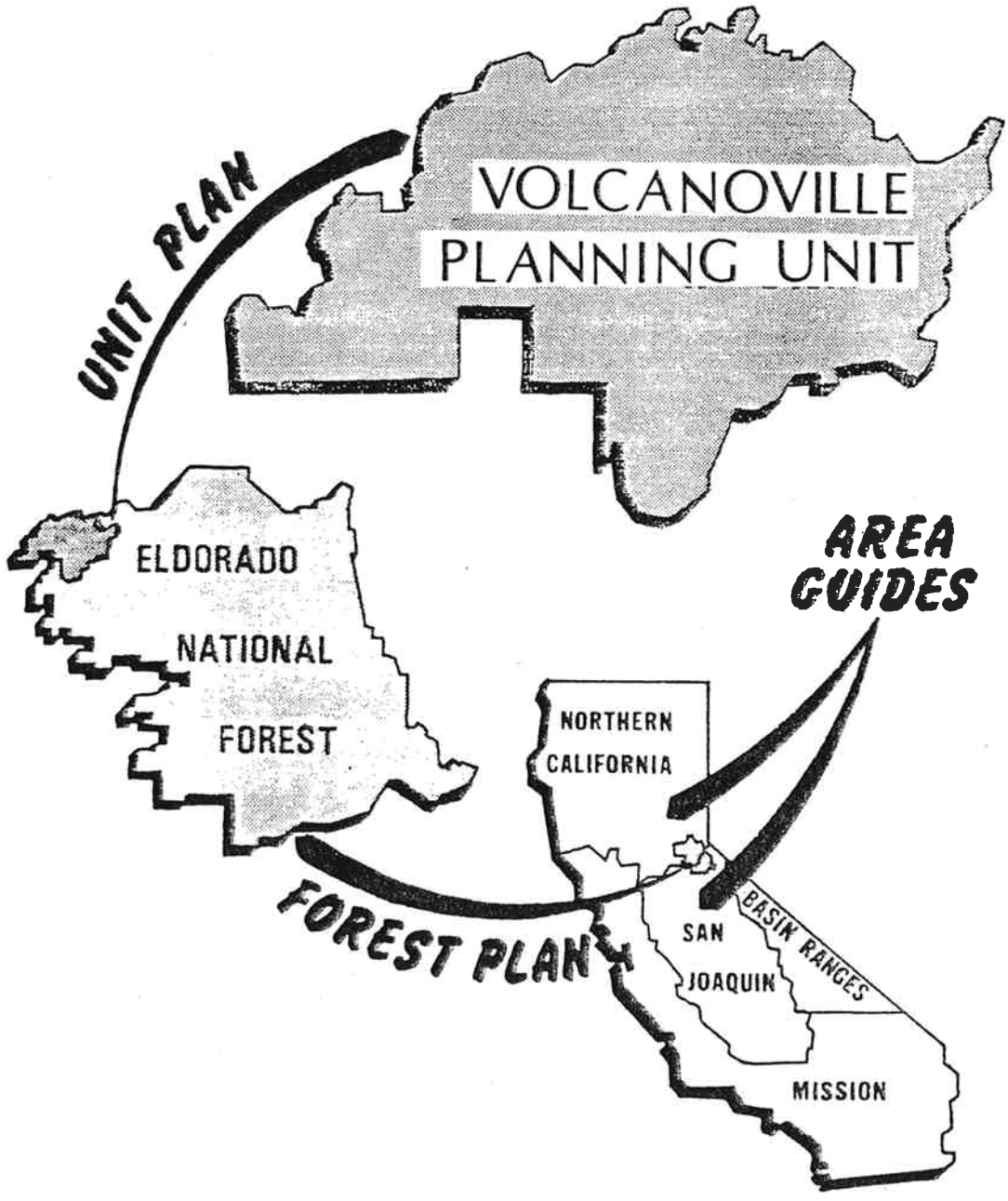
PCWA-L-200

volcanoville planning unit

FINAL ENVIRONMENTAL STATEMENT



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FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

ELDORADO National Forest

U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

ELDORADO NATIONAL FOREST

ENVIRONMENTAL STATEMENT

VOLCANOVILLE PLANNING UNIT

LAND MANAGEMENT PLAN

Prepared in Accordance with
Section 102(2)(c) of P.L. 91-190
USDA-FS-R5-FES (Adm.) 76-5

Type of Statement: Final

Date of Transmission to CEQ: OCT 19 1977

Type Action: Administrative

Responsible Official: Douglas R. Leisz, Regional Forester
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100 Forni Road
Placerville, CA 95667

U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

ELDORADO NATIONAL FOREST

ENVIRONMENTAL STATEMENT

for the

VOLCANOVILLE PLANNING UNIT

LAND MANAGEMENT PLAN

Prepared in Accordance with
Section 102(2) (c) of P.L. 91-190

SUMMARY SHEET

USDA - FS - R5-FES (Adm.) 76-5

I. TYPE OF STATEMENT: Final

II. AGENCY: Forest Service

III. TYPE OF ACTION: Administrative

IV. DESCRIPTION OF ACTION:

This document is the Final Environmental Statement leading to the selection of a revised Land Management Plan for the Volcanoville Planning Unit, Georgetown Ranger District, Eldorado National Forest, El Dorado County, California.

A. PURPOSE

1. To provide for giving environmental quality careful and appropriate consideration in land use planning; to supplement the Unit Plan by documenting aspects of the planning activity needed for selection of a final plan of management; and to provide a rational basis for plan selection.

2. To describe alternative courses of possible action with particular emphasis upon the social, economic, and ecological effects that are expected to result from plan implementation.

B. CONTENT

1. An environmental description or assessment of the Planning Unit and the affected area in terms of existing and expected future social, physical, biological, institutional and economic systems in order to permit an understanding of the environmental setting, goals of management, and major issues of critical concern.

2. A discussion of alternative ways in which the National Forest System lands and resources can be used to contribute toward achievement of the identified goals and respond to the major issues of critical concern within the described environmental setting.

3. A discussion of the kind, amount, and significance of effects upon the social, economic, and ecological systems that are predicted to result from implementation of each alternative plan of management being considered and including unavoidable effects, mitigating measures, effects upon maintenance of long-term productivity of renewable natural resources, and the relative irreversibility and irretrievability of actions and effects.

4. Identification of Alternative C as the proposed plan of management and a discussion of the rationale for the tentative selection.

5. A description of consultation with other agencies, groups, and individuals in earlier phases of the planning activity, responses to the draft Statement, and answers to questions raised by respondents to the draft Statement not otherwise covered in the text of the final Statement.

The land use plan selected subsequent to this Statement will apply only to the approximately 12,700 acres of National Forest land, not to an additional approximately 10,400 acres of privately-owned land within the boundaries of the Planning Unit and the Eldorado National Forest.

There are no inventoried roadless areas within the Planning Unit.

The El Dorado County General Plan and Recreation Plan as well as the State Water Resources Control Board's Water Quality Control Plan, Part 1 for Region 5A were considered in the development of the alternative plans. These plans conform to and generally compliment the guidelines adopted by the State and County for land use in this area.

V DISTRIBUTION

This final Statement is being sent to the following agencies and organizations. In addition, it will be available to any other agencies, organizations or individuals who may request it. Distribution of the draft Environmental Statement is indicated by "°". Receipt of a written response to the draft Environmental Statement is indicated by "*".

A. FEDERAL AGENCIES AND LEGISLATORS

°Senator Alan Cranston
Senator S. I. Hayakawa (°John V. Tunney)
°*Congressman Harold T. Johnson
°Congressman John McFall

Army Corp of Engineers, Sacramento District Engineer
Department of Agriculture:

Agriculture Stabilization and Conservation Service, State Executive Director
Farmers Home Administration, State Director
Forest Service:

Black Hills National Forest
California Regional Office Staff Directors
°Institute of Forest Genetics, Region 5
°Pacific Southwest Forest and Range Experiment Station
°Region 5 National Forests
°Toiyabe National Forest

°*Office of Equal Opportunity
°Soil Conservation Service, State Conservationist

°Department of Commerce, Deputy Assistant Secretary for Environmental Affairs
Department of Defense, Office of the Assistant Secretary for Health and Environment
Department of Health, Education and Welfare, Regional Director
°Department Housing and Urban Development, Region IX Environmental Clearing Officer
°*Department of Interior, Office of Environmental Project Review, Director

°Bureau of Land Management, State Director, District Manager
°Bureau of Reclamation, Regional Director
°Bureau of Sport Fisheries and Wildlife, Regional Director
Geological Survey, Conservation Division

Department of Labor, Regional Manpower Administration
Department of Transportation, Region IX Secretariat
°*Environmental Protection Agency, Region IX
Federal Aviation Administration, Western Regional Director
°Federal Energy Administration, Office of Environmental Regions, Environmental Impact Division
Federal Highway Administration, Regional Administrator
Federal Power Commission, Regional Engineer
House Committee on Interior and Insular Affairs, Subcommittee on Public Lands
°National Advisory Council on Historic Preservation, Office of Architectural and Environmental Preservation

B. STATE AND REGIONAL AGENCIES AND STATE LEGISLATORS

California

°Senator Alfred E. Alquist
°Senator John Garamendi
°Assemblyman Eugene A. Chappie
Assemblyman Norm Waters

°Highway Patrol, Placerville
°Sacramento Regional Area Planning Commission
*Sierra Planning Organization
°*State Clearinghouse, Office of Intergovernmental Management
°*State of California Resources Agency

°Department of Fish and Game, Region 2
°Department of Parks and Recreation
°Department of Water Resources, Central District
°State Board of Forestry
°State Division of Forestry, Camino
°State Lands Commission
°State Water Control Board

°Tahoe Regional Planning Agency

C. COUNTY GOVERNMENTS AND AGENCIES

El Dorado County

°Agriculture Commission
°Air Pollution Officer
°Board of Supervisors
°Conservation Commission
°Fish and Game Commission
°Planning Commission
°Recreation Commission

D. ACADEMIC INSTITUTIONS

°American River College, Forestry Department
°California State University, Humboldt, School of Forestry
°California State University, Sacramento, Department of Recreation And Park Administration
°California State University, Sacramento, Department of Environmental Resources
°El Dorado County School Board Association
°El Dorado County Superintendent of Schools
°El Dorado Union High School
°Georgetown Elementary School
°Lassen Community College, Department of Forestry
Northwestern University, Center for Urban Affairs
°Ponderosa High School
°Sierra College, Forestry Department
°Sly Park Environmental Center
°University of California, Berkeley, College of Forestry
°University of California, Berkeley, Agricultural Extension Service

°*University of California, Berkeley, Blodgett Experimental Forest
°University of California, Davis, Government Documents Library
University of California, Davis, Division of Environmental Studies
°Utah State University, College of Natural Resources, Department of Forestry and Outdoor Recreation

E. SPECIAL INTEREST GROUPS

°Bear State Property Owners Association
°California Association of 4-WD Clubs, Inc.
°California State Chamber of Commerce
°California Wildlife Federation
°El Dorado County Board of Realtors
°El Dorado County Chamber of Commerce
°El Dorado County Rod and Gun Club
°El Dorado Jeepherders
°Highway 50 Association
°Jeepskinners 4-WD Club
°Kawasaki Motors Corporation
°Kiwanis Club of Placerville
°MORE
°Mother Lode Outlaws
°The Nature Conservancy
°NCRCC Wilderness Coordinator
°Rock Rambler Jeep Club
°Rotary Club of Placerville
°Rough and Ready Jeep Club
°*Sierra Club, Mother Lode Chapter
°Sierra Treasure Hunting Club, Inc.
°Society of American Foresters, Mother Lode Chapter
°The Wilderness Society

F. BUSINESS, INDUSTRY, UTILITY DISTRICTS

°American Forest Products, Inc.
°American Mining Congress
°Carlson Glass Company
°Cities Service Minerals Corporation
°El Dorado Irrigation District
°Environmental Science and Engineering, Inc.
°Ferrari Lumber Company
°Georgetown Divide Public Utility District
°Georgetown Gazette
°Georgetown Lumber Company
°Hammers, Siller, George Associates
°Michigan-California Lumber Company
°The Mountain Democrat
°Nikkel Lumber Company
°Pacific Gas and Electric Company
°Placerville Lumber Company
°Radio KAHI-KAFI
°Sacramento Bee
°Sacramento Municipal Utility District
°Sacramento Union
°Southern Pacific Land Company
°Stockton Box Company
°*Western Timber Association
°Wetzel-Oviatt Lumber Company

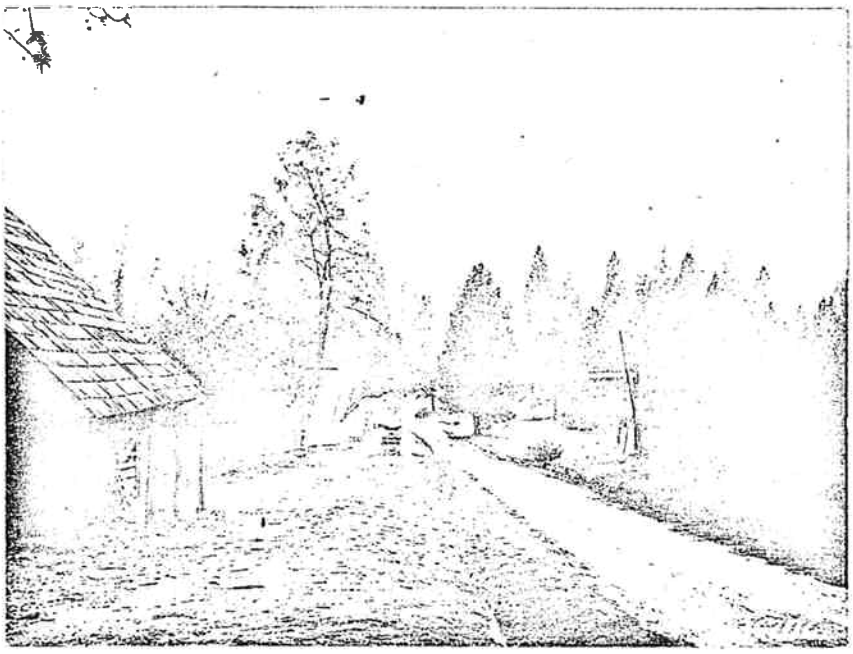
G. INDIVIDUALS

In addition, approximately 85 copies of this Statement are being sent to individuals who have expressed an interest in the Volcanoville Unit planning process.

VI DATE ENVIRONMENTAL STATEMENT MADE AVAILABLE TO CEQ AND PUBLIC

Draft Statement June 2, 1976

Final Statement OCT 19 1977

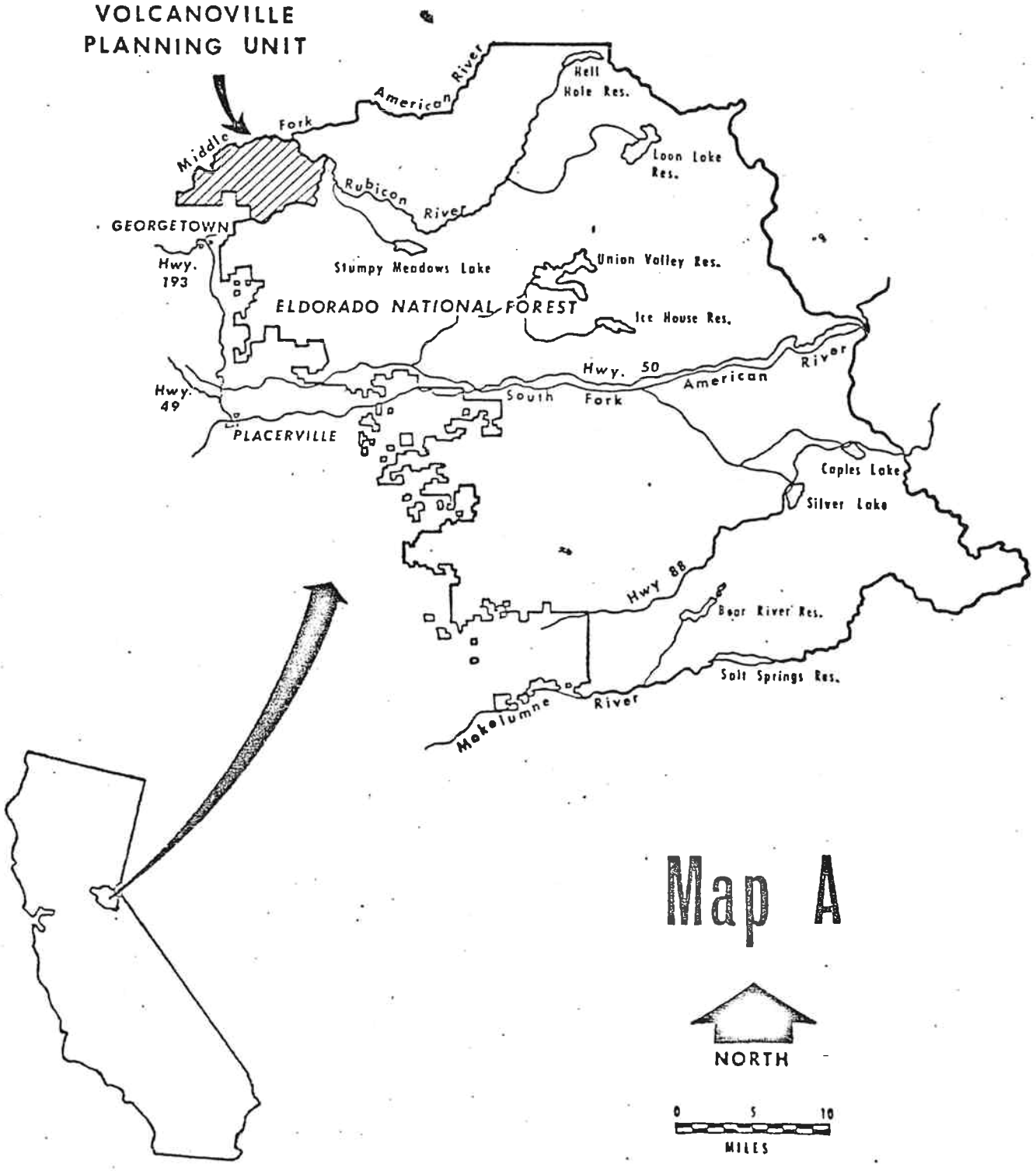


Looking out of the Eldorado National Forest from a point 150 feet inside the Georgetown entrance boundary. Circa 1920's.

TABLE OF CONTENTS

TABLE OF MAPS

LOCATION MAP



Map A

INTRODUCTION

BACKGROUND

Effective and responsive planning must, of necessity, be a dynamic, on-going process. Many important concerns have recently been articulated as national policy in the National Forest Management Act (P.L. 94-588). The recommended Renewable Resources Program prepared by the Forest Service in response to the Renewable Resources Planning Act of 1974 (P.L. 93-378) and released in March 1976, has defined many new goals and provided new direction for the management of National Forest resources. In response to the new course which has been set, this document is the final Environmental Statement leading to the selection of a new general plan of management for the National Forest lands and other lands under Forest Service administration within the Volcanoville Planning Unit. This Unit is located entirely within El Dorado County, California. Final selection of a plan will not be made prior to 30 days after distribution of this Statement. The new plan will become effective 30 days after approval. This new land management plan will supersede the existing Georgetown Ranger District Multiple Use Plan last revised in 1971.

The Volcanoville Unit Land Management Plan (VULMP) will apply the general direction of the Eldorado National Forest Land Management Plan (ENFLMP) and the Northern California Area Guide in evaluating land capability and allocating commodity production for specific geographic areas termed "management units." Initially a synthesis of soils, geology, topography, hydrology, meteorology, vegetation, and wildlife inventory data results in delineation of an ecosystem. Management units are then defined by integrating evaluations of resource capability and suitability with each ecosystem. Finally, integration of social, political, legal, economic and administrative constraints results in alternative management unit strategies from which one particular combination is selected as the plan.

At the next more detailed level of planning, project plans will be formulated for any development activities, such as proposed timber sales, permitted within a management unit by the Unit Plan with which they will be consistent. Resource Management Plans such as the Timber Management Plan and other "functional" plans, such as the Transportation Plan and the Oil and Hazardous Substances Contingency Plan, which facilitate management objectives, are designed to be Forest-wide in scope yet also must be consistent with each Unit Plan or Ranger District Multiple Use Plan.

PURPOSE

Some of the reasons for refining the existing Multiple Use Plan and preparation of this Statement include:

1. To respond to changes (physical, social, economic, and administrative) which have occurred since the Ranger District Multiple Use Plan was approved in 1971.

2. To provide a clear, concise, and logical discussion of the feasible alternatives of management direction, their effects, and the criteria for selection of a preferred alternative.

3. To ensure that management of the planning unit is in accordance with the Multiple Use Sustained Yield Act (1960); the National Environmental Policy Act of 1969 (P.L. 91-190); the National Forest Management Act of 1976 (P.L. 94-588); other legislation, regulations, Executive Orders, and policies concerning administration of public lands, especially as expressed by the Forest Service in the Final Environmental Statement and Renewable Resource Program---1977 to 2020---; as well as with other local, regional, and national policies.

4. To provide land managers with long-range direction which considers the capability and limitation of the land together with the needs and demands of the public.

5. To resolve conflicts between competing uses for the land and to provide for resolution of conflicts between land use and land capability.

COORDINATION AND COMPLIANCE

The alternatives presented in this Statement have been formulated to be consistent with approved federal, state and local land use plans, policies and law particularly relating to the maintenance or enhancement of physical, biological, and social aspects of environmental quality.

The alternatives have also been formulated to conform with that body of law relating to Forest Service management activities including the National Forest Management Act of 1976 (P.L. 94-588). A partial compilation of applicable law may be found in The Principal Laws Relating to Forest Service Activities and its Supplement (37 and 38).

Response to the draft Environmental Statement has indicated that the alternatives are indeed consistent with the plans of agencies and quasi-governmental organizations with an interest in the affected area, and that the alternatives conform to applicable law.

The selected plan will similarly be in conformity and consistent with those considerations addressed above. The plan will also be consistent with approved Forest Service programs as well as in conformity with existing direction as stated in the Forest Service Manual.

