leave sufficient space between camps for privacy.
5. Do not cut green limbs, branches or boughs. Protect the live vegetation.
6. Camp well away from lake shores, streams, and trails.
7. Routes on which ORV vehicle use is permitted are not maintained for use by other than vehicles especially designed for off-highway use. The use of four-wheel vehicles without four-wheel drive is not advisable.
8. The hiker or horseback rider has right-of-way for reasons of safety and by rule of common courtesy.
9. Traveling in pairs is recommended for safety in back-country areas.
10. Camp in a developed campground, if one is available.
11. Stay on the designated route. Cutting switchbacks causes serious erosion problems that may destroy the route. Repairs cost tax dollars.
12. Meadows are particularly susceptible to rutting and compaction damage resulting from indiscriminate vehicle use. Stay on designated routes.

CHECKLIST

This equipment is suggested for wintertime day trips; additional items are needed for overnight trips:

- PROPER CLOTHINGS AND EXTRAS (Sunglasses, wool garments, gloves, boots, headgear, suntan lotion, etc.)
- LIQUIDS TO DRINK
- SNOWSHOES OR SKIS (A pair for each person in case of breakdown.)
- EQUIPMENT (In top shape and tested.)

GLOSSARY

ALL-SEASON ROUTES — A route that may be used year-round.

CORRIDOR — A designated route of varying width. This could be used on some snowmobile routes because of varying snow conditions.

CROSS-COUNTRY VEHICLE TRAVEL — Any vehicle travel off of any designated road, route or trail.

DESIGNATED ROUTE — Where travel is limited to a specific road or trail and the area adjacent to the route is closed.

FOREST DEVELOPMENT ROAD — Includes primary constructed forest access roads and travelways developed through construction or use and designated for use by wheeled vehicles. (Some of these may be designated as only suitable for "four-wheel drive" and/or two wheel vehicle use).

LAND TRAVEL — Vehicle travel where wheels or tracks are in contact with the ground.

OFF-ROAD VEHICLE (ORV) — Any motorized vehicle designated for or capable of cross-country travel on or immediately over land, water, snow, sand, ice, marsh, swampland or other terrain, which would include, but not be limited to, such vehicles as four-wheel drive, motorcycle, snowmobile, amphibians, and air cushion vehicles.

OVER-THE-SNOW VEHICLE — Any vehicle specifically designed for travel across snow or ice.

OVER-THE-SNOW TRAVEL — Vehicle travel where wheels or tracks travel over or through the snow and do not contact the ground.

ROUTE — A road or trail that has been either designated for ORV use or has been closed to ORV use.

SEASONAL CLOSURE — When specified roads, trails, and areas will be closed to land travel. The normal season of land travel closure would be from late fall to spring.

TRAIL — Single track paths or travel ways of varying widths developed by construction or use for hikers, horsemen, bicyclists or for motor vehicles which have a total width of 40 inches or less.

WILDERNESS — Areas where natural conditions are to be maintained and motor vehicle use is prohibited by law.

DIAL-FOR- INFORMATION

487-5456 Recreation Facility Information — campground availability, reservoir water depth reports, road and trail status, and pertinent data such as special recreational events. (REPORTS ARE UPDATED DAILY)

487-5525 Fire Status Report — availability of campfire and fuelwood cutting permits, restrictions in force (if any). (REPORTS ARE UPDATED DAILY DURING FIRE SEASON)

FOR MORE INFORMATION

The following offices of the Sierra National Forest can provide additional information:

Mariposa Ranger District
Mariposa, CA 95338
Telephone: (209) 966-3638

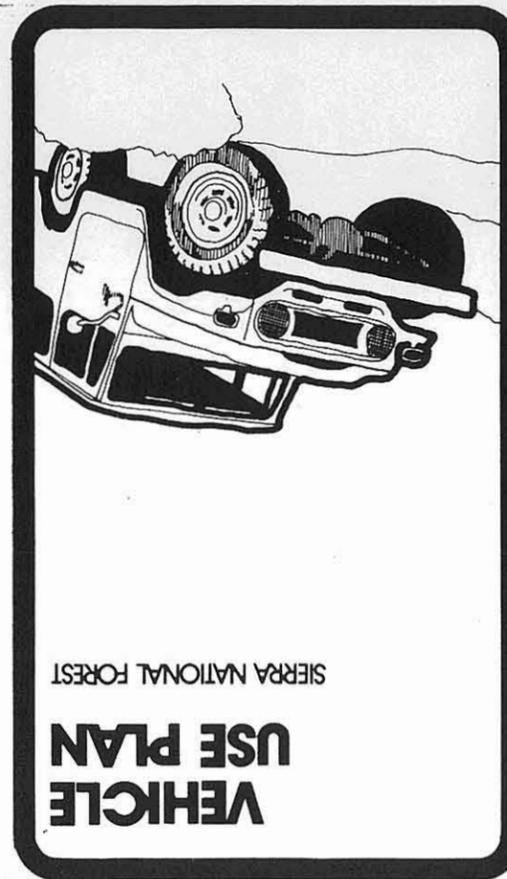
Bass Lake Ranger District
Oakhurst, CA 93644
Telephone: (209) 683-4665