This Plan will be in effect until it is reviewed, and, if necessary, revised as soon as practicable under the guidelines for land management planning in the regulations promulgated pursuant to Section 6 of the National Forest Management Act of 1976 (P.L. 94-588), including the guidelines developed under subsection 6(g) through consultation with the Committee of Scientists. This Plan has been prepared in accordance with the interim directions issued to implement the National Forest Management Act.

RESOURCE INVENTORIES AND CAPABILITIES

PHYSICAL (LAND, AIR AND WATER) SYSTEM

Earth Resources

Geology

There are four geological Units apparent in the Volcanoville Planning Unit. In stratigraphic sequence from youngest to oldest, these are as follows:

1. Pliocene pyroclastic rocks (Pv^P) consisting of volcanic rocks commonly referred to the Mehrten Formation including thick andesitic mud flows, breccia, tuff, and gravels.

2. Tertiary nonmarine sedimentary rocks (Tc) consisting of auriferous (and non-auriferous) gravel deposits of uncertain age.

3. Mesozoic basic (bi) intrusive rocks consisting of medium-to-coarse-grained hornblende gabbro, pyroxenite, and related rocks; and ultrabasic intrusive rocks (ub) consisting of serpentine, peridotite, olivine pyroxenite and related rocks.

4. Palezonic marine sedimentary and meta-sedimentary rocks (IP) of the Calaveras Formation consisting of slate, sheared sandstone, quartz-mica schist, gneiss, graphitic schist, crushed and elongated pebble conglomerate, quartzite, and rhythmically bedded slightly-recrystallized-to-completely-recrystallized radiolarian chert.1/

The location of these Units may be seen in Map R.

Seismic Hazard

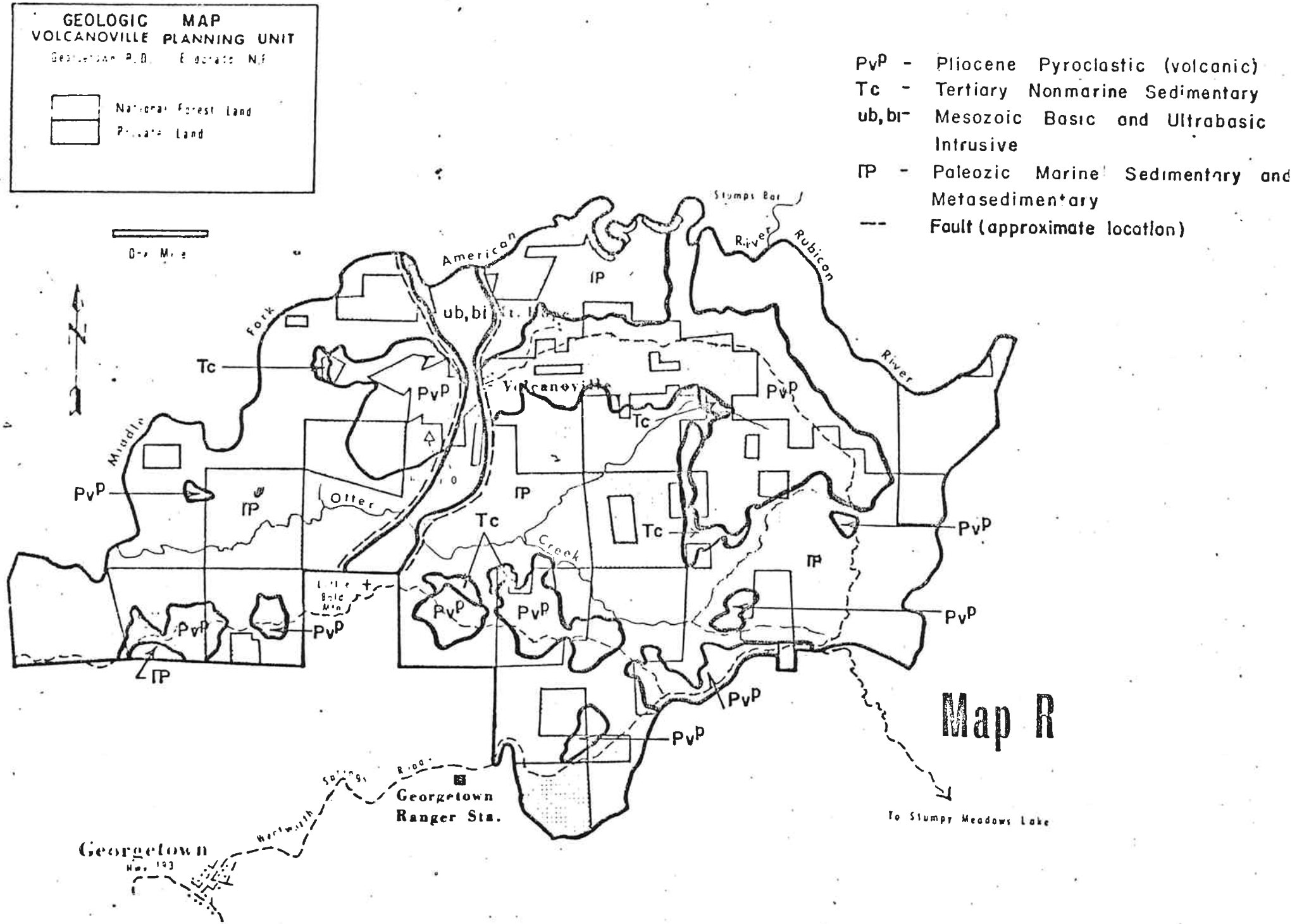
A suspected fault zone borders the area of basic and ultrabasic, instrusive rock and should be considered in planning for any future development. An earthquake hazard may also exist especially for structures located upon Tertiary gravel deposits that may become water-saturated during winter rains. The Planning Unit lies within Damage Zone 1 where minor to moderate damage may occur. See Map S for additional description of effects and intensities. It should be noted however, that Map S does not reflect reevaluation of data by the California Division of Mines and Geology following the recent earthquake in Butte County.

Minerals

The Volcanoville Unit is within the Mother Lode Gold Belt of California, and gold is the primary economic mineral present. In the Mother Lode, gold is usually associated with quartz veins in the metasediments. There are several lode or seam gold mines in the Unit, but most of them are presently inactive.

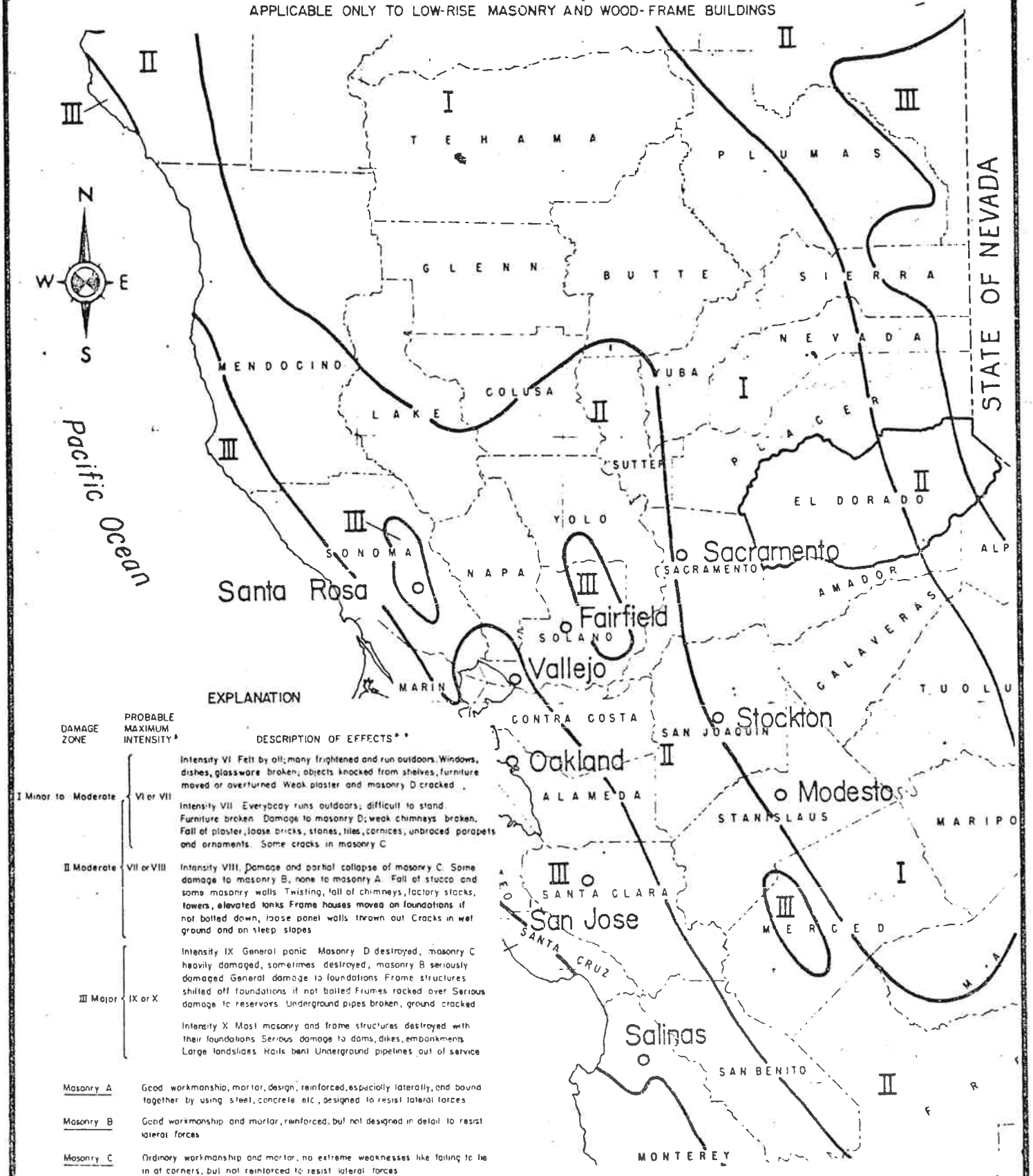
Within the Unit, gold is also associated with stream or placer deposits such as Tertiary stream gravels and Recent alluvium. There are several placer mines within the Unit, and most of these are also inactive.

1/ California Division of Mines and Geology. Chico and Sacramento Sheets Stratigraphic Nomenclature, 1966.


GEOLOGIC MAP
VOLCANOVILLE PLANNING UNIT
National Forest Land
Private Land
PvP - Pliocene Pyroclastic (volcanic)
Tc - Tertiary Nonmarine Sedimentary
ub, bi- Mesozoic Basic and Ultrabasic Intrusive
IP - Paleozic Marine Sedimentary and Metasedimentary
--- Fault (approximate location)
American River
Stumps Bar
Rubicon River
Middle Fork
Otter Creek
Little Bald Mtn.
Volcanoville
Georgetown
Georgetown Ranger Sta.
Map R
To Stumpy Meadows Lake

PRELIMINARY MAP OF MAXIMUM EXPECTABLE EARTHQUAKE INTENSITY IN CALIFORNIA

APPLICABLE ONLY TO LOW-RISE MASONRY AND WOOD-FRAME BUILDINGS



EXPLANATION

DAMAGE ZONE	PROBABLE MAXIMUM INTENSITY*	DESCRIPTION OF EFFECTS**
I Minor to Moderate	VI or VII	Intensity VI Felt by all; many frightened and run outdoors. Windows, dishes, glassware broken; objects knocked from shelves, furniture moved or overturned. Weak plaster and masonry D cracked.
		Intensity VII Everybody runs outdoors; difficult to stand. Furniture broken. Damage to masonry D; weak chimneys broken. Fall of plaster, loose bricks, stones, tiles, cornices, unbraced parapets and ornaments. Some cracks in masonry C.
II Moderate	VII or VIII	Intensity VIII. Damage and partial collapse of masonry C. Some damage to masonry B, none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, towers, elevated tanks. Frame houses moved on foundations if not bolted down, loose panel walls thrown out. Cracks in wet ground and on steep slopes.
III Major	IX or X	Intensity IX General panic. Masonry D destroyed, masonry C heavily damaged, sometimes destroyed, masonry B seriously damaged. General damage to foundations. Frame structures shifted off foundations if not bolted. Frames racked over. Serious damage to reservoirs. Underground pipes broken, ground cracked.
		Intensity X Most masonry and frame structures destroyed with their foundations. Serious damage to dams, dikes, embankments. Large landslides. Rails bent. Underground pipelines out of service.

Masonry A — Good workmanship, mortar, design; reinforced, especially laterally, and bound together by using steel, concrete etc., designed to resist lateral forces.

Masonry B — Good workmanship and mortar, reinforced, but not designed in detail to resist lateral forces.

Masonry C — Ordinary workmanship and mortar, no extreme weaknesses like failing to tie in at corners, but not reinforced to resist lateral forces.

Masonry D — Weak materials, such as adobe, poor mortar, poor workmanship, weak horizontally.

* Modified Mercalli Intensity Scale of 1931

** Descriptions and masonry classification based on C.F. Richter's 1956 version of the 1931 MM intensity scale (in Elementary Seismology, 1958)

(A portion of California Division of Mines and Geology Map)

NO SCALE

Chromite is the only other economic mineral of any significance in the Volcanoville Unit and is associated with the serpentine areas. There are two or three inactive chromite mines in the Unit.

There are about 200 mining claims scattered throughout the Unit. At present the activity on these claims is low. Only one claim, near the Donaldson Trail, is now active, but there are three to six hydraulic operations worked on a seasonal basis. These sites are on the Middle Fork of the American and Rubicon Rivers.

Recent increases in gold prices have increased the number of claims being established. However, the number of valid claims is unknown.

Neither active nor inactive borrow pits or other sources which have been inventoried for construction materials such as sand or crushed rock exist within the Unit.

Geomorphology

The Unit is characterized by gently sloping to moderately steep uplands and very steep canyonlands, the latter formed by down-cutting of the Middle Fork American River and Otter Creek. Elevation ranges from about 800 feet at the Middle Fork American River to around 4,300 feet at Tunnel Hill (see Map B).

There are six distinct geomorphic zones within the Volcanoville Unit:

Metamorphic Upland - An old erosional surface with slight to moderate relief (usually 10 to 40 percent slopes). This zone was formed from metamorphosed, marine, sedimentary rocks (e.g. schists and slates) by the erosive forces of running water. The landforms are fairly broad, v-shaped, streamcut valleys with broad, rounded interfluves. There are few rock outcrops within this zone.

Aerial photo interpretation and on-the-ground observation of geologic and slope characteristics have indicated no evidence of land instability. Therefore the potential for mass movement in this zone is estimated to be low.

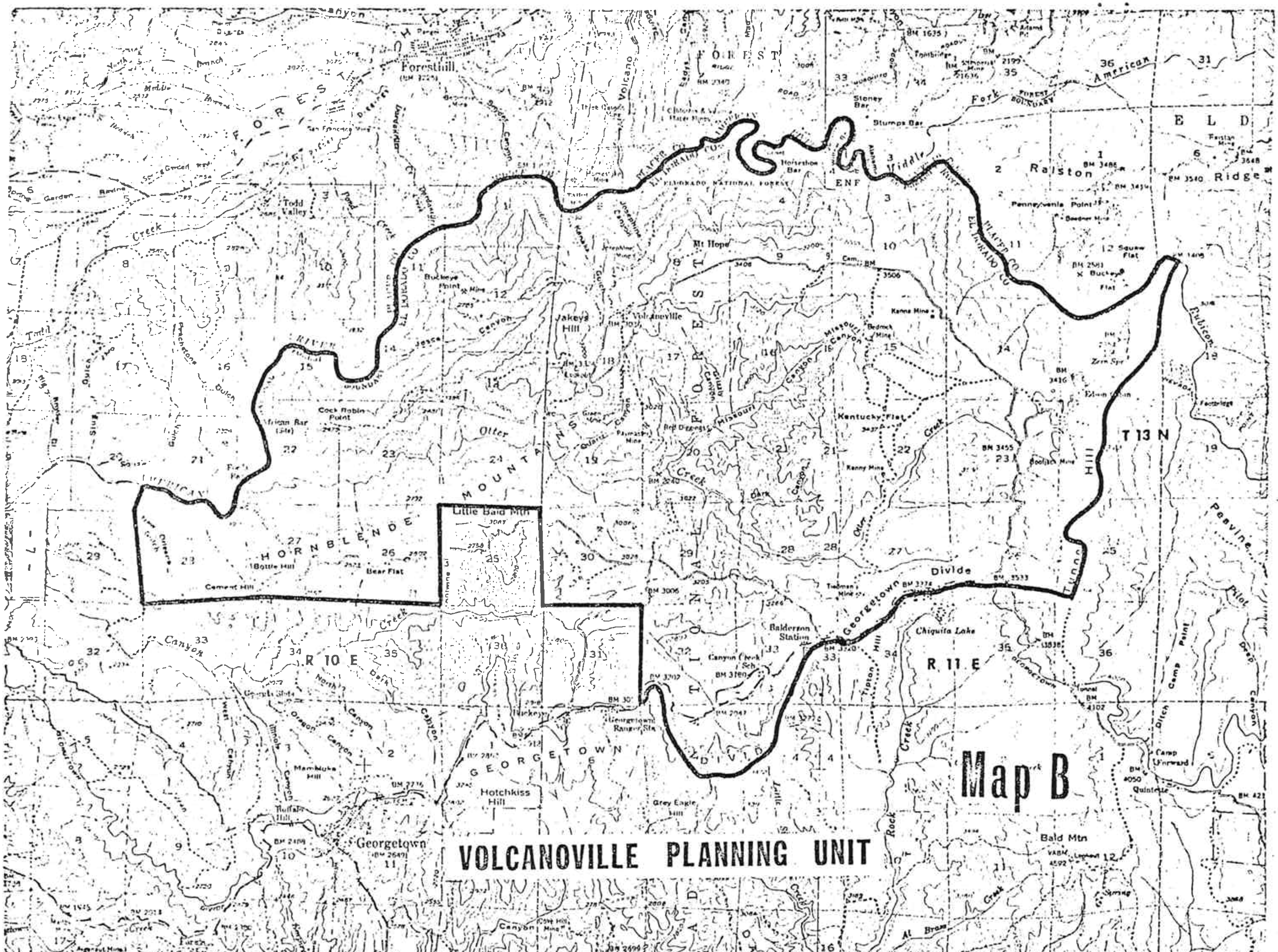
Metamorphic Canyonland - A relatively new erosional surface with high relief (slopes in excess of 50 percent). This zone was formed from metamorphosed, marine sediments by the accelerated downcutting of streams or rivers. There are narrow, v-shaped, streamcut valleys with narrow, sometimes knife-ridged, interfluves. Rock outcrops are frequent.

There is evidence of occasional old landslides that are now apparently stable. No evidence of recent activity has been noted. Existing roads constructed through this zone exhibit occasional outslope failures however.

Volcanic Flowland - An old, volcanic flow surface with slight to moderate relief (usually 5 to 30 percent slopes). The forces of running water shaped this landscape from a gently sloping, volcanic flow material (e.g. andesite) resulting in a few streamcut valleys with large, relatively flat interfluves. There are few rock outcrops.

This zone shows no evidence of land instability and appears to have little potential for mass movement.

Volcanic Canyonland - A relatively new erosional surface with high relief (slopes in excess of 50 percent). This zone was formed by the accelerated downcutting of streams or rivers in volcanic rock. There are narrow, v-shaped, streamcut valleys with narrow interfluves. Occasional rock outcrops are present.


VOLCANOVILLE PLANNING UNIT
Map B
Foresthill
Todd Valley
Volcanoville
Jakeys Hill
Mt Hope
Ralston Ridge
Pennsylvania Point
Squaw Flat
Kentucky Flat
Little Bald Mtn
HORNBLENDE MOUNTAINS
Bottle Hill
Bear Flat
Cement Hill
Balderson Station
Georgetown Divide
Chiquita Lake
R 10 E
R 11 E
T 13 N
GEORGETOWN
Hotchkiss Hill
Georgetown
Bald Mtn
ELDORADO NATIONAL FOREST

No evidence of land stability has been observed within this zone. Because of the steep slopes, however, some degree of instability may be expected, especially near the contact with metamorphic canyonland.

Serpentine Upland - An old erosional surface with slight to moderate relief (usually 10 to 40 percent slopes). This zone was formed from ultrabasic intrusive rock (e.g. serpentine) by the erosional forces of moving water. The landforms are fairly broad, v-shaped, streamcut valleys with broad, rounded interfluves. There are occasional rock outcrops.

There is very little evidence of land instability within this zone.

Serpentine Canyonland - A relatively new erosional surface with high relief (slopes in excess of 50 percent). This zone was formed from ultrabasic, intrusive rock by the accelerated downcutting of streams or rivers. There are narrow, v-shaped, streamcut valleys with narrow interfluves. Rock outcrops are frequent.

There are occasional, old, inactive landslides and a few active, small, debris slides. Because of the ecologic and slope characteristics, this zone has the highest land instability hazard of those in the Volcanoville Unit.

Soil-Geomorphic Resource

Each geomorphic zone was further divided according to soil depth and topographic slope. (See Table 1 and Map D.) The soil depths and slopes shown indicate the predominant situations. There are, however, soil depth and slope conditions in each zone that differ from those indicated.

Soil-Geomorphic Capabilities

Table 1 gives general characteristics of soil-geomorphic zones. In addition, each soil-geomorphic zone was assigned to a capability class according to its erosion potential and productivity. Various soil-geomorphic unit capabilities and interpretations are shown in Table 2.

Climate

The Volcanoville Unit is characterized by a fairly mild climate. Temperatures, in general, are moderate with average annual temperatures ranging from 54 to 60 degrees F. The mean minimum January temperatures range from about 30 degrees F. at higher elevations to 36 degrees F. at lower elevations. The mean maximum July temperatures range from 88 to 93 degrees F. Average annual precipitation ranges from 40 to 60 inches, most of which occurs during the late fall and winter months as either rain or snow. Average snowfall ranges from 20 inches at lower elevations to 70 inches in the higher areas. Most of this snow does not ordinarily stay on the ground long.(14)

Air Resources

The Unit lies in the middle portion of the Mountain Counties Air Basin, which extends from Plumas County on the north to Mariposa County on the south. Air quality monitoring has been conducted for particulates at a station operated by El Dorado County since September 1974. Testing is done with a High Volume Sampler mounted on a 20-foot pole located near the Growlersburg Conservation Camp outside Georgetown. A summary of the monthly averages for particulates may be found in Table 3. Monitoring for other contaminants has not been conducted to date in the area. However, present air quality for the Unit in general is satisfactory since industrial emission sources and a high concentration of internal combustion engines associated with heavily developed areas are absent.

SOIL GEOMORPHIC RESOURCE

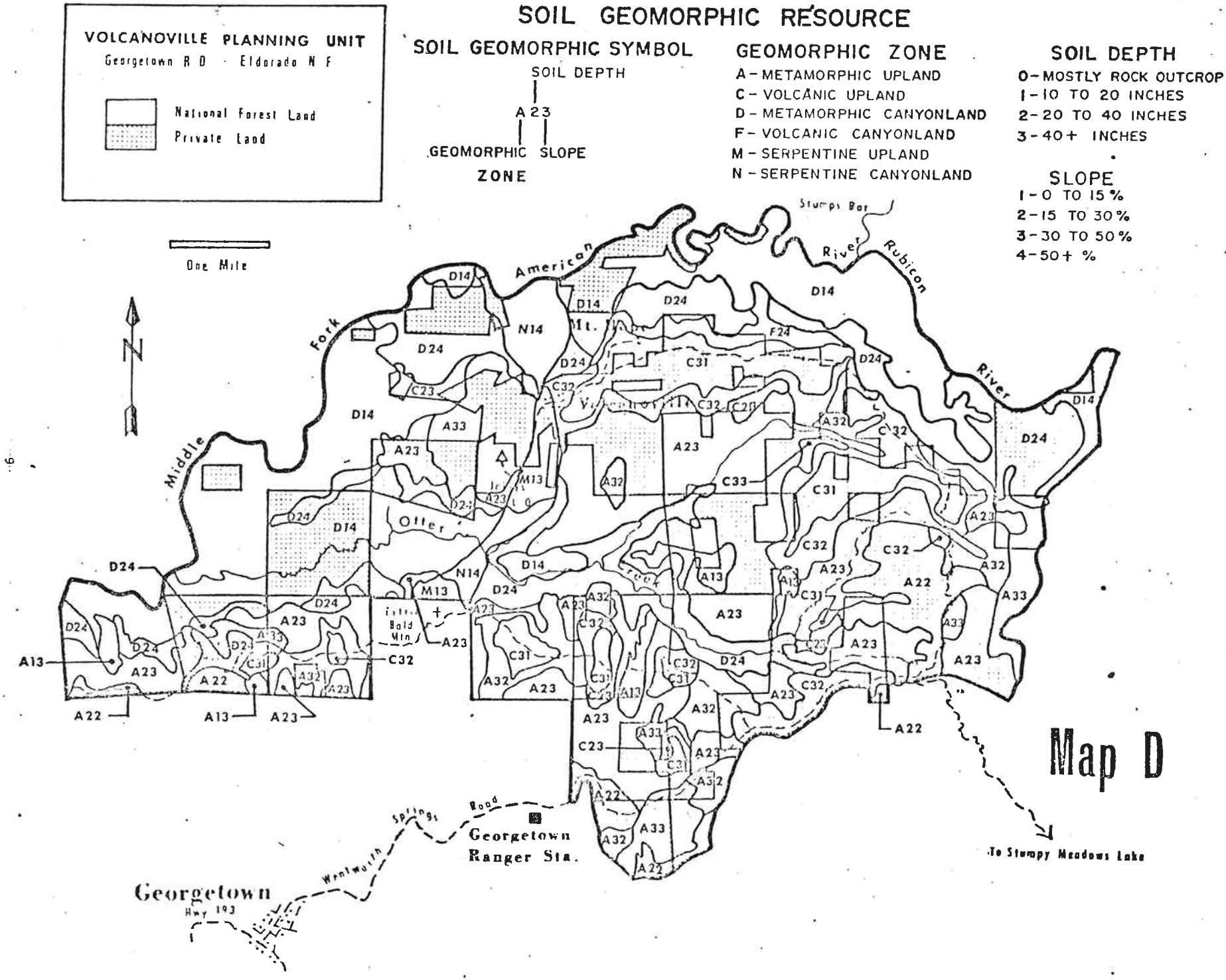


TABLE I

SOIL - GEOMORPHIC LANDFORMS

ZONE SYMBOL	NAME	INCLUDED SOIL SERIES *	
A13	Metamorphic Upland, shallow soils, 30 to 50 percent slopes.	Maymen	75%
		Mariposa	10%
		Rock Outcrop	15%
A22	Metamorphic Upland, moderately deep soils, 15 to 30 percent slopes.	Mariposa	65%
		Josephine	30%
		Maymen	5%
A23	Metamorphic Upland, moderately deep soils, 30 to 50 percent slopes.	Mariposa	70%
		Josephine	20%
		Maymen	10%
A32	Metamorphic Upland, deep soils, 15 to 30 percent slopes.	Josephine	80%
		Mariposa	20%
A33	Metamorphic Upland, deep soils, 30 to 50 percent slopes.	Josephine	75%
		Mariposa	25%
C23	Volcanic Upland, moderately deep soils, 30 to 50 percent slopes.	McCarthy	80%
		Aiken	20%
C31	Volcanic Upland, deep soils, 0 to 15 percent slopes.	Aiken	90%
		McCarthy	10%
C32	Volcanic Upland, deep soils, 15 to 30 percent slopes.	Aiken	85%
		McCarthy	15%
C33	Volcanic Upland, deep soils, 30 to 50 percent slopes.	Aiken	75%
		McCarthy	25%
D14	Metamorphic Canyonland, shallow soils, 50 percent plus slopes.	Maymen	70%
		Rock Outcrop	20%
		Mariposa	10%
D24	Metamorphic Canyonland, moderately deep soils, 50 percent plus slopes.	Mariposa	70%
		Josephine	20%
		Maymen	7%
		Horseshoe	3%
F24	Volcanic Canyonland, moderately deep soils, 50 percent plus slopes.	McCarthy	90%
		Aiken	10%
M12	Serpentine Upland, shallow soils, 15 to 30 percent slopes.	Dubakella	90%
		Rock Outcrop	10%
M13	Serpentine Upland, shallow soils, 30 to 50 percent slopes.	Dubakella	80%
		Rock Outcrop	20%
N14	Serpentine Canyonland, shallow soils, 50 percent plus slopes.	Dubakella	70%
		Rock Outcrop	30%

*Percentage of each series present. Underlined series are those upon which the interpretations are based.

TABLE 2

SOIL-GEOMORPHIC ZONE CAPABILITY

ZONE SYMBOL	EROSION POTENTIAL	POTENTIAL 1/ INSTABILITY	TIMBER PRODUCTIVITY
A13	High	Low	Non-Commercial
A22	Low	Low	Moderate
A23	Moderate	Low	Moderate
A32	Low	Low	High
A33	Moderate	Low	High
C23	Moderate	Low	Moderate
C31	Very Low	Very Low	Very High
C32	Low	Low	Very High
C33	Moderate	Low	High
D14	Very High	Moderate	Non-Commercial
D24	High	Moderate	Moderate
F24	High	Moderate	Moderate
M12	Low	Low	Non-Commercial
M13	High	Moderate	Non-Commercial
N14	Very High	High	Non-Commercial

Air Pollution Meterology (13)

Varied meterological conditions exist in this area. Two major factors affecting air quality are airflow and the air heating characteristics. Due to the numerous canyons and ridges there is a wide diversity of airflow patterns. As a general rule the airflow on a hillside is downslope at night and upslope in the daytime. In the late summer and fall periods, with the absence of strong barometric pressure gradients, nighttime cold density flows are especially pronounced. These density flows lead to a pooling of cool air with a temperature inversion at the top of the pool. Therefore, during this seasonal period of very stable air conditions any significant release of pollutants into the air could lead to violation of air quality standards.

Another factor that must be considered is the fact that a large portion of El Dorado County lies above 3,000 feet in elevation. The automobiles which are adjusted to run efficiently at sea level produce more emissions per vehicle mile at higher altitudes. Also these higher elevations enjoy a greater amount of ultraviolet radiation from the sun which amplifies the conversion of the primary pollutants into photochemical oxidant. The thin haze that obscures the distant ridges is a result of the bright sunlight acting on airborne, reactive hydrocarbons and nitrogen oxides. For the present, the greatest source of hydrocarbons in this rural portion of the County is probably from the dense vegetation that covers the mountains.

Affected beyond the control of man by inversion, mountains, wind, and sun, El Dorado County has conditions conducive to potentially high air pollution levels. State and Federal standards for some of the air contaminants are occasionally exceeded, already in some areas of the County. A very real threat of extremely noxious air pollution exists for the County along the western edges of the foothills area especially below 3,000 feet.

Airshed Capabilities

The capability of the airshed to continue to provide air quality superior to State and Federal Standards will depend on uncontrollable meteorological factors and the activities of man.

Continued subdivision and development of private lands within the Unit will result in temporary deterioration of air quality resulting from burning and earth-moving activities associated with construction and in a long-term increase in contaminants resulting from an increasing number of fireplaces and automobiles.

The therapeutic capability of that part of the airshed within the Unit to provide relatively clean air for the thousands of valley residents who choose to periodically escape the smog and for the thousands of local residents who prefer clean air on a more sustained basis could be affected temporarily by a number of Forest Service management activities but more significantly and permanently by increasingly contaminated air transported from the Central Valley.

TABLE 3

MONTHLY AVERAGES
of
PARTICULATE CONCENTRATIONS
for
GEORGETOWN STATION
(expressed in micrograms per cubic meter, $\mu g/m^3$)

Year	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
74	-	-	-	No Data		-	-	-	23	49	17	19
75	17	16	19	22	35	48	52	38	42	37	28	19
76	16	21	10	31	48	45	40	34	31			

Source: El Dorado County Department of Environmental Health

Water Resources

Rivers and Streams

The major drainages in the Volcanoville Unit are the Middle Fork American River and Rubicon River, which form the north boundary of the Unit, and Otter Creek, which is entirely within the Unit. A small portion of the Canyon Creek watershed is also within the Unit. Maximum, minimum, and average annual discharges are shown in Table 4. Otter Creek has an estimated summer flow of approximately five cubic feet per second at its mouth.

Present and potential beneficial uses have been identified for the Middle Fork from its source to Folsom Lake and for Auburn Reservoir (under construction). A brief discussion of beneficial uses, their definitions and identification for waters within the Unit may be found in Appendix H.

WATER RESOURCE DATA
FOR MIDDLE FORK AMERICAN
AND RUBICON RIVERS

TABLE 4

	Middle Fork American River	Rubicon River
USGS station number	11433300	11433200
Area drained (mi^2)	524	315
Average annual flow ($ft.^3/sec$)	1,134 (1958-74)	315
Discharge ($ft.^3/sec$) (1958-74)		
Minimum	35 (10/19-20/61)	24 (9/12/66)
Maximum	113,000 (2/1/63)	15,100 (1/21/70)

Source: Water Resource Data for California, Part 1, Vol. 2 Surface Water Records, USDI Geological Survey, 1974

Each separate water body within the Unit has its own characteristic quality which is a function of the surrounding geology, micro-climate, biological community, and man-related alteration.

Storage and Delivery Systems

There is, at present, one reservoir on the Middle Fork American River, which also backs water up into the Rubicon River channel. This impoundment is the Oxbow Reservoir which is owned and operated by Placer County Water Agency and serves as an afterbay for the Ralston Powerhouse. When constructed, the proposed Auburn Dam will back water up into the Volcanoville Unit in the Middle Fork American River and Otter Creek to a maximum elevation of 1,127 feet. This dam is scheduled for completion within ten years. Within the Eldorado National Forest boundary it is estimated that approximately 760 acres of withdrawn land, most of which was previously in Government ownership but also including a small amount of private land along the Middle Fork American River and a portion of Otter Creek Canyon in T13N, R10E, Sec. 23, will be inundated by Auburn Reservoir at maximum-pool elevation.

The Georgetown Divide Public Utility District operates an open water ditch which diverts water to the Georgetown area from Stumpy Meadows Reservoir, an impoundment of Pilot Creek approximately six miles east of the Volcanoville Unit. This ditch runs along a portion of the southern boundary of the Unit. Also, GDPUD is investigating the feasibility of constructing a secondary storage reservoir in either North Otter Creek or South Otter Creek. Either of these proposed sites would be on private land although the affected area would include government lands. Map E shows the location of each of the above mentioned items. A small pond and a water chance for road water have been constructed in Otter Creek.

Increasing Quantity

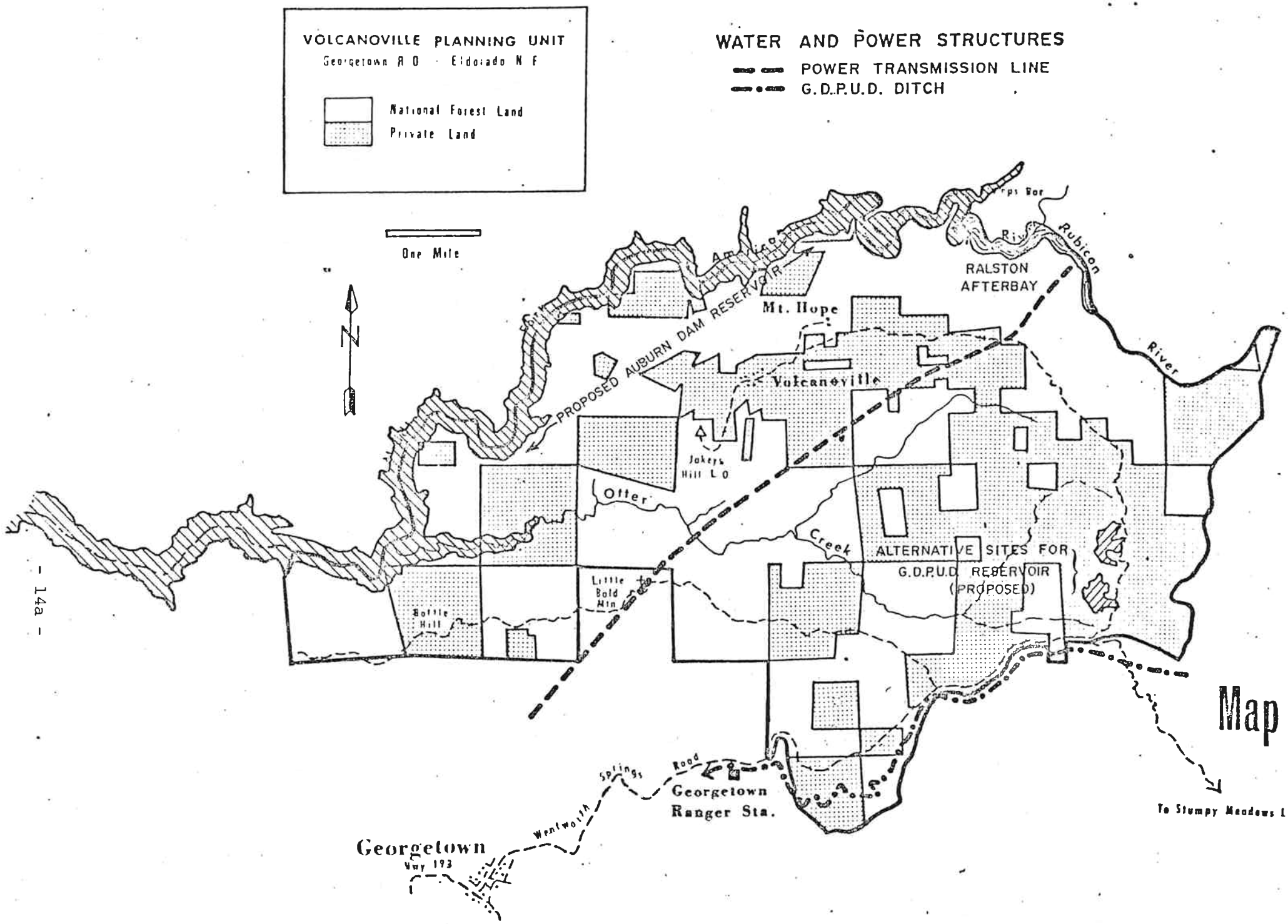
To significantly and permanently increase water yield would require considerable vegetation manipulation, such as riparian vegetation removal and type conversion from deep-rooted species (e.g. trees) to shallow rooted grasses. It is believed that, at this time and in this area, the value of any increase in water yield is not sufficient to justify the expense and impact of such an action. Removal of living trees does increase water yield. However, at least 20 percent of the watershed would have to be deforested before this increase would become significant and measurable.

Several management practices such as cover manipulation and weather modification could alter the amount, rate, and timing of snowpack accumulation and melting. These alterations might be possible at elevations between 6,000 and 8,000 feet but are not feasible at the elevations characteristic of the Unit.

The U.S. Geological Survey has classified a portion of the land within the Planning Unit as valuable for water resource development and/or withdrawn for Federal Power Commission projects. The exact location of these classified and/or withdrawn lands may be determined from the USGS response to the draft Environmental Statement found in Appendix A.

Sustaining Quality

A stream survey was recently made on Otter Creek.(25) In general, this stream is in good condition, though there is some bottom siltation, especially in the upper sections. Unsurfaced roads, land clearing and other development activities are probably the major contributors of this sediment.


VOLCANOVILLE PLANNING UNIT
Georgetown R D - Eldorado N F
National Forest Land
Private Land
One Mile
WATER AND POWER STRUCTURES
POWER TRANSMISSION LINE
G.D.P.U.D. DITCH
N
PROPOSED AUBURN DAM RESERVOIR
Mt. Hope
RALSTON AFTERBAY
Rubicon River
Volcanoville
Jokers Hill L O
Otter Creek
ALTERNATIVE SITES FOR G.D.P.U.D. RESERVOIR (PROPOSED)
Little Bald Mtn
Battle Hill
Georgetown Ranger Sta.
Georgetown
Hwy 193
To Stumpy Meadows L

Map

Pending further investigation, Otter Creek has been classified as Class 1 from its confluence with the Middle Fork American River to Missouri Canyon and Class 2 upstream of this point. Definitions and policy regarding these classifications may be found in Appendix F.

Natural (baseline) sediment production for the whole Unit is estimated to be approximately 2,600 cubic yards per year. Methods for predicting this yield are discussed under the heading "Sediment Yield Prediction" in Appendix G.

No significant deterioration in water quality is expected upon implementation of the new Timber Management Plan. Recent Forest Service policy has emphasized maintenance of high water quality and a healthy aquatic environment. Forest-wide policy and direction for attaining this goal may be found in Appendix F.

Fire

History

The overall fire situation of the Unit is somewhat more severe than on the remainder of the Eldorado National Forest, primarily because of existing fuel types. The history of large fires on the Unit has resulted from fires that originated outside the Unit then crossed the Middle Fork to burn substantial acreage within the Unit before being controlled. This occurred in 1916, 1944, and again in 1960. No extremely large fires have originated within the Unit since 1917.

The Volcano fire of August 20, 1960, which was started by smoking, enveloped 1,815 acres of Eldorado National Forest land and 321 acres of private land on the south side of the Middle Fork American River, and additional acreage north of the river on the Tahoe National Forest where the fire originated. Damages indicated below pertain only to those lands within the Eldorado National Forest boundary and are given in 1960 dollars. The total cost of suppression was $86,000; total present value of merchantable timber, saplings, and seedlings destroyed was $40,000; damage to the watershed was $35,000. The cost to rehabilitate the area to full productivity would be $70,000. Future value of resources destroyed was estimated at $80,000.

Over the last decade the Unit has averaged 1.4 man-caused fires per year. For the same period, eight lightning fires occurred; four of those were in one year. The annual-average acreage burned on this Unit for the last 10 year period (1966-75) was 1.1 acres with the largest fire being 8.0 acres.

Hazard Severity

The Volcanoville Unit is classified as having an "EXTREME" fire hazard following the "Fire Hazard Severity Classification System for California's Wildlands".(6) This rating was arrived at by determining the "critical fire weather frequency" to be III (USGS Georgetown quadrangle, 7-1/2') and using a "Heavy" Fuel Loading (Woods-Brushwood).

Most fire-risk activities, especially those related to dispersed recreation and the development of second homes, will increase during the period 1976-1986. An increase in man-caused fires, probably to a minimum of four per year, can be anticipated by the end of the decade. Based on the Eldorado's fire history, it is possible that the Planning Unit could be partially to totally affected by a cataclysmic wildfire within the next 20 to 30 years. The one activity that

might alter this expectation would be a greatly expanded and accelerated cooperative management program to dispose of naturally-occurring and harvest-residual fuels. Such a program would need to deal with existing fuels as well as newly-created fuels on both National Forest and private lands.

Protection Capability

Fuelbreak System - The Volcanoville Planning Unit includes two key topographic features which are extremely important wildland fire control points for the overall protection of the lands within the Unit and of the surrounding areas. These features are ridgetop areas and are identified on the Georgetown Ranger District Fire Pre-attack Plan as fuelbreak locations (See Map J).