Minarets Ranger District
North Fork, CA 93643
Telephone: (209) 877-2218

Pineridge Ranger District
Shaver Lake, CA 93664
Telephone: (209) 481-3311

Kings River Ranger District
Timmer Route
Sanger, CA 93657
Telephone: (209) 855-8321

Sierra National Forest Headquarters
1130 "O" Street
Fresno, CA 93721
Telephone: (209) 487-5155



INTRODUCTION

This brochure is intended to help the motor vehicle user enjoy the Sierra National Forest safely and without damaging natural surroundings.

Vehicle use, including off-road recreational vehicles, is one of the many uses of National Forest lands. At the same time, it is recognized that improper handling of a machine can damage the

resources of these lands. Because of this potential impact, the driver must assume responsibility for proper vehicle operation.

Any type of organized recreational event must be authorized by a Special Use Permit issued by the District Ranger for the District on which the event takes place.

TRAVEL RESTRICTIONS

Please study the map and the rates for each travel zone. This brochure is intended to provide you with the information for a pleasant vehicle experience. Through your understanding and observation of these travel rules, minimum enforcement action will be necessary.

1. Zone A is the Minarets, John Muir, Kaiser and the proposed Monarch Wildernesses. Motorized use is not allowed in National Forest Wilderness.

2. Vehicle travel restrictions for Zones B, C, D, and E, as shown on the map (reverse side of this brochure) and signed and posted on the ground, have been established for the Sierra National Forest in order to provide for public safety, protect National Forest resources and minimize conflicts between users. Operation of a vehicle on roads, trails or areas (cross-country) in violation of these restrictions is illegal. The restrictions are enforceable under the Code of Federal Regulation by an order, copies of which are available at offices of District Rangers and the Forest Supervisor, at the address shown below.

3. These restrictions apply to National Forest lands and easements and have no effect on lawful uses of State or County highways. Use of private land is controlled by the owner and subject to such restrictions as the owner may wish to enforce.

4. Where off-road vehicle travel is limited to

indicate those routes where motor vehicles are permitted. On certain designated routes, motor vehicles with an overall width greater than 40 inches are prohibited and signs will be posted to indicate this restriction. Direct ingress and egress is permitted to temporary campsites within 300 feet of designated routes, provided that the ground is dry or rock, no vegetation is damaged or destroyed, and no streams or meadows are crossed.

5. Use of any road or trail or area under Forest Service jurisdiction may be further restricted or prohibited by the Forest Supervisor, Sierra National Forest, if necessary to provide for public safety, prevent damage, or otherwise serve the public interest. These special problem areas will be designated if further restriction is necessary.

6. An exception to these rules for Zones B, C, D, and E may be granted in writing for official use or specific authorized uses of National Forest land. Authorizations by means of an Off-Road Vehicle Permit will be for a specific area, condition of use, a definite period of time, and shall be revocable for violation of the rules and regulations governing the National Forests.

7. The Forest Supervisor can authorize temporary exceptions to the listed closures for military, fire, emergency, law enforcement or other vehicles when used for emergency purposes, and any vehicle whose use is expressly authorized by law



OPERATING CONDITIONS

ENFORCED UNDER THE CODE OF FEDERAL REGULATIONS

The following are prohibited in the National Forest System:

- (a) Operating any vehicle, including any "off-road" vehicle:
 - * (1) Without a valid license as required by the state law (includes (1) state operators and vehicle license are required to operate vehicles on Forest Development Roads, except for use on those travel ways designated only for four wheel drive and/or two wheel vehicle use and (2) state off-road vehicle registration sticker is required for all off-road use);
 - * (2) With an internal or external combustion engine not equipped with a properly installed spark arrester or exhaust system;
 - (3) Without an operable braking system, or a properly installed and working exhaust system;
 - (4) From one-half hour after sunset to one-half hour before sunrise unless equipped with working head and tail lights;
 - (5) In violation of any applicable noise emission standard established by any Federal or State agency. If standards overlap, the most stringent will govern.
- (b) Driving any vehicle, including "off-road" vehicle:
 - (1) In excess of posted or established limits on speed, load, weight, length, or width;
 - (2) While under the influence of alcohol or other drugs;
 - (3) In violation of State law;
 - (4) In a manner that creates excessive or unusual noise or smoke;
 - (5) Carelessly and without regard for the safety of others;
 - (6) In a manner that endangers, or is likely to endanger, any person or property;
 - (7) In a manner creating excessive damage or disturbance of the land, wildlife or riparian resources.