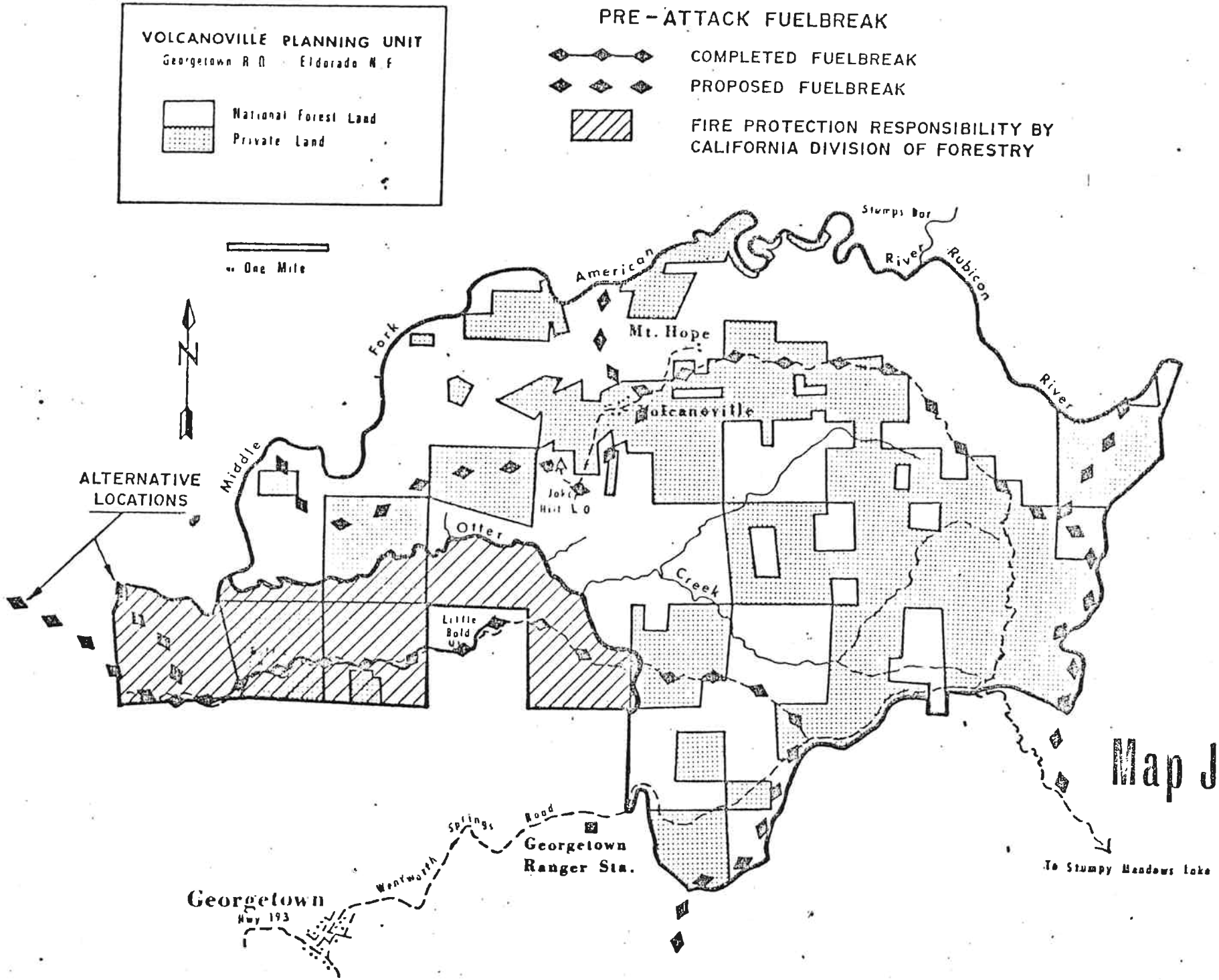
Some initial development of this fuelbreak system has begun. The State Division of Forestry, through the Growlersburg Conservation Camp, has constructed sections of the fuelbreak on public and private lands from Cement Hill eastward, while the Forest Service has constructed sections of the system near the Balderson Station area.

The fuelbreak construction and maintenance necessary for a workable system will continue on public lands as funds are available. Efforts will be made to accomplish similar work on private lands under co-operative agreements, easement acquisition, zoning restrictions or any acceptable methods that can be worked out with controlling County and State agencies or private owners.

Suppression Organization - Wildland fire protection for the majority of the Unit is provided by the U.S. Forest Service. This consists of a seasonal suppression crew and tanker located at the Georgetown Ranger Station. Under the present contract with the State, the Forest Service has responsibility only for wildland fire but traditionally has assisted in suppression efforts involving structures and improvements where a danger of the fire spreading to wildlands exists. Inspections for reduction of fire hazards around the residences located within the National Forest protection boundary are made annually by the Forest Service per Public Resource Code 4291 and agreement with the California Division of Forestry.

In the Hornblende Mountain area (see Map J) seasonal fire protection is provided by the California Division of Forestry. The nearest California Division of Forestry station is in Garden Valley, 12 miles west of Georgetown, where protection is provided on a 24-hour basis during the summer season by two engines and crews.

Most of the Planning Unit is outside any organized structural fire protection district. There are some indications the existing fire protection district at Georgetown will be extended east along the Wentworth Springs Road to about the Tunnel Hill area. Volunteer fire stations may develop at Buckeye and in the Camp Virner area. This would improve structural fire protection along the south side of the Planning Unit but without any significant improvements of protection capabilities to several critical areas containing second homes within the Unit. In any case, the volunteer fire department will be limited by poor access and limited water supplies.


VOLCANOVILLE PLANNING UNIT
Georgetown R D Eldorado N F
National Forest Land
Private Land
PRE-ATTACK FUELBREAK
COMPLETED FUELBREAK
PROPOSED FUELBREAK
FIRE PROTECTION RESPONSIBILITY BY CALIFORNIA DIVISION OF FORESTRY
= One Mile
N
ALTERNATIVE LOCATIONS
American
Fork
Middle
Stumps Bar
River
Rubicon
River
Mt. Hope
Volcanoville
Otter
Creek
Little Bald
Georgetown
Hwy 193
Wentworth Springs Road
Georgetown Ranger Sta.
To Stumpy Meadows Lake
Map J

Prescribed and Broadcast Fire - Considerations of topography and the existing ownership pattern essentially preclude wide-area prescribed and broadcast burning as tools for reduction of the heavy loading of fuels within the Unit. In the areas of Otter Creek and the proposed Auburn Reservoir, the introduction of ash produced by the burn and silt into these waters following rains would be unacceptable. For any future activities, economical fuels disposal by one or more of the conventional physical methods such as chipping, hauling, slash pile burning, and firewood cutting will be required.

Some prescribed burning confined to pathways of limited width (i.e. 6-8 feet) to create browseways for purposes of wildlife habitat improvement will probably be undertaken.

Critical Hazard Areas

Flood

There are no known flood hazard areas within the area of influence of activities on the Planning Unit.

Radiation

There are no known sources of radiation within the Planning Unit nor on adjacent lands except that nuclear guages are used in road construction to determine soil/aggregate moisture and density.

Noise

Noise levels are varied throughout the Planning Unit and adjacent lands. The fixed sources consist mainly of the Georgetown-Wentworth Springs and Volcanoville roads. Vehicles (both four-wheeled and two-wheeled) using these and other roads within the Unit generate occasional but significant and increasing amounts of noise in direct proportion to the extent of second-home development and the increase in dispersed recreation throughout the area. Those dispersed recreation pursuits which provide a slower-paced, quiet interaction with the natural environment will be most adversely impacted by these trends.

Aircraft using the facilities at Georgetown, Auburn or Placerville and planes flying over the area from more distant points contribute some noise but are not a problem.

Deer hunters, chain saws, logging and road construction activities all generate noise which is generally short in duration, intermittent in occurrence, or localized as to the area affected.

RECREATION AND WILDERNESS SYSTEM

Activities Inventory

Current levels of recreation use in the Volcanoville Unit are difficult to estimate with any degree of accuracy. However, in the National Forest portion of the Unit it is estimated that total use amounts to about 3,000 visitor days

per year. Over 60 percent of this use is estimated to consist of hunting and fishing. Off-road vehicle use would probably rank next in importance making up perhaps 15 to 20 percent of the total use. The balance would consist of other activities such as undeveloped camping, sightseeing, hiking, riding and picnicking.

There are no developed recreation sites in the Volcanoville Unit, and all current recreation use in the area is classified as "dispersed". Historically, hunting and fishing have been the more frequent recreation activities. The Rubicon and Middle Fork American Rivers border the Unit and are highly attractive to some fishermen and backpackers with some overnight camping occuring in some areas. Some fishing also occurs along Otter Creek and in Missouri Canyon. A portion of the migratory Blue Mountain Deer Herd occupies this Unit during the late fall and winter months along with a few resident deer which are in the area yearlong.

A number of old mining sites, remains of commercial activity which has not flourished in many years, are located in the area. "Pot-hunting" and vandalism of cultural sites has attracted many people over the years, and an increase in these pursuits is expected despite the deterioration of the sites. Recreational gold panning has always attracted a few "weekend miners" to the Middle Fork as well as to some of the smaller streams in the area.

In recent years off-road vehicle use has expanded greatly throughout most sections of the Eldorado National Forest, including the Volcanoville area. Trail bike use, in particular, has shown a large increase, and the many roads within the Unit are well-suited for certain types of trail bike activities (see Map N). There are, however, problems of noise intrusion and trespass by off-road vehicle users on private land. Public response during the initial planning stages indicated strong feelings of concern over past and potential trespass by off-the-road vehicle users and deer hunters.

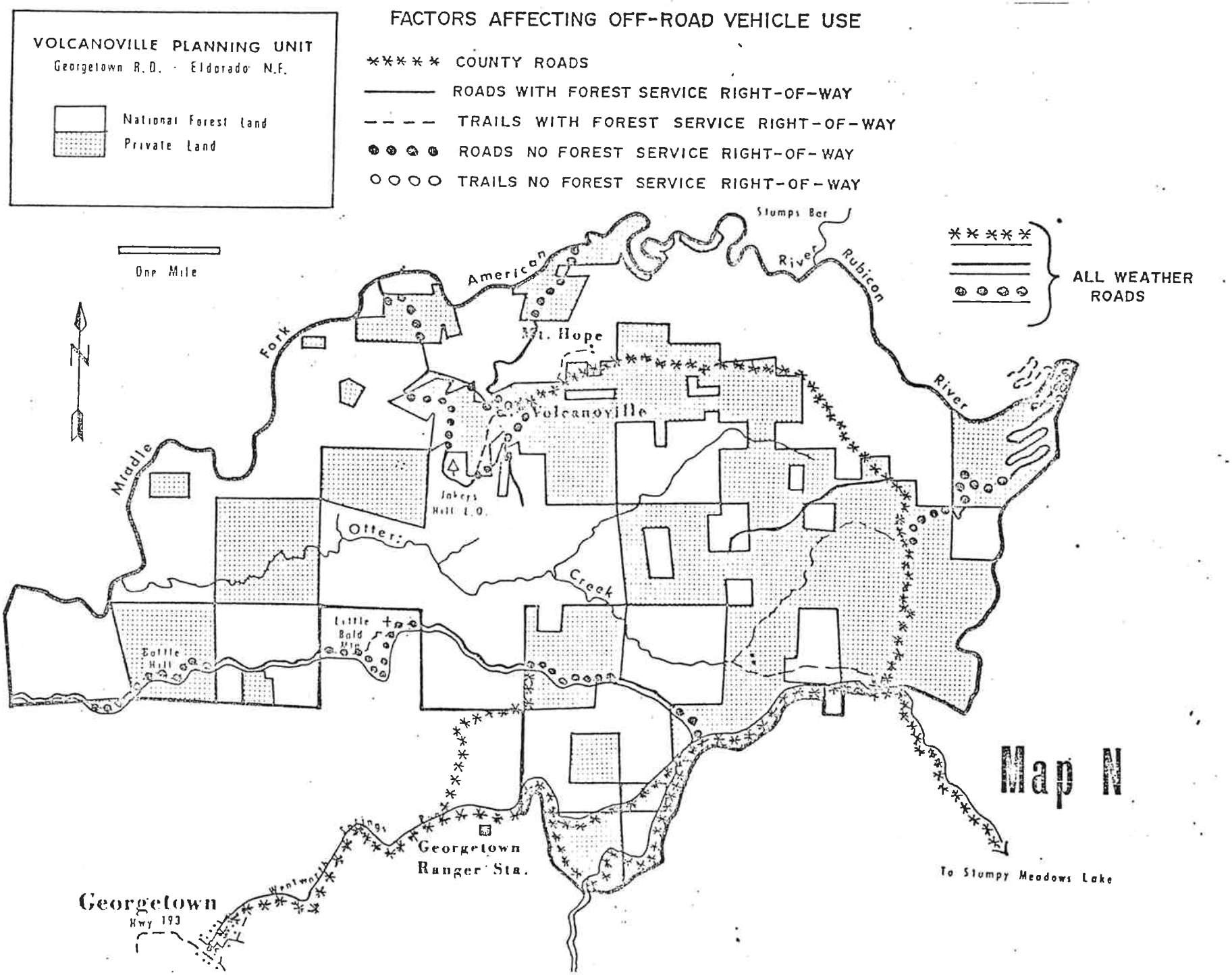
There are eight separate recreational hiking trails totaling approximately 12.5 miles in length within the Unit. All are maintained. Two and three tenths miles are shared with off-road vehicles.

"Climatic relief" is very often considered to be a recreation attraction and may be a factor in the location of recreation developments. The Volcanoville Unit, with an elevational range from about 800 to 4,000 feet would appear to offer such climatic relief to residents of the hot Central Valley. The primary use area, about 3,400 feet, is comparatively cool in relation to the Central Valley and is considered by many to be an ideal elevation for subdivision and "second home" construction on private lands. But, in the absence of other major attractions, as discussed above, it is doubtful that "climatic relief" in itself is sufficiently in demand to justify development of public recreation sites in the area.

Potential Development

The inventory for the National Forest Recreation Survey, which was completed in the early 1960's showed that there are several hundred acres in this Unit possessing suitability for developed recreation sites. The land referred to is primarily that level or near-level ground which is found in the Volcanoville-Kentucky Flat areas. Much of the more level ground is in private ownership.

Because of site alteration or human activity during or following development, recreational developments such as campgrounds would have significant, adverse, localized effects on some species of wildlife utilizing the site or immediate vicinity. However, outside the disturbed area of the development, no significant adverse impacts would be anticipated on the wildlife resource within the Unit.


VOLCANOVILLE PLANNING UNIT
Georgetown R.D. · Eldorado N.F.
National Forest Land
Private Land
FACTORS AFFECTING OFF-ROAD VEHICLE USE
COUNTY ROADS
ROADS WITH FOREST SERVICE RIGHT-OF-WAY
TRAILS WITH FOREST SERVICE RIGHT-OF-WAY
ROADS NO FOREST SERVICE RIGHT-OF-WAY
TRAILS NO FOREST SERVICE RIGHT-OF-WAY
ALL WEATHER ROADS
One Mile
N
Stumps Bar
American
River
Rubicon
Fork
Middle
Mt. Hope
Volcanoville
River
Jakes Hill L.O.
Otter
Creek
Little Bald Hill
Bottle Hill
Georgetown Ranger Sta.
Georgetown
Hwy 193
To Stumpy Meadows Lake
Map N

There are several potential routes in the Otter Creek, Middle Fork American, and Rubicon River Canyons which could be developed as hiking trails when public pressures indicate the need.(17) These trails would make a range of physical demands on the hiker while providing a variety of aesthetic experiences, access for angling and other pursuits of nature. A well designed trail system in this area could be a year-round recreational asset.

With the completion of the Auburn Dam, there will be an opportunity for increased water-oriented recreation use on and adjacent to the reservoir. However, because of steep terrain and fluctuating water level in the part of the reservoir area within the Planning Unit, additional use of lands adjacent to the water will be limited. Developable sites along the rivers and in close proximity to the Maximum-pool elevation of the proposed Auburn Reservoir are scarce. In addition, the steep slopes adjacent to the Rubicon and Middle Fork Rivers are extremely limited as to the types of use that can be accommodated without significant erosion or environmental damage.

If public rights-of-way can be obtained, there will be an opportunity for vehicle access to the reservoir in the Grasshopper Flat area. Other points of access from within the Unit will probably receive increased use. Access to the Auburn Reservoir is predicted to occur by roads 13N55 and 14N35 which are presently either entirely or partially unsuitable for two-wheel drive vehicles. It is likely that access will also occur by trail 13N583 from road 10E04, a distance of nearly a mile; by trail 10E03 from road 13N55, a distance of approximately three-quarters of a mile, and from road 13N58.3B, a distance of less than one-half mile; and by trails 11E02 and 11E402 from road 14N35.2.

In the future, portable, self-contained toilet facilities serviced perhaps by boat may be installed in undeveloped recreation areas receiving high use such as might occur near the reservoir. Garbage disposal stations located at strategic locations are also a possibility as demand indicates.

Factors such as ownership pattern, access, topography, and low user demand all tend to preclude developed recreation sites and to limit recreational activities to those of a dispersed nature. The Forest Service, therefore, has no plans for construction of any public-use facilities within the Unit and does not currently consider such facilities as viable elements of any alternative.

As indicated by the above discussion, the recreation capabilities of National Forest land in this Unit are considered to be primarily of an undeveloped or dispersed nature. The area is best suited to accommodate at any given time relatively small numbers of people who would be based outside the Unit and would come into the Unit for low-density recreation activities that do not require facilities or site development. Recreation experience and environmental modification would be characteristic of the "primitive" and "secondary primitive" categories on the development scale. Description of recreation experience levels may be found in Appendix C.

Visual Resource

The Volcanoville Unit is composed of two distinct landscape types. The first is the uplands which have slopes of five to 40 percent. The landforms are gently rolling or flat. Vegetation is timber and brush, and the color is green-gray green. There is very little variety in form, line, color or texture, resulting in a monotonous landscape. The primary access route (Wentworth Springs Road)

into the Unit is located in this landscape type. Views of the landscape are confined to no more than one-quarter mile from the road. It is estimated that the majority of the travelers over this road are either tourists or residents who are concerned with the scenic resource. Considering the number and nature of the travelers, the quality of the landscape and the amount of roadside screening, a visual goal for management of the roadside areas for "partial retention" of landscape character would be sufficient. Under these guidelines, management activities may be evident to the Forest visitor. However, the activity should remain subordinate to the visual strength and natural character of the landscape. A description of visual quality objectives may be found in Appendix D.

The second landscape type is the canyonlands which have slopes of 40 to 50 percent and greater. This landform is found in the canyons of the Middle Fork of the American River, Rubicon River and in the Otter Creek drainage. The landform is a steep V-shaped canyon. Vegetation is solid cover of coniferous and deciduous trees or brush. The dominant color is green-gray green. Neither of the major drainages is visible from any road in the area. Portions of the Otter Creek drainage are visible from the Foresthill area and from Todd Valley, a potential subdivision area outside the study area. More of all three drainages will be much more visible when Auburn Reservior is at maximum pool since recreationists will then be able to boat upriver to the Ralston Afterbay Dam. Because of the present and anticipated uses in the area, the visual resource of those portions of this landscape type which can be seen from no more than one-half mile away can only be protected by a retention of landscape character. When the view point is more than one-half mile distant, partial retention of landscape character will suffice.

Cultural Resource

The Volcanoville Unit, although not considered one of the more important mining areas in the Mother Lode, contains 43 sites of interest listed by the Forest Service. "Few of these have visible remains. Those that are visible have been degraded by natural decay, or by man, to the point that they have little value as recreation sight-seeing attraction."(17) Many locations have been identified, but few traces remain. The communities of Georgetown and Foresthill, located near the study area are designated as California State Historical Landmarks.

The Maidu Indians are known to have occupied a broad region on the western Sierra slopes which includes the Volcanoville Unit. Several pre-historic sites are known to exist within the Unit, but the area is not considered to be rich in archaeological values.

The circled areas on Map H indicate the approximate locations of known or suspected sites - both historical and archaeological. Many of these locations are the known sites of previous historical activities, and the artifacts or evidence of past use may have been removed or destroyed. Other sites may contain evidence which should be preserved. Very few of the sites have, as yet, been evaluated to determine their importance.

The State Historic Preservation Officer has determined that within the Unit there are no California State Historical Landmarks, State points of historical interest, or sites on the National Register of Historic Places. No detailed survey or reconnaissance has been made of the Unit as a whole. However, several sites have been surveyed in connection with proposed projects, such as the

Auburn Reservoir. El Dorado County Archaeological Site Numbers 66, 113, 114 and 115 are located within the Unit boundary. Other potential archaeological and historical sites have been identified through local contacts, old maps and records. Future project planning and land exchange proposals will include a cultural resource survey in sufficient detail to enable a determination of effect pursuant to E.O. 11593 and criteria in 36 CFR 800.

Wilderness

There is no designated wilderness within or near the Volcanoville Unit, and no roadless areas were inventoried during the Roadless Area Review in 1972.

BIOTIC COMMUNITIES

Fish and Wildlife Habitat System

Wildlife Resource - The wildlife species inhabiting the Volcanoville area are many and diversified, ranging in size from the black bear to the Anna's hummingbird. There are 66 mammals, 149 birds, 6 amphibians and 23 reptiles whose ranges are known to encompass the Volcanoville area.

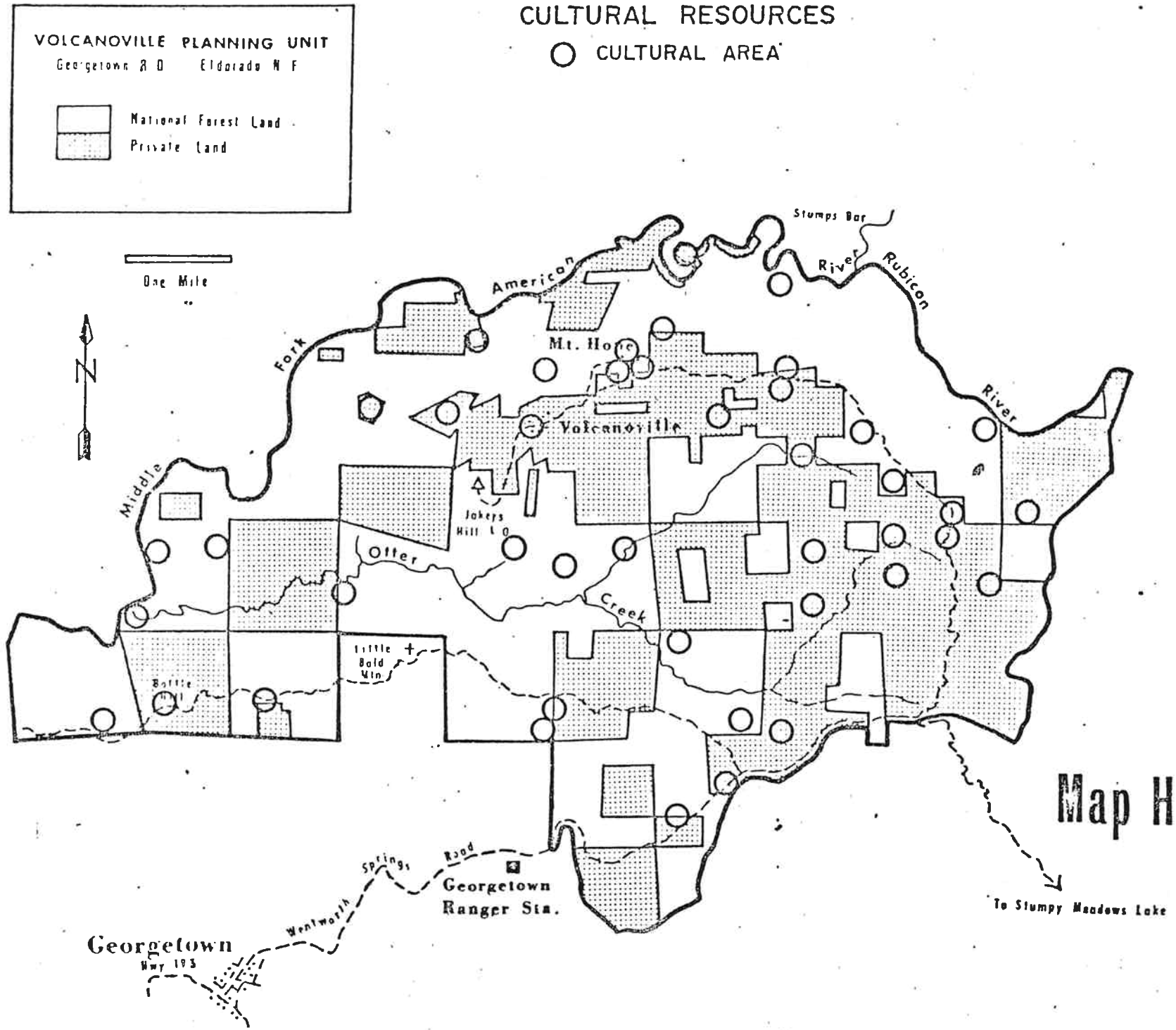
The Unit provides ideal habitat for a portion of the Blue Mountain Deer Herd. The necessary ingredients of food, water, and cover, in conjunction with lower elevation ranges, which are snow-free during much of the winter, make the area winter habitat.

The California Division of Fish and Game estimates that there are about 300 resident deer in the Volcanoville Unit. During the winter, for about a five month period, an additional 1,200 migratory deer inhabit the area. Because of these migratory deer, a portion of the area has been designated as deer winter range (see Map G).

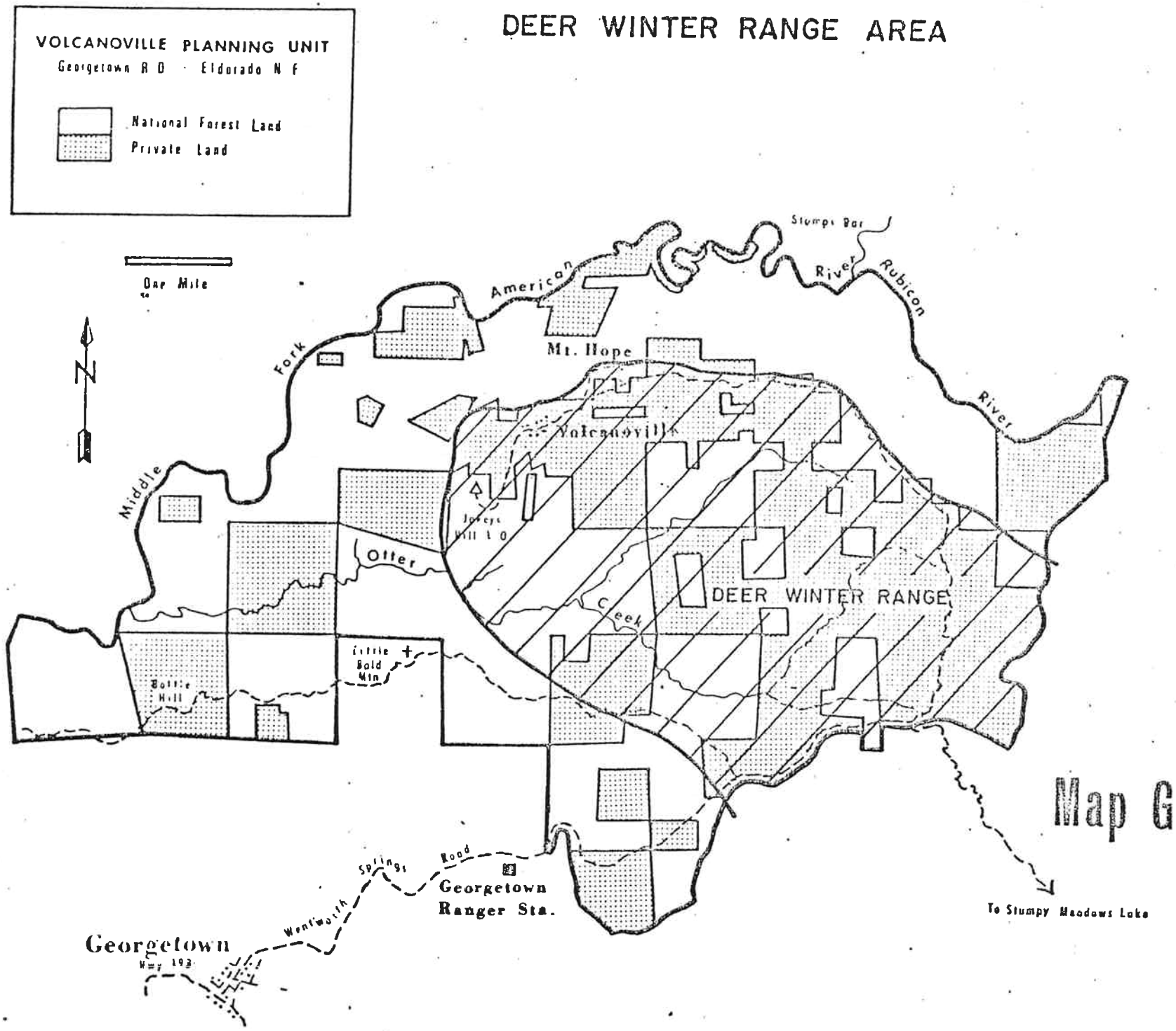
There have been several sightings of the golden eagle over the slopes above the Middle Fork and Rubicon Rivers in the northeastern part of the Unit. It is suspected that a nesting site exists in the steep, rocky slopes of the area, but the actual site has not been located. No adverse impact from reservoir impoundment or increased recreational intrusions is anticipated because of the inaccessibility of the possible nest sites. No intensive general wildlife survey has been conducted within the Unit boundaries to date, although objectives have been recently set to fill this information gap.

Fish Resource - Both the Middle Fork American and Rubicon Rivers are populated with rainbow trout. Occasionally a twenty-inch trout is caught, but the average size is about eight inches. Rough fish such as squaw fish and western suckers are also present. Fishing pressures are moderate although access to both rivers is very limited and to reach most isolated areas requires an arduous hike.

Otter Creek has populations of rainbow and brown trout in about equal numbers.


VOLCANOVILLE PLANNING UNIT
Georgetown R D Eldorado N F
National Forest Land
Private Land
CULTURAL RESOURCES
CULTURAL AREA
One Mile
N
American
Fork
Middle
Stumps Bar
River
Rubicon
River
Mt. Hope
Volcanoville
Jokers Hill L O
Otter
Creek
Little Bald Mtn
Battle Hill
Wentworth Springs Road
Georgetown Ranger Sta.
Georgetown
Hwy 193
To Stumpy Meadows Lake
Map H

DEER WINTER RANGE AREA



Species/Habitat Diversity - Habitat diversity is produced in two basic ways:

1. The presence of numerous vegetation types.

2. The presence of numerous successional stages within vegetative types.

In addition the pattern of interspersion and size of the vegetative types and successional stages help determine habitat diversity. This, in turn, determines the diversity of wildlife species that are found in a given habitat.

The vegetative types and successional stages found in the Volcanoville Unit are displayed in Graph 1[1/]. The dominant vegetative types are the black oak/woodland, mixed conifer, and ponderosa pine types followed by small amounts of digger pine/oak and perennial range. The successional stages found in forested areas can be broken down as follows:

1. Grass/forb stage (i.e., a recent clearcut)

2. Shrub/seedling/sapling stage

3. Pole/medium tree stage

   a. Less than 20 percent crown closure

   b. Between 20 and 70 percent crown closure

   c. More than 70 percent crown closure

4. Large tree stage

   a. Less than 20 percent crown closure

   b. Between 20 and 70 percent crown closure

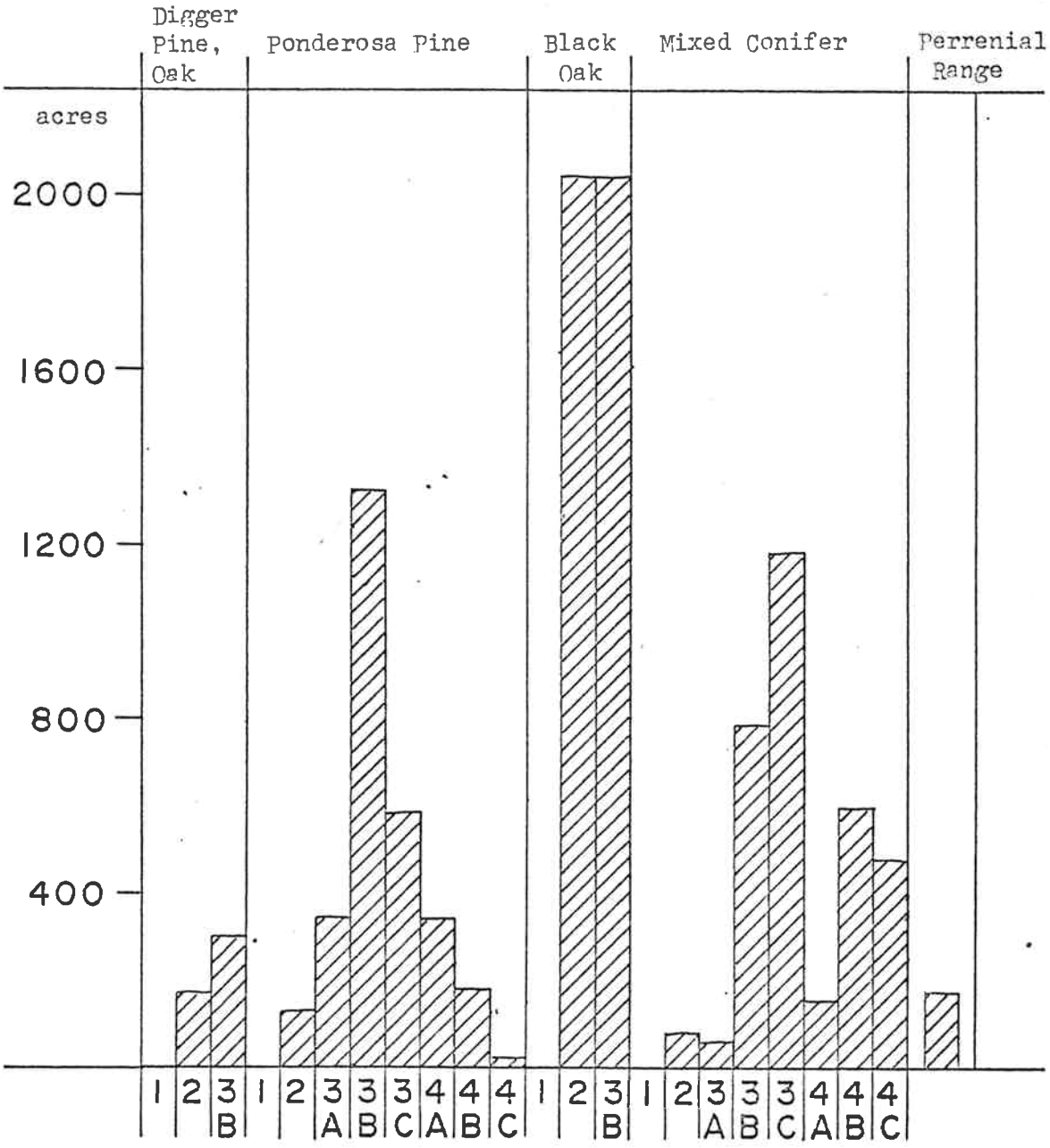
   c. More than 70 percent crown closure

The early successional stages in the Volcanoville Unit total 2,774 acres or approximately 24 percent of the Unit. The majority of these early stages are in the black oak/woodland type and are found on the steep north facing slopes of the Middle Fork of the American and Rubicon Rivers with smaller amounts, consisting of brushy openings and ridges, within the ponderosa pine and digger pine/oak types.

Thus the Volcanoville Planning Unit appears to have a rather diverse habitat based on the number of vegetative types represented and the proportion of these habitats in early successional stages. Likewise, a similar diversity of wildlife species is found on the Unit. Species that are especially abundant on the Unit are: Bear, bandtail pigeon, gray squirrel, deer and mountain quail.

1/ From Wildlife/Habitat Relationships - Western Sierra (proposed).

VEGETATIVE HABITAT TYPE



LEGEND

1 Grass/ Forb Stage
2 Shrub/ Seedling/ Sapling Stage
3 Pole/ Medium Tree Stage
4 Large Tree Stage

A Less than 20% crown closure
B Between 20% and 70% crown closure
C More than 70% crown closure

Vegetation

The vegetation in the Volcanoville Unit is typical of the transition life zone (mixed conifer zone) of the central Sierra Nevada mountains. The typical vegetation cover for each of the geomorphic landscapes is as follows:

Metamorphic and Volcanic Uplands - On the deep soil areas the vegetation is semi-dense to dense stands of mixed conifers with a dense shrub understory which is mostly bear clover (Chamaebatia foliolosa) and deer brush (Ceanothus integerrimus). The moderately deep soil areas have open to semi-dense stands of mixed conifers with a dense shrub understory, mostly whiteleaf manzanita (Archtostaphylos viscida) and bear clover. On the shallow soil areas the vegetation is semi-dense to dense shrubs, primarily whiteleaf manzanita.

Metamorphic and Volcanic Canyonlands - On the moderately deep soil areas, which are mostly on north-facing slopes, there are dense stands of mixed conifers and hardwoods, such as California black oak (Quercus kelloggii), canyon live oak (Quercus chrysolepis), and Pacific madrone (Arbutus menziesii). The shallow soil areas, mostly on south-facing slopes, have semi-dense to dense stands of shrubs which are mostly whiteleaf manzanita with some El Dorado manzanita (Arctostaphylos nissenana) and knobcone pine (Pinus attenuata).

Serpentine Uplands and Canyonlands - These areas have vegetative covers more typical of the upper Sonoran life zone (foothill areas) with usually a semi-dense stand of leather oak (Quercus durata), and scattered digger pines (Pinus subiniana).

Scotch broom (Cytisus scoparius), an introduced species to the Georgetown area, has invaded much of the area around Georgetown and has become a nuisance. This species is now within the Volcanoville Unit in the Bottle Hill area and along Wentworth Springs road. Without control, Scotch broom could easily spread throughout the Unit adding to the already "extreme" fire rating.

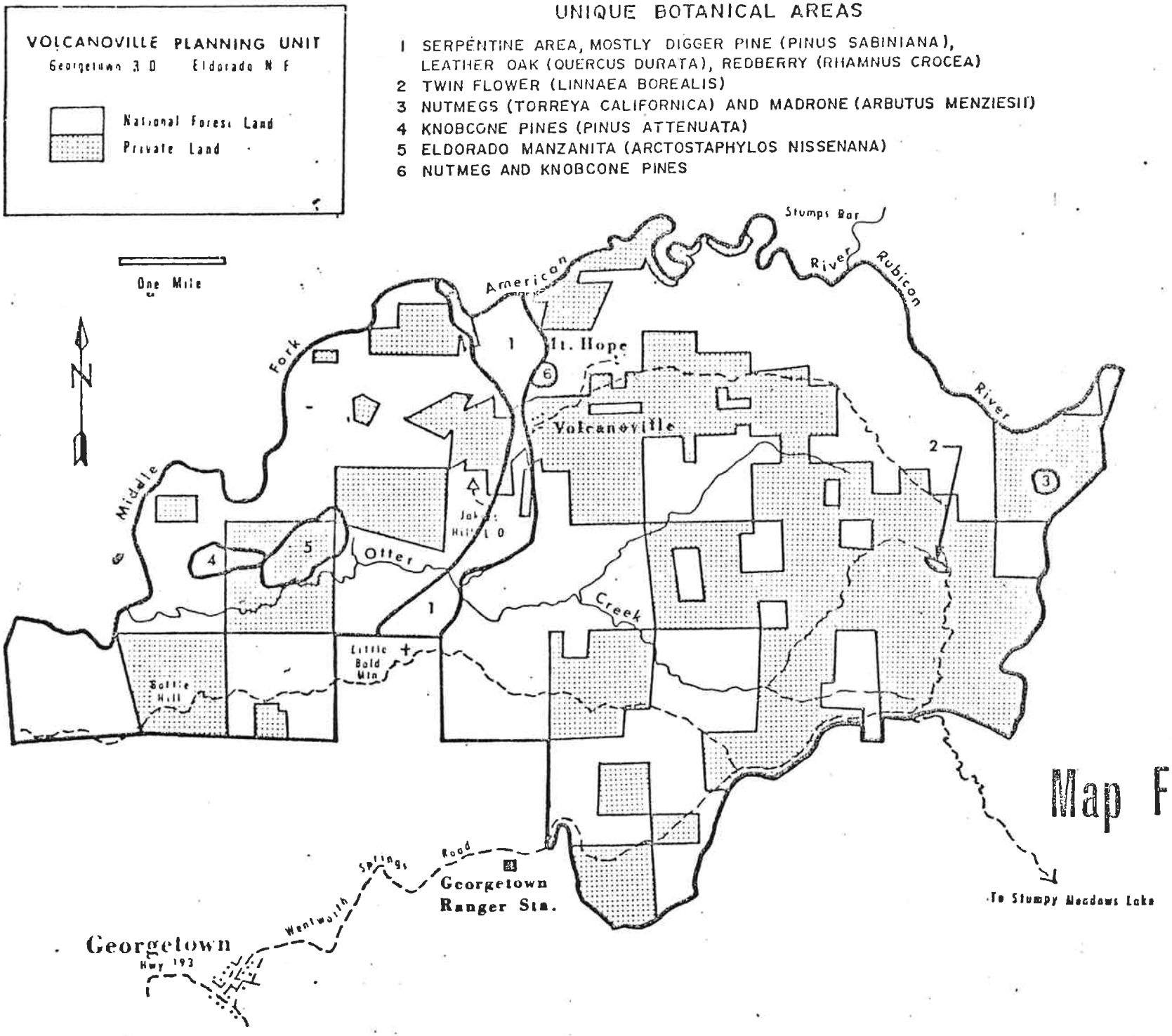
Unique Botanical Areas - A Botanical Reconnaissance Survey has been made in the Volcanoville Unit area. A copy of the survey finding is included in Appendix B. Several unique botanical areas are located in the areas as follows (see Map F):

1. A serpentine area that has vegetation more typical of the foothills.

2. A site near upper Otter Creek where twin flowers (Linnaea borealis) occurs. This is apparently the southern limit of the range of this species.

3. An area on the north-facing slope above the Rubicon River where dense stands of large, mature Pacific madrone occur in association with many California nutmegs (Torreya californica).

4. An area along Cock Robin Point ridge with a dense stand of knobcone pine. Though this species occurs in relatively small groves throughout the State, it is not overly abundant State-wide and is not abundant in El Dorado County.


VOLCANOVILLE PLANNING UNIT
Georgetown 3 D Eldorado N F
National Forest Land
Private Land
UNIQUE BOTANICAL AREAS
1 SERPENTINE AREA, MOSTLY DIGGER PINE (PINUS SABINIANA), LEATHER OAK (QUERCUS DURATA), REDBERRY (RHAMNUS CROCEA)
2 TWIN FLOWER (LINNAEA BOREALIS)
3 NUTMEGS (TORREYA CALIFORNICA) AND MADRONE (ARBUTUS MENZIESII)
4 KNOBCONE PINES (PINUS ATTENUATA)
5 ELDORADO MANZANITA (ARCTOSTAPHYLOS NISSENANA)
6 NUTMEG AND KNOBCONE PINES
One Mile
N
Stumps Bar
River
Rubicon
American
Fork
Middle
Ft. Hope
Volcanoville
River
Otter
Creek
Little Bald Mtn
Sallie Hill
Georgetown
Hwy 193
Wentworth Springs Road
Georgetown Ranger Sta.
To Stumpy Meadows Lake
Map F

5. A site, also on Cock Robin Point ridge, with El Dorado manzanita. This species of manzanita is endemic to El Dorado County, occurring only in six small areas within the County (three within the National Forest boundary). El Dorado manzanita has recently been listed as "threatened" in the Smithsonian Institution's Report to Congress on Endangered and Threatened Species of the United States.

6. A site on the Horseshoe Bar Road where nutmeg is in association with ferns near several small springs and knobcone pine.

Threatened and Endangered Species

One sighting of a bald eagle, an endangered species, has been recorded in the area immediately southeast of the Unit in the vicinity of Peavine Point. This is believed to be a casual sighting of a migratory bird, possibly one of the wintering birds sighted in the fall and winter around Lake Edson (seven miles to the southeast) and Finnon Reservoir (10 miles to the south). Because of the lack of any open water areas characteristic of lakes or large rivers, there is little if any bald eagle habitat presently within the Unit. However, the proposed Auburn Reservoir project may create limited habitat for wintering bald eagles similar to that existing at Lake Edson.

There is recorded a verified sighting of a peregrine falcon during the summer of 1976 in the Rubicon drainage below Hell Hole Reservoir. However, an intensive helicopter search of the area failed to locate an aerie. Another search is scheduled in the steep cliffs north and east of Hell Hole during the summer of 1977.

The California Native Plant Society has prepared a list of threatened and/or endangered plant species that are known to occur in El Dorado County. At this time, only one threatened plant species El Dorado manzanita (Arctostaphylos nissenana) is known to occur in the Volcanoville Unit. Although this species should be protected, fire need not be totally excluded. Walter Knight, who has researched this plant, indicates that ". . . fire is not a serious menace to the continued existence of an El Dorado manzanita colony . . ."(16)

Research Areas

The Blodgett Experimental Forest operated by the University of California at Berkeley is located approximately three miles southeast of the Planning Unit and north of Sand Mountain in T12N, R12E. It is surrounded entirely by private lands.

There are no vegetative types within the Unit that would be good representatives for Research Natural Areas.

Range Resource System

None of the National Forest lands within the Unit are commercially grazed, and there are no range allotments. Because of the landownership pattern and development on private land, it is expected that there will continue to be little demand for commercial grazing within the Unit.

Timber System

Harvest History

Logging activity on Forest Service lands within the Unit since 1960 has occurred as shown in Table 5.

TABLE 5

Year Logged	Sale Name	Volume (MMBF)
1962	BARTON CABIN	1.0
1963-64	PRYOR UNIT	4.1
1964	CANYON CREEK WILDLIFE	0.1
1965	BOTTLE HILL	5.9
1968	KENTUCKY FLAT	1.2
1969	NEW ORLEANS	0.7
1972	BALDERSON	4.3
1974	KENTUCKY FLAT C.T. (commercial thinning)	1.4
		18.7

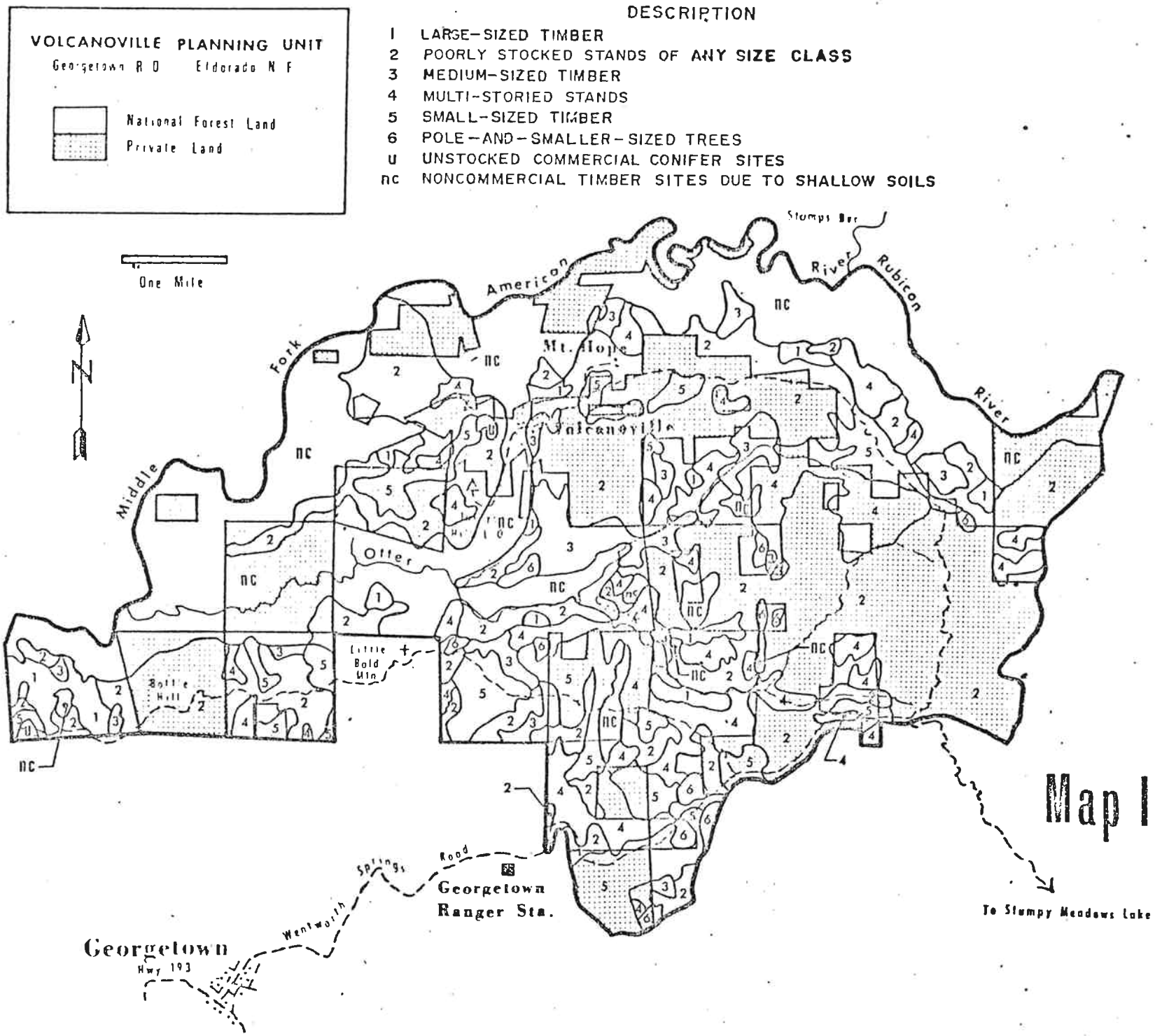
During 1976 approximately 1.75 MMBF was removed in commercial sales. In addition, approximately 500 cords of firewood have been cut over the years.

Inventory

A timber inventory was completed in 1975 for the Eldorado National Forest including the Volcanoville Unit. This timber inventory was used to develop a timber stand strata map (see Map I) based on tree size, density, and age class. A description of each stratum as shown on Map I is as follows:

Stratum Code	Description
1 (10)*	Large-sized timber with crown diamaters mostly greater than, or equal to, 40 feet and crown closure greater than 40 percent.
2 (20)	Poorly stocked stands of any size class with crown closure less than 40 percent.
3 (30)	Medium-sized timber with crown diameters mostly 24 to 40 feet and crown closure greater than 40 percent.
4 (40)	Multi-storied stands having two or more apparent crown layers with the upper layer crown diamaters mostly greater than, or equal to, 24 feet and crown closure greater than 40 percent.
5 (50)	Small-sized timber with crown diameters mostly 13 to 24 feet and crown closure greater than 40 percent.
6 (60)	Pole-and-smaller-sized trees, including plantations, with crown diameters mostly less than, or equal to, 12 feet and crown closure greater than 40 percent.

TIMBER STRATA



U (20)	Unstocked commercial conifer sites. Currently mostly brush.
NC	Noncommercial timber sites due to shallow soils.

*Equivalent code used in Timber Management Plan (1977).

AGREAGE SUMMARIES FOR TIMBER STRATA

Stratum	Government Land	"Selected"
1	232	-
2	2,361	12
3	899	80
4	2,396	73
5	667	-
6	66	-
Subtotal "Commercial"	6,621	165
NC	5,261	
TOTAL	11,882	

The acreage listed above has been generated by the Wildland Resource Inventory System and will, therefore, not add up to the total acreage given for the Unit elsewhere.

"Auburn Reservoir Area" lands within the Planning Unit consist of the following approximate acreages by timber stratum:

	Stratum	Acres
Auburn Reservoir Area:		
Private	2	310
	NC	1,340
		1,650
Forest Service	NC	2,580

All Standard Tractor Component on National Forest lands, with a few minor exceptions, was logged during the 1930's and 40's. A portion of National Forest land estimated to be less than ten percent of land indicated as commercial site in the Wildland Resource Inventory System (WRIS) actually possess non-commercial site characteristics.

An analysis of available commercial timber land (i.e. Strata 1 through 6), shows that about 37 percent of the National Forest land is apparently poorly stocked (Stratum 2). Part of this is a result of poor site as indicated above. The silvicultural practices for the remainder of the poorly stocked areas should emphasize regeneration so that maximum production can be attained.

Two-storied stands (Stratum 4) occupy about 36 percent of the available government commercial forest land. Overstory removal or regeneration cutting should be emphasized, depending on the condition of the understory.

Small-sized timber stands (Stratum 5) make up about ten percent of the National Forest land. Although the trees are small, they are generally of a merchantable size. Where there is considerable competition between trees, commercial thinning should be the silvicultural practice.

About 14 percent of the Naitonal Forest land now supports medium-sized timber (Stratum 3). This category normally can be expected to produce the greatest share of harvested volume. The silvicultural treatment of these areas should emphasize intermediate or sanitation harvesting as long as growth and vigor remain high.

Around four percent of the National Forest land is occupied by large-sized timber (Stratum 1). Either shelterwood or regeneration cutting should be emphasized.

Capabilities

Current timber management activities within the Planning Unit are at a relatively low level. Potential timber productivity, however, ranges from moderate to high. Most of the timber has been harvested from the easily accessible areas, on slopes less than 40 percent; very little timber has been harvested from the steep slopes or from isolated, small parcels of National Forest land.

Considering the present growth rates as indicated in the new Timber Management Plan inventory data, an average net annual increment of growth of around 2.8 MMBF would be possible on National Forest land. However, such administrative problems as securing rights-of-way and establishing landlines/corners severely constrain the potential yield within the Planning Unit for at least the next ten years. The programmed allowable harvest through 1985 consists of approximately 6.0 MMBF from the Shotgun Sale scheduled for 1982 and an undetermined volume from the Paymaster Sale scheduled for 1985.

SOCIO-ECONOMIC

Infrastructure Investments

Transportation System

Roads - State Highway 193 leads to Georgetown from the south and west. The hard-surfaced Wentworth Springs road leads from Georgetown and borders the Unit on the south past the Volcanoville road near the eastern edge of the Unit. Access from the north can occur only through Georgetown or via the Wentworth Springs-Eleven Pines roads crossing the Rubicon River at Ellicotts Bridge. The steep canyons of the Middle Fork American and Rubicon Rivers have retarded road entry at other points on the north and east sides of the Unit.

Many of the roads within the Planning Unit have evolved over a period of years, and there are numerous conflicts over rights-of-way. The primary access into the Unit is by Volcanoville road (14N35.2), a stabilized-surface, single-lane road with turn-outs maintained by the County.

The present landownership pattern precludes the Forest Service from building an economical and efficient transportation system to serve government lands. This is especially true in the eastern portion of the Unit where private lands have been subdivided into small parcels. Right-of-way acquisition has thus been made very difficult. The rights-of-way problem is further compounded by the lack of acceptable landlines dividing the private from government lands.

Map K shows the major roads existing as part of the Forest Service Transportation Plan. This plan is revised as the resource allocations change or govenment lands are exchanged to achieve management objectives.

To illustrate the problems encountered in meeting current management objectives, the Volcanoville Timber Sale was studied in 1972 to determine its feasibility. Analysis indicated that costs would exceed returns by $74,210 (in 1972 dollars and at 1972 prices) for a harvested volume of three million board feet. The primary reasons for this deficit were cost for rights-of-way, landline location, and road construction or betterment.

Although the above example does not totally apply to all the government land within the Unit, it generally applies to those parcels isolated by lack of access across private land.

In summary, the existing transportation system is not adequate to efficiently manage the National Forest lands. Because of the complex pattern of ownership, management of isolated National Forest land involving either custodial care or commodity production is both difficult and uneconomical.

Additional miles of new road construction, as well as reconstruction, needed to permit future timber harvest are indicated in the Alternatives Section. It is possible that in the future a county road will span the Otter Creek canyon in Sections 19 or 20, T13N, R11E.

Trails - See Recreation and Wilderness System Section.

Railroads - The Camino, Placerville, and Lake Tahoe Railroad, which provides no passenger service, terminates east of Placerville near Camino. There is no track between the South Fork and Middle Fork American Rivers in the Georgetown area.

Airports - Georgetown Airport is a small basic Utility Type I Airport located northwest of the town of Georgetown, California. The present runway is located on a ridge and has good approaches from both ends. This airport has excellent on-site recreational and industrial potential.

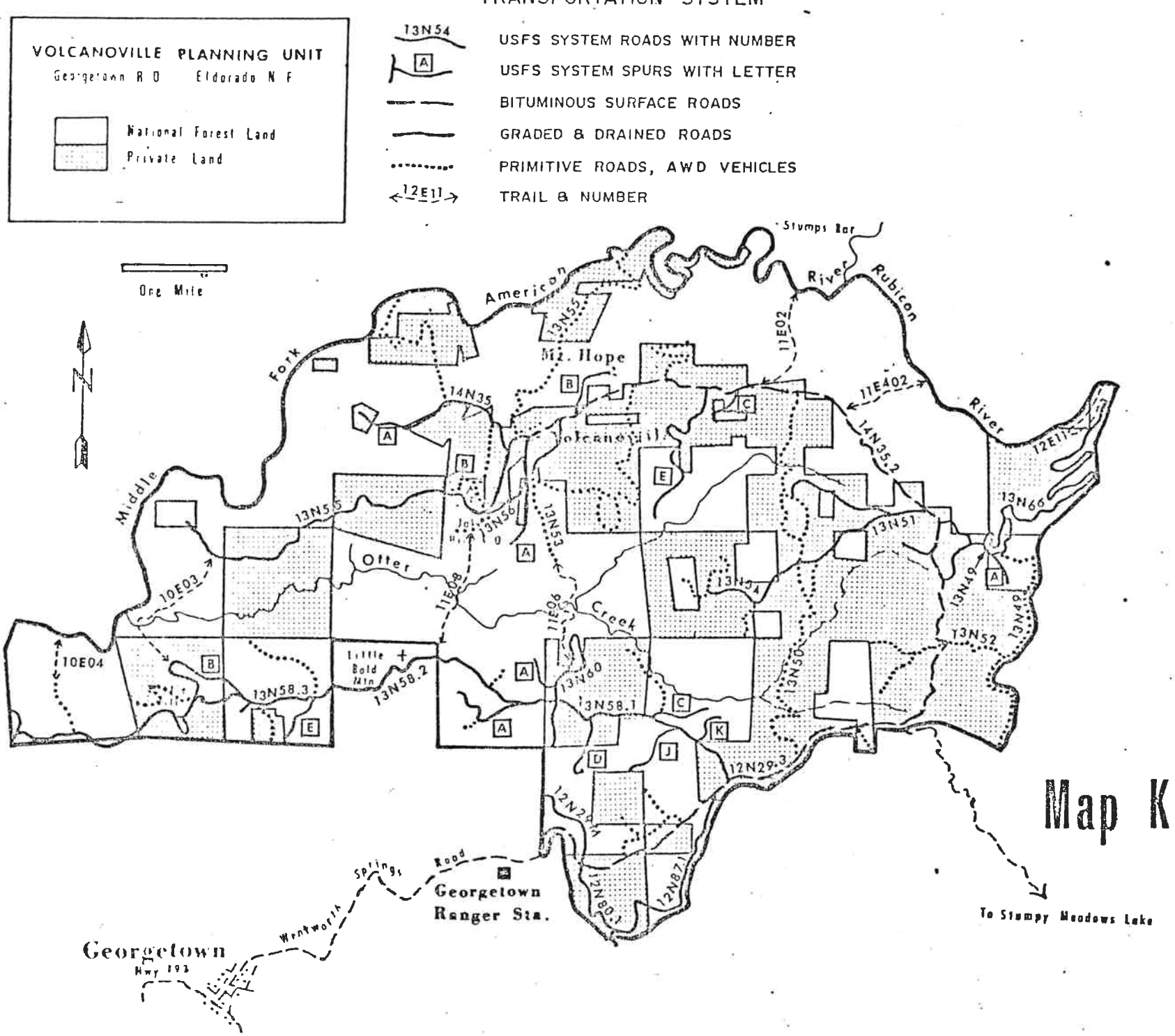
With the proposed development of the Auburn Dam recreational complex, it may become necessary to lengthen the existing 3,000 foot runway an additional 1,000 feet. Additionally, aircraft parking space will be required to accommodate the increased recreational aircraft traffic.

The Placerville Airport is located on top of a ridge south and east of the City of Placerville, California. The approaches to the runway are excellent. Runway length (4,200 feet) is considered maximum due to steep drop-offs at each end. The airport location and elevation are considered ideal since it is above the valley fog and below the heavy snow.

The airport is designed to serve general aviation, including small jet aircraft. It is proposed that the Placerville Airport will provide commercial service in the nature of air taxi and commuter operations. Industrial sites are available on and adjacent to the airport.

The California Division of Forestry is developing the Placerville Airport as a major attack base for the fire protection of the forests in the Sierra Nevada mountains in Central California.

Another airport is located at Auburn in Placer County.


TRANSPORTATION SYSTEM
VOLCANOVILLE PLANNING UNIT
Georgetown R D Eldorado N F
National Forest Land
Private Land
13N54
USFS SYSTEM ROADS WITH NUMBER
A
USFS SYSTEM SPURS WITH LETTER
BITUMINOUS SURFACE ROADS
GRADED & DRAINED ROADS
PRIMITIVE ROADS, AWD VEHICLES
12E11
TRAIL & NUMBER
One Mile
N
Stumps Bar
American
River
Rubicon
Fork
Mt. Hope
11E02
11E402
14N35
14N35.2
12E11
13N66
13N55
13N56
13N53
13N51
Middle
Otter
Creek
10E03
11E08
11E06
13N54
13N49
13N52
13N50
10E04
13N58.3
13N58.2
13N58.1
13N60
12N29.3
12N29.4
12N87
12N80
Little Bald Mtn
Georgetown Ranger Sta.
Springs Road
Wentworth
Georgetown
Hwy 193
To Stumpy Meadows Lake
Map K

Utilities

Water Storage and Delivery Systems - See Physical System, Water Resource.

Electricity - Pacific Gas and Electric Company has a 240 KV power transmission line that bisects the Unit northeast to southwest originating at the Ralston Powerhouse on the Rubicon River. However, at present there is no electrical power supply to the areas within the Unit except those adjacent to Wentworth Springs Road. This power is supplied by P.G.&E. Continued private land development will create future demands for utility access across National Forest lands.

Gas - There is no natural gas service to the affected area.

Oil - No oil pipelines exist within the affected area.

Phone - Pacific Telephone Company provides telephone service through lines installed along Volcanoville Road as far as the community of Volcanoville.

Solid Waste Disposal

A mini-transfer site located at Georgetown receives solid wastes which are then moved to the Class II Union Mine disposal site southeast of Placerville. Both these facilities are operated by the El Dorado County Environmental Health Department.

Sanitary Waste Treatment

Georgetown is within a septic tank maintenance district. All sanitary wastes presently generated within the Planning Unit are processed by septic tank systems which by law must be approved by the State. This method is expected to continue to provide the treatment for sanitary wastes resulting from additional second-home construction in the forseeable future.

Housing

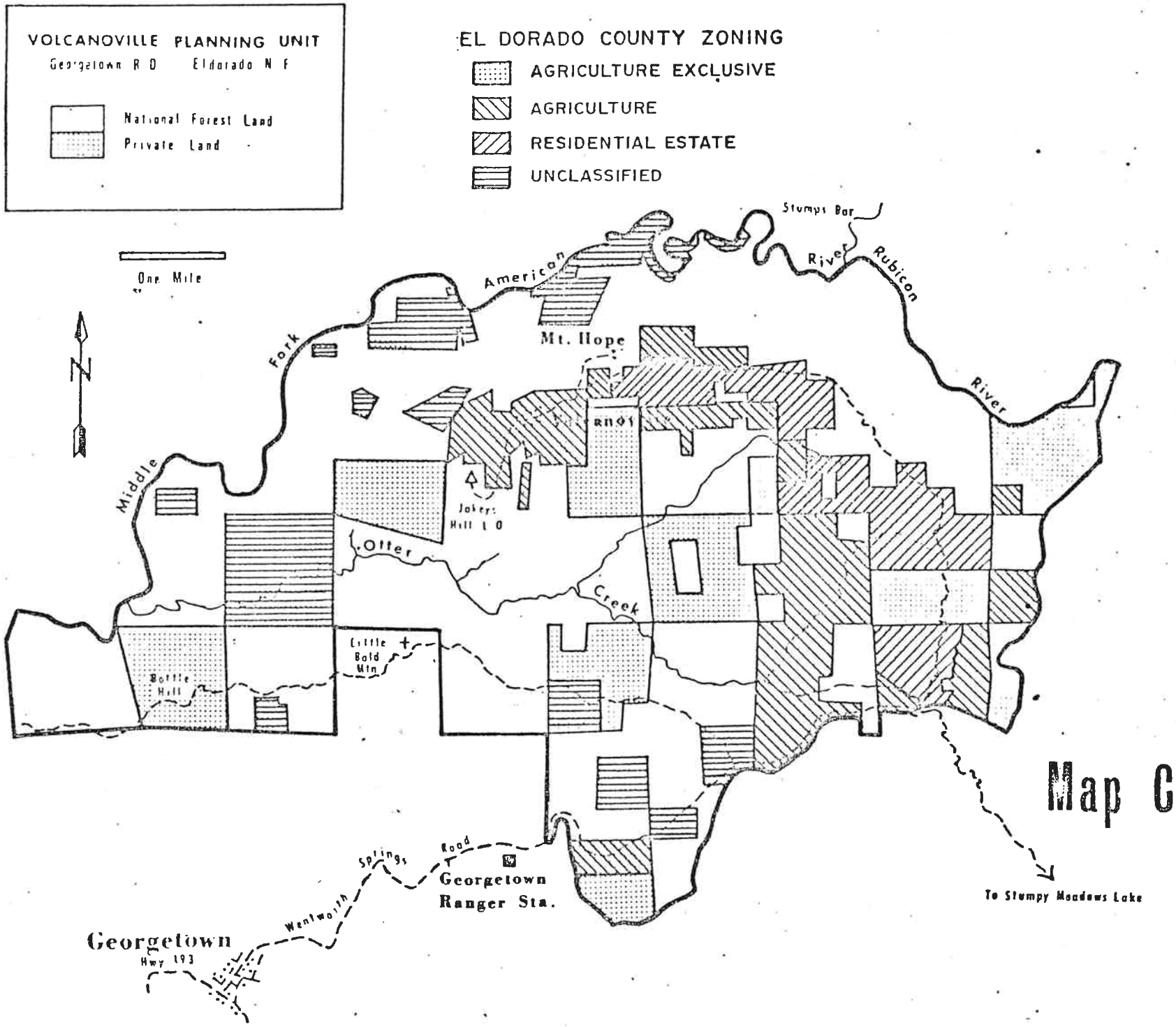
The Eldorado National Forest Volcanoville Planning Unit encompasses essentially all of El Dorado County Census Area No. 3. Housing data for this area may be found in Tables 3-E and 4-E in Appendix E. The affected area also includes the El Dorado County Georgetown Planning Area. Housing data for this area may be found in Table 1-E, Appendix E.

Institutional Environment

Land Zoning

The County zoning prior to the reorganization which has occurred since November 1976 is shown on Map C. A map reflecting current zoning is not yet available. Private land in this Unit is zoned in one of the following six categories:

Unclassified	- (U)
Residential Estate Districts	- (RE-10)
Residential Estate Districts	- (RE-5)
Recreational Facilities Zone	- (RFZ)
Planned Agricultural Districts	- (PA)
Timberland Preserve Zone	- (TPZ)


VOLCANOVILLE PLANNING UNIT
Georgetown R D
Eldorado N F
National Forest Land
Private Land
EL DORADO COUNTY ZONING
AGRICULTURE EXCLUSIVE
AGRICULTURE
RESIDENTIAL ESTATE
UNCLASSIFIED
One Mile
N
American
Fork
Middle
Stumps Bar
River
Rubicon
River
Mt. Hope
Jokers Hill L O
Otter
Creek
Little Bald Mtn
Bottle Hill
Georgetown
Hwy 193
Wentworth Springs
Road
Georgetown Ranger Sta.
To Stumpy Meadows Lake

Map C

A brief description of the purpose for each zone or district is as follows:

(U) - to provide for nominal reservation of use.

Minimum lot area = 1 acre.

(RE-5) - to provide for orderly development of land compatible with minor horticultural and agricultural pursuits.

Minimum lot area = 5 acres.

(RE-10) - to provide for orderly development of land having sufficient space and natural conditions compatible with residential and accessory agricultural and horticultural pursuits. This district has been created since January 1977 from a part of those lands previously classified as (A).

Minimum lot area = 10 acres.

(RFZ) - to provide for the orderly development and maintenance of lands and areas suitable and desirable for recreational pursuits based on considerations of use rather than geography. This zone has been created since November 1976 from a part of those lands previously classified as (A).

Minimum lot area = 5 acres.

(PA) - to provide for the orderly development and protection of lands having sufficient space and conditions compatible with horticulture, husbandry, and other agricultural pursuits. This district has been created since November 1976 from part of those lands previously classified as (A).

Minimum parcel size (except rangeland or woodland designation) = 20 acres.

(TPZ) - to provide for and encourage maintenance of commercial timberland.

The Forest Tax Reform Act of 1975 (California Assemble Bill 1258) prohibits new or renewed timberland contracts under the Williamson Act and establishes the concept of a Timberland Preserve Zone (TPZ) District. A tax incentive is provided for maintenance of land in TPZ classification. El Dorado County is taking the initiative in rezoning those private lands previously included mostly within category (AE). Those private landowners (e.g. Michigan California Lumber Company and American Forest Products, Inc.) with large holdings of timberland (i.e. capable of growing 15 cubic feet per year) have been placed on List A; these owners have completed rezoning to TPZ. Other private owners of timberland have been placed on List B the processing of which is scheduled for completion by September 1, 1977. In those instances in which the owner prefers not to have his land rezoned to TPZ, but whose land otherwise meets the established criteria, the request for exemption will be considered on a case-by-case basis. List C consisting of applications by persons not included on Lists A or B will be processed by November 1977.

Landownership

There are about 23,100 acres within the Volcanoville Unit, about 10,400 acres of which are privately owned. Map M shows the ownership pattern. Several parcels of National Forest land that are surrounded by private land are evident. Management of these isolated parcels of Government land is difficult because of access and right-of-way problems. This management difficulty is especially true where the private land is being subdivided into many ownerships. There currently is considerable activity to subdivide the larger tracts previously zoned Agricultural (A) into five to ten acre parcels under RE-5 and 10 categories. Private land development is expected to continue within the Volcanoville Unit over the next 20 years. Mr. Otto Carstens, a local realtor, predicts that future housing will be about 50 percent permanent homes and 50 percent second homes.

Land Withdrawal

As part of the Auburn Reservoir project (see Section on Water Resources), the Bureau of Reclamation will withdraw within the Forest boundary approximately 4,230 acres adjacent to the project areas (see Map M). Included are about 1,650 acres of private and 2,580 acres of Forest Service land. With execution of a Memorandum of Understanding between the Bureau of Reclamation and the Forest Service, those withdrawn lands (both private and Forest Service) inside the National Forest boundary and above the maximum-pool elevation will be transferred to the Forest Service for management on or about July 1982. Lands within 300 feet horizontal distance above the maximum-pool elevation will be jointly managed by the California Department of Parks and Recreation and the Forest Service.

Land Adjustment

Although the Forest Service will continue to seek a reduction in the number of isolated parcels of government land in order to more efficiently manage resources and reduce conflicts with adjacent landowners, several problems will remain (see Map M).

The present and anticipated pattern and intensity of home development will require the Forest Service to consider the impacts of timber harvest activities on adjacent property. Visual quality, noise, and air pollution impacts will all be concerns of the homeowner whose property borders National Forest land.

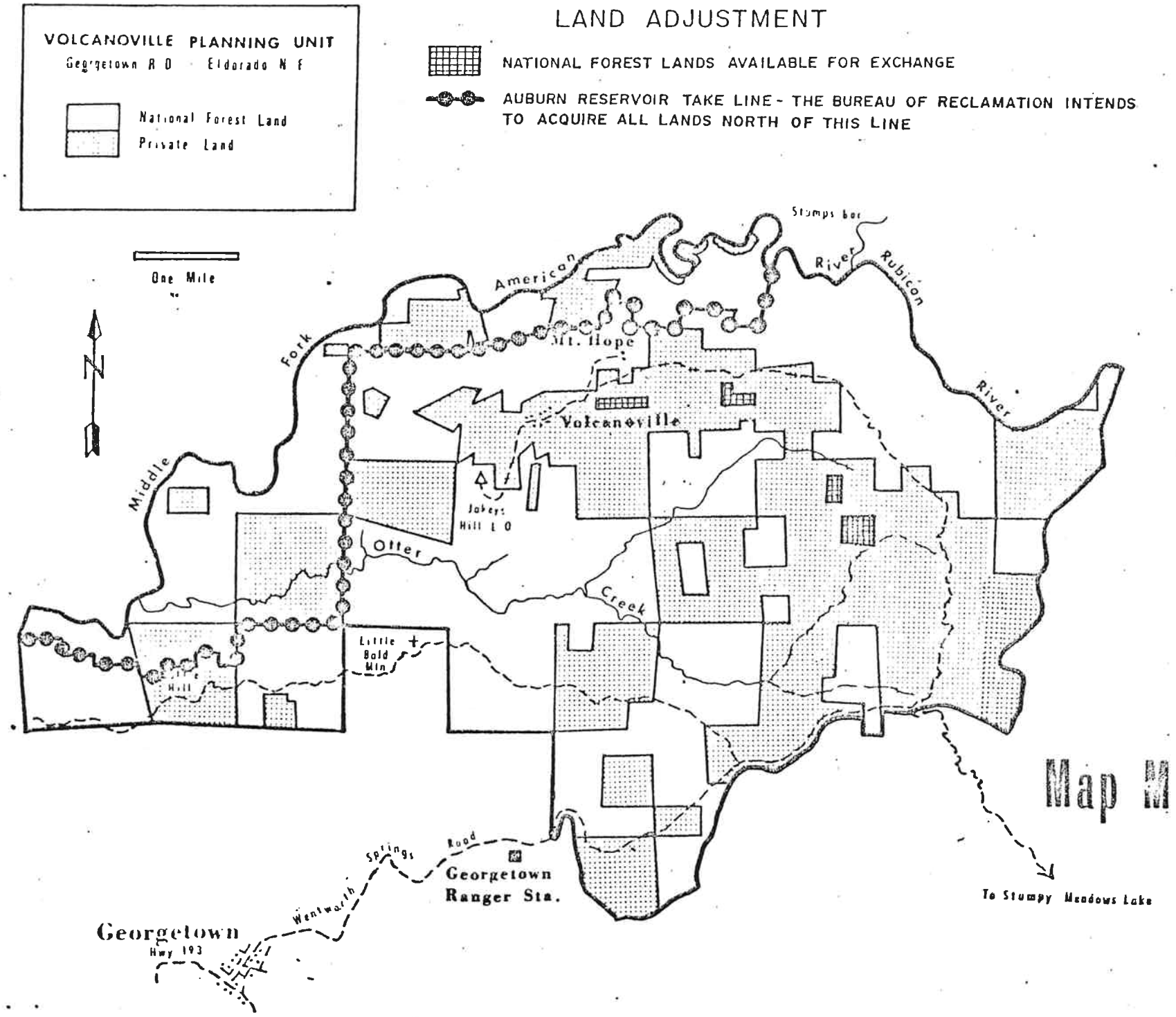
Demographic Characteristics

Population - The populations of both the El Dorado County Georgetown and Volcanoville Planning Areas are rural in character.

Age and sex distribution for the population residing within El Dorado County's Volcanoville Planning Area which corresponds closely to the Eldorado National Forest Volcanoville Planning Unit are shown in Table 5-E, Appendix E.

Length of residence in the area is shown in Tables 2-E and 6-E in Appendix E for El Dorado County's Volcanoville and Georgetown Planning Areas.

The largest community at the present time within the boundary of the Planning Unit is unincorporated Volcanoville with a permanent population of about 25 people. One subdivision exists near Mameluke Hill, and there are two more subdivisions immediately outside the Unit near Wentworth Springs Road, which itself has concentrations of population along certain sections.


VOLCANOVILLE PLANNING UNIT
Georgetown R D Eldorado N F
National Forest Land
Private Land
LAND ADJUSTMENT
NATIONAL FOREST LANDS AVAILABLE FOR EXCHANGE
AUBURN RESERVOIR TAKE LINE - THE BUREAU OF RECLAMATION INTENDS TO ACQUIRE ALL LANDS NORTH OF THIS LINE
One Mile
N
American
Fork
Middle
Stumps Bar
River
Rubicon
River
Mt. Hope
Volcanoville
Jakeys Hill L O
Otter
Creek
Little Bald Mtn
Hill
Springs
Road
Wentworth
Georgetown
Ranger Sta.
Georgetown
Hwy 193
To Stumpy Meadows Lake
Map M

Several centers of population are located near the Volcanoville Unit (see Map A). Each, to some extent, influences and in turn is influenced by activities in the Unit. The small unincorporated communities of Buckeye and Georgetown lie one mile and three miles respectively southwest of the Planning Unit. Georgetown is one of the original settlements of the gold rush era. The 1975 population of this area was 653 persons. Citizens have expressed a desire to maintain the rural way of life as contrasted with high-density development. This concept was incorporated into the El Dorado County General Plan and is reflected in the zoning for this general area.

Placerville (5,950 estimated 1976 population) the county seat of El Dorado County, is located approximately 18 miles south of Georgetown via State Highway 193, which plunges into the South Fork American River canyon at the Chili Bar crossing that can be avoided by traveling a slightly longer, but less precipitous State Highway 49 via Coloma. The small community of Foresthill is located north of the Unit in Placer County approximately 18 miles east of Auburn. The county seat of Placer County, Auburn (6,675 estimated 1976 population) is situated northwest of the Unit approximately 21 miles from Georgetown. With completion of the Auburn Dam easy access across the top of the dam to the Georgetown area will considerably shorten driving time which now requires descending into the Middle Fork American River canyon. Sacramento with an estimated 1976 population of 260,700 persons is only 64 miles southwest of the Unit and 46 miles by freeway (U.S. 50) from Placerville.1/

These foothill areas are among the fastest growing in the State, and this rate of growth is expected to continue, or even accelerate, over the next 20 years.

Ethnic Characteristics - The ethnic composition of El Dorado County as indicated by the 1970 census is shown in Table 6.

EL DORADO COUNTY
POPULATION, APRIL 1970

TABLE 6

Racial or Ethnic Group	Total	Percent	Male	Female
Total	43,833	100.0	21,820	22,013
White	43,205	98.6	21,479	21,726
Black	60	0.1	44	16
Japanese	56	0.1	24	32
Chinese	53	0.1	26	27
Filipino	137	0.3	90	47
American Indian	230	0.5	109	121
Other Races	92	0.2	48	44
*Spanish American	1,933	4.4	938	995

Source: U.S. Census of Population, 1970.
*In the racial distribution most Spanish Americans are counted as White; the rest are distributed among the other racial catagories.

1/ "Report 76-E-1" Department of Finance, Population Research Unit, Sacramento, May 1976.

Since no racially oriented questions were asked on the 1975 special census conducted by El Dorado County, current data on ethnic characteristics of the total population in the Georgetown area is unavailable. A comprehensive summary of many ethnic characteristics for El Dorado County can be found in "California Manpower Indicators from the 1970 Census".(4)

The racial and ethnic composition of elementary schools in the Black Oak Mine Unified District, which encompasses the affected area, appears below in Table 7. El Dorado County has not aggregated racial/ethnic composition enrollment data by district of residence.

RACIAL COMPOSITION
OF
ELEMENTARY SCHOOLS
BLACK OAK MINE UNIFIED DISTRICT

TABLE 7

	American Indian	Black	Asian American	Spanish Surname American	Other	Total Pupil Enrollment	Ethnic (% of Total)
Enrollment	7	1	4	11	480	503	4.6%

Source: El Dorado County Office of Education, "1975-76 Survey of Racial and Ethnic Composition".

It is roughly estimated that based on three children and two adults per household the total racial and ethnic composition of the affected area is about 40 persons or approximately six percent. This crude estimate agrees with the 5.8 percent ethnic minority compositon for El Dorado County indicated by the 1970 U.S. Census data.

Education - The highest level of education completed by the head of household in the El Dorado County Georgetown and Volcanoville Planning Areas is shown in Tables 2-E and 6-E in Appendix E.

Employment

The four major sources of economic activity in El Dorado County are natural resources, Government, manufacturing, and recreation-retirement. Lumber manufacturing is the major resource-based heavy industry; there is little other heavy industry in the County.

In dollar volume recreation-retirement is now the County's number one industry. The Stateline area contributes a substantial share of this volume, but the western slope including the Volcanoville area is growing in popularity as a place for second homes. There is also a growing interest in private development of camping facilities on the west slope of the County.

Employment in the western part of the County is highly seasonal with peak employment usually occurring in August and September. The number of persons working in the lumber and wood products industry may vary significantly because of changes in market and weather conditions. Job opportunities in Government, trade, and service industries expand during the summer months. During the winter months there is a large surplus of semi-skilled and unskilled workers; although this surplus is reduced during the summer, it does not disappear.

The above information characterizes the situation in the Georgetown-Volcanoville area. Second homes will become more numerous with attendant modest increases in service-related employment in the Georgetown area. A plant for the manufacture of backpacking equipment and aluminum fabrication built at the Georgetown Airport area zoned for industry has since gone out of business. A substantial increase in industry at this site is not foreseen.

Trees harvested from National Forest lands in the Volcanoville area would probably be processed in the Placerville area because this is economically the nearest manufacturing point. This would continue to provide some local employment in the Georgetown-Volcanoville area but few permanent jobs in lumber manufacturing because of the commuting distance to Placerville.

Improved road access as a result of construction of the Auburn Dam may make the Georgetown-Volcanoville area more attractive as a year-round residence for workers in Placer County. However, commuting distance may keep this number rather small.

Employment statistics for El Dorado County for the third quarter of 1976 are shown in Table 8. These data reflect the expanded employment characteristics of the summer months.

EL DORADO COUNTY EMPLOYMENT STATISTICS — TABLE 8
THIRD QUARTER 1976

	July	August	September
Civilian Labor Force 1/	27,875	28,125	27,975
Employment	24,275	24,625	24,650
Unemployment	3,600	3,500	3,325
Unemployment Rate	12.9	12.4	11.9
Nonagricultural Wage and Salary Workers 2/	15,025	15,200	15,275
Construction and Mining	1,050	1,075	1,125
Manufacturing	1,125	1,150	1,125
Lumber and Wood Products	800	800	775
Other Manufacturing	325	350	350
Transportation, Communication, and Utilities	875	900	900
Trade	3,725	3,975	3,900
Finance, Insurance, and Real Estate	975	975	975
Services	3,875	3,925	3,825
Government	3,400	3,200	3,425
Agriculture	500	825	525

1/ Labor force, employment and unemployment by place of residence. Employment includes persons involved in labor-management trade disputes.
2/ Employment reported by place of work and does not include persons involved in labor-management trade disputes.

Source: El Dorado County Labor Market Newsletter, October 1976.
Employment Development Department.
Northern California Employment Data and Research.

Employment Statistics for El Dorado County for the period of July 1, 1975 to June 30, 1976 are shown in Table 9.

Additional economic data from the 1975 special census for the populations of El Dorado County Georgetown and Volcanoville Planning Areas is summarized in Appendix D.

EL DORADO COUNTY EMPLOYMENT STATISTICS
July 1975 to June 1976

TABLE 9

1. TOTAL POPULATION (AS OF JULY 1, 1974) 2/	53,300
A. AGE DISTRIBUTION	
16 through 21 years	5,500
22 through 44 years	16,200
45 years and over	18,800
B. MEMBERS OF MINORITY 3/	3,100
16 years and over	1,900
2. TOTAL CIVILIAN WORK FORCE (12 MONTH AVERAGE 1974) 4/	25,475 6/
A. EMPLOYED, TOTAL	22,100
Nonfarm Wage and Salary Workers	12,700
B. UNEMPLOYED	3,375
3. UNIVERSE OF NEED FOR MANPOWER SERVICES FOR FISCAL YEAR 1976 5/	14,850
A. POOR	1,650
(1) Disadvantaged	1,350
(2) Other Poor	300
B. NON-POOR	13,200
(1) Near Poverty	2,350
(2) All Other Non-Poor	10,850
4. UNEMPLOYED AND UNDERUTILIZED DISADVANTAGED	1,350
A. UNEMPLOYED	500
B. UNDERUTILIZED	850
(1) Employed part-time for economic reasons	200
(2) Employed full-time, but with family income at or below poverty level	250
(3) Individuals not in the Labor Force but who should be	400
5. TOTAL NUMBER OF DIFFERENT INDIVIDUALS UNEMPLOYED DURING THE YEAR	13,500

Source: Manpower Planning Data Summary, Fiscal Year 1976 1/
El Dorado County

1/ July 1, 1975 - June 30, 1976
2/ California Department of Finance
3/ "Members of Minority" includes Blacks, other nonwhite races and those individuals classified as Spanish-American in the 1970 Census of Population.
4/ Employment and unemployment in counties within Standard Metropolitan Statistical Areas estimated from 1970 Census relationships.
5/ Prepared in accordance with methodologies prescribed by the Manpower Administration, U.S. Department of Labor.
6/ Revised Labor Force data are currently being computed in accordance with recent methodological changes initiated by the Department of Labor. When these revised data are available they will be forwarded.

Taxes and Receipts

Present taxes to the County from the Volcanoville Planning Unit consist of general property taxes from the private lands and Forest Reserve Fund receipts from National Forest lands. Twenty-five percent of the receipts from the sale of National Forest timber, cattle grazing, special-use permits and other uses are returned to the County. These twenty-five-percent funds are proportionately distributed to the counties within the National Forest on the basis of National Forest acreage and are to be used equally for road and school purposes. Sixty-five percent of the receipts go to the Federal Treasury with the remaining ten percent going to Forest roads and trails.

In Fiscal Year 1974, Forest Reserve Fund receipts represented about 15.5 percent of the total El Dorado County budget for construction and maintenance of County roads. Part of the total road budget is earmarked for routine maintenance and part for specific construction or reconstruction projects as determined by the Board of Supervisors. Forest Reserve receipts represented about four percent of the total County school budget.

The formula for paying a twenty-five percent share of National Forest revenues to counties in which National Forest System lands are located has been adjusted pursuant to the recent National Forest Management Act (P.L. 94-588) to include collections for reforestation and allowances in timber contracts for permanent roads to be built by timber purchases.

The main sources of receipts from National Forest lands in the Volcanoville Unit under the various proposed management strategies would be timber receipts, since no grazing or special-use receipts are now collected. In Fiscal Year 1974, 1.4 million board feet of timber was harvested from National Forest land in the Volcanoville Unit. The receipts from this timber were about $117,250 of which twenty-five percent, or about $29,300 was distributed to four involved counties. Economic activity resulting from timber harvest and the pursuit of recreation generates Federal, State and local taxes directly and indirectly in the local area and the County.

Previous to recent rezoning (see Land Zoning section) about forty percent of the private land in the Unit was zoned "Agricultural Exclusive" (Williamson Act) which carried a lower tax rate because of its restriction on use. It is estimated that the greatest increase in tax receipts from the private lands in the Unit would result from land subdivision into five to ten acre parcels for individual home construction. However, the County Planning Director has indicated that in the Volcanoville area permanent residences could be a tax burden since the cost of services would be greater than revenues collected. This imbalance might be altered in proportion to the cost of the home and if the developers were required to make the capital outlays for public improvement such as streets, lighting, sewers and other public improvements. Continued subdivision and development will undoubtedly result in an increase in assessed valuation and consequently an increase in taxes for those properties within the affected area. This effect might possibly force low-income, retired people who have lived on their property for many years to move because of an inability to pay increased taxes.

POLICICAL INTERRELATIONSHIPS

In addition to county zoning ordinances, El Dorado County is currently operating under a General Plan approved in 1969. A citizens group has been formed in the Georgetown Planning Area to provide input to a County Plan for that area. No action has yet been taken toward formulation of a County Plan for the Volcanoville Planning Area. During 1976 El Dorado County approved a Regional Transportation Plan projecting to the year 1995.

Placer County is guided by the Conservation and Recreation Plan, approved in 1971, an element of the Placer County General Plan approved in 1967.

The Mountain Counties Air Basin Air Pollution Control Coordinating Council issued the Mountain Counties Air Basin Implementation Plan in 1975. The State Air Resources Board is currently developing a proposed Air Conservation Program focusing primarily on areas with superior air quality in response to a Federal requirement for regulations to prevent significant deterioration of air quality and a State mandate to protect and enhance the ambient air quality. The Forest Service will continue to cooperate fully with the Mountain Counties Air Pollution Control Authority and the State Air Resources Board to insure activities performed on Forest Service lands are in compliance with established air quality standards.

The Water Quality Control Plan Report approved in 1975 by the State Water Resources Control Board, Central Valley Region (5) covers the affected area within the Sacramento River Basin (5A). The Forest Service will continue to cooperate fully with the State Water Resources Control Board and the State Department of Fish and Game to insure activities performed on Forest Service lands are in compliance with established water quality standards.

A Memorandum of Understanding is being developed between the Eldorado National Forest and the Bureau of Reclamation regarding management of the Auburn Reservoir Area lands withdrawn by the Bureau. Lands within the Auburn Reservoir Area will be transferred to the Forest Service for administration pursuant to the Act of July 9, 1965 (79 Stat. 213; P.L. 89-72). (See sections on Water Resources and Land Withdrawal.)

The Forest Service also has a contractural agreement with the California Division of Forestry to provide for wildland fire detection and suppression services (see Suppression Organization).

FEASIBILITY

All plans of management must be technically, legally, financially, and politically feasible to work. Therefore, a sound alternative must:

1. *be compatible with ecological constraints and the capacity of the resource.*
2. *be within existing technology.*
3. *be within the law.*
4. *bear a reasonable relationship to probable funding.*
5. *be publically supported.*

Alternatives proposed in this Statement have been formulated in accordance with (1) above to the extent relationships and capacities are known at this point in time. Objectives to extend our somewhat limited knowledge in these areas have been set to provide more information for future planning.

All alternatives utilize existing technology. Future technologies will undoubtedly create unknown impacts and possess totally different relationships to the biological, physical, social and economic systems which cannot be assessed at this time.

Alternatives developed are all within existing law and policy.

Probably the most difficult constraint to deal with in planning is the relationship to probable funding. It is believed the objectives stated in these alternatives have a reasonable probability of being funded. The financial planning program as formulated by management in conjunction with established priorities will determine the rate at which individual objectives are met.

Public involvement in the planning process helps to ensure that the emergent plans will be publically supported. Interaction with other agencies and organizations helps to minimize conflicts with existing or proposed programs of others.

ASSUMPTIONS

Assumptions used in land use planning should be limited to those which are external to, or beyond the direct control of, the Forest Service if they are to be of value. The following assumptions have been selected from among those found in the Northern California Planning Area Guide and modified as necessary to reflect local conditions. It is recognized that many of these assumptions would be more valuable if they were more specific. However, because of insufficient data no more specific predictions can be made at this time. These assumptions are grouped according to Forest Service Resource Systems classifications.

LAND, AIR AND WATER

Landownership and Land Use

1. Checkerboard ownership and large inholding will continue and will impact administration of public lands.

2. Any large scale development within or immediately adjacent to a National Forest, such as a reservior, will promote other land uses on private lands and other impacts on the affected area.

3. Additional legislative mandates for land use planning will be imposed on both public and private lands.

4. The competition for National Forest System (NFS) land allocations will grow.

5. There will be continued demand for use of private lands as second homesites. The developments will average five to ten acres per homesite.

6. The increasing number of residence structures on private land within the Unit will generate a gradual shift from absentee ownership to extended seasonal and residential occupancy which will impact the adjacent National Forest lands.

7. National Forest lands acquired by private individuals through exchange will eventually be developed.

Transportation

1. There will be increased demands from individuals and corporations to use National Forest roads.

2. *Increasing National Forest road use will cause increased conflicts with other resource values and conflicts among users.*

Minerals

1. *There will be reevaluation of known mineral deposits and resources, intensive search for previously undiscovered resources, and development of new technology which will allow use of mineral deposits not feasible at present.*

2. *Continued and increasing demand for minerals will expand development and production efforts into less accessible or previously abandoned areas with heavy impact on the National Forest.*

3. *Attempts to establish new or maintain existing unauthorized occupancy on mining claims of questionable validity are expected to continue in the absence of new legislation.*

4. *There will be increasing numbers of both large and small mining claims established.*

5. *There will be increased pressure to change the existing mining law, but present law pertaining to mineral location and development will remain unchanged at least until the first review date for the Unit Plan.*

Fire

1. *The U.S. Forest Service suppression crew and tanker stationed at Georgetown will continue to be State funded at the present level.*

2. *The California Division of Forestry will continue to maintain two engines at Garden Valley.*

3. *As a result of increased occupancy of private land there will be an increased risk of wildfires on adjacent National Forest land.*

Soils

1. *Land disturbance activities on private lands will increase in magnitude and frequency.*

2. *Pressure for greater yields per unit area of land will increase.*

3. *There will be increasing concern for maintaining soil stability.*

Air

1. *Federal, State, or local regulations will continue to become increasingly restrictive with respect to concentrations of air contaminants.*

2. *The State Air Resources Board will, for a few years, continue to exhibit some measure of leniency regarding agricultural burning and the approval of National Forest slash burning. However, such leniency will apply only when smoke sensitive areas are not affected and will be decreasingly exhibited as population and recreation use increase.*

3. *There will be increased concern for air pollution effects on vegetation.*

4. There will be an increasing concern expressed by Forest users for reducing the impact of air pollution in developed or high-density recreation areas and for preventing the deterioration of air quality in pristine areas.

Water

1. More emphasis will be placed on increasing the efficiency of the existing retention and distribution system rather than construction of new systems.

2. The intensity of land use will increase, thus increasing the potential for degrading water quality.

3. Non-point source pollution criteria established in State plans will constrain upstream land management activities, including activities on NFS. lands.

4. Additional Federal involvement will increasingly constrain upstream land management activities, including activities on NFS lands.

5. There will be increased pressure to stabilize National Forest roads for fishery and water quality purposes, and conflicting pressure to minimize expenditures for these purposes.

6. Increasing concern over free-flowing water recreation will conflict with plans for future water developments.

7. Concern will increase over water rights for fishery, aesthetic, and recreation purposes.

Noise

1. There will be an increasing concern expressed by forest users for reducing the impact of noise pollution in developed or high-density recreation areas.

2. The National Forest will be increasingly viewed as a site to experience a near-natural environment providing a minimum of noise pollution.

3. There will be increasing pressure to more strictly enforce State and Federal noise pollution standards in areas of concentrated public use.

4. There will be increasing pressure to provide non-Wilderness areas, possibly in more remote drainages which could provide water-oriented dispersed recreation and which could be managed for the production of timber yet normally remain free of noise intrusion by the internal combustion engine and therefore meet one of the major aesthetic requirements of Wilderness users who might then reduce pressure on the Wilderness itself.

Historical and Cultural

Concern for identification and protection of cultural resources will increase.

TIMBER

1. *The land base for commercial forest production will continue to shrink, requiring more intensive management practices to maintain or increase supply.*

2. *Demand for timber products will continue to increase at a rate similar to the past 10-15 years.*

3. *Increased demand will lead to increased utilization of timber stand mortality and total tree utilization - from stumps for chemical extraction to tops and limbs for fiber.*

4. *The National trend for lumber use adjusted for western need of housing will intensify pressure on National Forests within the Northern California Planning Area to grow as much timber as possible and to stabilize the acreage of commercial forest land available for the production of timber products.*

5. *Visual resource management considerations relating to timber harvesting will increase in public importance.*

6. *The use of wood fiber for fuel will have a major impact on the Forest.*

RECREATION

1. *The private sector will participate more heavily in future expansion to meet developed recreation demands.*

2. *Private property owners will increasingly restrict the non-commercial use of their land for dispersed recreation purposes to the point of almost total exclusion in the near future.*

3. *Camping will increase at approximately two percent per year on National Forest land.*

4. *Recreation demand pressures will increase the potential for resource damage in certain areas.*

5. *Use of scenic and recreation trails will increase and there will be an increase in pressure for construction and maintenance of recreation trails.*

6. *There will continue to be conflict between motorized and non-motorized users of recreational trails.*

7. *There will be a trend towards mass transportation which will slightly change recreation use patterns.*

8. *A major voluntary change in California's lifestyle, particularly with regard to the consumption of gasoline and oil will not occur.*

9. *Present and increased recreation use will impact local governments and their services as well as adjacent private lands.*

10. *The canyon landscape resource in the Unit will continue to be valued by most users.*

11. *Recreationists and principal route travelers will demand a high quality of landscape management with a minimum of modification.*

12. *There will be an increase in the numbers of people who visit National Forests in Northern California with the principal objective of enjoying the scenic resources.*

13. *There will be increasing public demand to correct damaged landscapes to acceptable levels.*

14. *Continuing modification of lands outside of the National Forests will decrease the availability of high quality, large scale, natural-appearing landscapes of non-public lands and thereby increase the demand and desirability of such National Forest landscapes.*

RANGE

Range operations on NFS lands will become increasingly marginal, and livestock grazing will decrease on those lands. There will be no demand for grazing on the Unit.

FISH AND WILDLIFE HABITAT

1. *There will continue to be public opposition to harvesting antlerless deer.*

2. *The State will initiate a herd management system.*

3. *Hunting will increase but at a lower rate than human population increases.*

4. *The amount of land available for wildlife production within the Region will be reduced due to competition for other uses - urban, industrial, transportation, and more intensive and extensive farming.*

5. *New and expanded wildlife habitat improvement projects will slow but not reverse the long-term rate of decline in deer numbers.*

6. *More intensive and extensive farming methods, urbanization, and other valley land uses will reduce upland game populations. This will cause a small shift of upland game hunters to National Forest lands.*

7. *Most fishing within the Unit will be done by people from outside the planning area.*

8. *There will be a Statewide shortage of cold water fisheries by 1980 and a surplus of lake and reservoir fishing. Some portion of the deficit in cold water fisheries will be absorbed by warm water lake and reservoir fishing.*

9. *There will be increasing pressure to manage a certain percentage of the Forest resources in climax and old-growth vegetation stages for wildlife habitat and as an ecological reserve.*

10. *There will be increasing pressure for properly planned and conducted logging and regeneration practices to provide a healthy and diverse habitat for all wildlife species.*

11. Additional species will be added to the list of threatened and endangered species along with new categories, such as insects and others.

12. Implementation of the Threatened and Endangered Species Act will increasingly constrain activities on National Forest lands.

13. The consideration of plant and plant community interrelationships with other resources will be of increasing importance as a result of increased public concern and awareness.

14. Some plants now considered as "non-commercial" will be of commercial value in the future.

15. The demand for special designations of National Forest land to protect endangered, threatend, and unique plants will increase.

16. National emphasis will continue for the establishment of Research Natural Areas.

HUMAN AND COMMUNITY DEVELOPMENT

1. Unemployment - Annual average unemployment, for the Georgetown Area, will lie between six and 16 percent.

2. Income Distribution - The dollar amounts for the several income-level brackets will increase depending on inflation, but the percentage distribution of family incomes which fall within each bracket will change only slightly.

3. Forest Reserve Funds - The percentage contribution of Forest Reserve Funds (25 percent receipts) to county schools and roads budgets will decrease slightly because, even though 25 percent receipts will increase, other sources of funds for these budgets will increase even more.

4. Future population growth in the Georgetown area will proportionately exceed the State population projection D-100 made by the Department of Finance.

5. Increasing demands on management awareness, time and response concerning women's and minorities' rights will continue.

6. The number of government sponsored social development and employment programs will increase.

7. There will be increasing demand for Forest Service involvement in community environmental interests.

GOALS

Characteristically, "goals" are enduring statements of purpose directed towards the fulfillment of broad public needs, the preservation of fundamental constitutional principles, the achievement of environmental quality, or the alleviation of major problems.

The following goals have been selected from among those already formulated by National and Regional Forest Service policy. They are grouped according to Forest Service Resource System classifications. The source is numerically coded corresponding to the entry number given in the bibliography.

1. "Meet minimum air and water quality standards. Emphasize improvements of soil productivity and air and water quality while selectively improving, commensurate with benefits, water supply. Meet other land stewardship standards." (31: Land and Water Goal B - modified)

2. "Maintenance of existing capability, or increased capability of National Forest System lands for sustained production of goods, services, and amenities." (28, 29, and 37: Multiple Use Sustained Yield Act)

3. "A pattern of National Forest natural resource uses that will best meet the needs of people now and in the future." A response to current expressed needs while maintaining and developing as many options as possible in order to enhance the capability of adequately responding to future needs. (28)

4. "Reduced damages from erosion, floodwater and sediment." (28)

5. "Visual quality on National Forest System lands that meets the standards established by use of the Forest Service Visual Resource Management System." (29, 32, and 33)

6. "Minimized adverse effects upon soil, water, and other resources from mineral resource utilization." (24 and 28)

7. Utilization of minerals resouces with adequate protection of surface resources and air quality. (28 and 32)

8. "A system of roads and trails on National Forest System lands that is safe and efficient to use as well as efficient to operate and maintain." (24 and 28)

9. Protection of significant, unique examples of ecological, archaeological, geological, and historical interest on or adjacent to National Forest System lands. (28, 32, and Executive Order 11593)

10. "Minimization of the sum of wildland fire damages plus protection costs." (24 and 28)

11. Control of all wildland fires at ten acres or less during 90 percent of the time of increased fire damage. (This goal was established for the Eldorado National Forest in the 1972 National Fire Plan process.)

12. A National Forest landownership pattern that optimizes implementation of the management direction for those lands. (32)

13. "National Forest resource management plans and programs developed with full recognition of the plans and programs of other governmental levels and other Federal agencies." This does not mean that Forest Service plans and programs must always be totally consistent with those of others, but it does mean that inconsistencies will be identified so that decisions can be made with this knowledge in mind. (28 and 29)

TIMBER

"Increase timber supplies and quality in an environmentally sound manner to the point where benefits are commensurate with costs." (31: Goal C)

RECREATION

"Increase supply of outdoor recreation opportunities and services through Forest Service programs that emphasize dispersed recreation." These programs will recognize the basic incompatibilities among various dispersed uses. (31: Goal C - modified)

RANGE

Provide forage if demanded in the future to the extent benefits are commensurate with costs without impairing land productivity and coordinated with fish and wildlife habitat and recreation programs. (31: Goal C - modified)

WILDLIFE AND FISH HABITAT

1. "Provide for species diversity and greater wildlife and fish populations through a substantial increase in habitat management." (31: Goal C - modified).

2. "Maintenance of the existing numbers and distribution of threatened or endangered plant or animal species and improvement of this situation where possible." (32 and Endangered Species Act of 1973)

HUMAN AND COMMUNITY DEVELOPMENT

1. "Increase emphasis on involvement in discrete human and community development efforts that complement the activities in other Forest Service resource systems." (31: Goal C)

2. Improve the welfare of underprivileged members of society using forestry-related activities to help women and minority, economically depressed, elderly, handicapped and youth groups. (32)

3. Insure equal opportunity for all people to use the National Forest and its resources.

4. Within current Forest Service policy, aid in the provision of essential community facilities, services, and envirnomental improvements utilizing Forest Service lands. (24)

5. Improved public understanding of ecological relationships and environmental programs resulting from increased educational, cultural, and recreational opportunities through improved public information services.

6. "Reduced hazards to human health and safety." (24)

7. Reduced wildfire threats to human life and property. (24)

ALTERNATIVES

MANAGEMENT DIRECTION

The term "management direction" as used by the Forest Service is a statement of opportunities and constraints to be applied in the development of Forest Land Use Plans. (28)

Characteristically, an "objective" is "a clear and specific statement of measurable, planned results to be achieved within a stated time period."(23) The results indicated in a statement of objectives are those which comprise or lead to a desired state represented by the goal. "Implementation actions" for a particular management unit reflect application of selected objectives, perhaps expressed as one or more "targets" with results to be measured in terms of specific indicators which must be relatable to "criteria" and perhaps "standards" for how well they were achieved.(23)

Progress toward achieving the various objectives will be reviewed annually by management and staff. Management decisions will then be made to either modify the objective and implementation action or to undertake an appropriate course of action to attain the original objective considering the management situation in terms of funding and established priorities.

The following objectives are common in their entirety to all alternatives:

Fire Management Objectives

1. Within five years, complete data collection on resource damage potentials and develop a usable format to display damage class data. As a result of this inventory, certain fire-size objectives may be revised.

2. Within five years, complete data collection on fuel types and fuel loadings and develop a usable format to display this information.

3. Within fifteen years, complete the planned fuelbreak system to afford protection to public and private lands; continue to encourage the formation of local fire districts.

Water Quality Objectives

1. In conjunction with "208 Planning" (Sec. 208, P.L. 92-500) establish within five years a program to monitor the impacts of Forest Service activities (including road construction and maintenance; application of herbicides, pesticides, and fertilizers; and timber harvest); of mining operations; and of second-home development on the quality of water on Government lands.

2. Within three years establish baseline water quality for Otter Creek.

Recreation System Objectives

1. Establish a continuing program to monitor recreation use in the Auburn Reservoir area and to commence five years subsequent to the attainment of maximum-pool elevation. Further objectives would be formulated after a time period, usually several seasons, sufficient to determine actual use

and forecast demand with acceptable confidence. Any future objectives would be coordinated with the plans of the State Department of Parks and Recreation.

2. Establish, within ten years, a continuing program to monitor dispersed recreation use within the Unit. Additional objectives, such as improvement and extension of the trail system or provision of sanitation facilities could be set whenever anticipated demand indicated the need for such action.

Wildlife Habitat Objectives

1. Begin and complete within five years a vegetative type map to include broad delineations of plant communities, successional stages, and riparian habitats.

2. Begin and complete within five years the preparation of a detailed map of the deer winter range in the Unit from existing California Department of Fish and Game data, existing studies by other sources, and field investigations to determine the present deer carrying capacity of the winter deer habitat.

3. Subsequent to completion of (1) and (2) immediately above, begin and complete within two years the formulation of detailed habitat management plans to optimize both wildlife and habitat diversity within the Unit with emphasis on deer winter ranges and riparian habitats.

4. In conjunction with (3) immediately above and as part of the overall Forest goal begin immediately and continue to collect information from all sources on interrelationships among wildlife species, interrelationships among habitats, relationships between wildlife species and habitat within the Unit (e.g. the relationships among the serpentine soils, vegetation and wildlife), and the effects of management activities and environmental alteration on these relationships.

Fish Habitat Objectives

1. Within one year, establish a program to identify from existing stream surveys in conjunction with field checks any stream blockages and sources of siltation in Otter Creek and the headwaters of Canyon Creek.

2. Within five years, inventory and if necessary formulate plans to eliminate any significant sources of siltation to Otter Creek and the headwaters of Canyon Creek resulting from human activities on Forest Service lands and to remove all undesirable stream blockages. Involvement of appropriate State agencies would be requested in cases outside the jurisdiction of the Forest Service.

Land Adjustment Objective

1. As soon as feasible or according to the Memorandum of Understanding, acquire for purposes of administration all the withdrawal lands acquired by the Bureau of Reclamation above the Auburn Reservoir maximum-pool elevation not needed for project management. Land within 300 feet horizontal distance above maximum-pool elevation will be under joint administration with the California Department of Parks and Recreation by permit.

2. Within one year, complete Land Adjustment Planning including redefinition of criteria for identifying "acquisition" lands and assignment of a priority for those lands identified as input for revision of the Forest land ownership plan.

Additional objectives are specified with each alternative and management unit as appropriate.

ALTERNATIVE PLANS CONSIDERED

Four alternative strategies were developed for the Volcanoville Planning Unit following evaluation of public demands as expressed in the public involvement process and analysis of the supply and capability of resources based on available data.

In each alternative the Planning Unit was classified into one or more "management units" according to the goals defined for that alternative. Four general "management unit" categories were used in classification, although all four were not necessarily used in a specific alternative. Each of the four categories of management unit is defined by a unique set of policy constraints. These constraints for a particular management unit apply regardless of the alternative considered.

The policy constraints or prescription for each of the management unit follows:

Management Unit 1 - Management of this Unit will be primarily to protect the watershed ecosystem and scenic resource.

There will be no new roads or skid trails constructed within the Management Unit by Forest Service action. Any road construction by others will require a transit-tape survey and design and will provide for a stabilized surface. Geotechnical input will be required to insure that landslide hazards are minimized.

Operation plans for mining activities will give special emphasis to maintaining water quality and preventing soil erosion.

Normally, between October 15 and June 1, no soil disturbing activities will be undertaken.

On any soil disturbing project, all erosion control work will be up-to-date by October 15 and then kept current daily if work is allowed to continue.

Off-road vehicle use will be permitted only on designated roads and trails and restricted as to season of use

Recreation management will be directed toward providing a Level I experience. (See Experience Level definitions in Appendix C).

Fuelbreak and fireline construction will be done by hand methods only. Within the fuelbreak areas shown on Map J, hand thinning of Arctostaphylos nissenana (a classified "sensitive" plant species) will be necessary to make the fuelbreak effective for area protection. This will be done only if it will not significantly affect the survival of A. nissenana. In other areas there will be no disturbance of this threatened plant species.

Any management activities will be designed to meet a visual quality objective of retention for the Management Unit. (See description of Visual Quality Objectives in Appendix D.)

Commercial forest land within this Unit managed principally to protect or enhance wildlife, water quality, archaeological resources, or unique botanical species will be designated Special Component and adequately identified on-the-ground.

Except for emergency salvage operations necessitated by fire, insect, or disease attack and carried out by aerial methods (i.e. helicopter or balloon) no commercial timber harvest will occur before the next scheduled five-year review of the Unit Plan.

All activities on Forest Service lands will be performed in a manner which complies with applicable water and air quality standards and regulations established by the State of California.

Management Unit 2 - Management of this Unit will be for protection of the watershed ecosystem with special emphasis on riparian zones and for less intensive timber production than that prescribed for Management Unit 3.

All timber harvesting activities will be accomplished by logging systems that either totally or partially suspend the logs while they are being transported from the stump to the log landing.

Harvest on steeper, more inaccessible portions of Management Unit 2 will be postponed until such time as helicopter or balloon methods are economically justified since these portions cannot be feasibly logged by cable systems.

Standards will be complied with for the removal of trees and forest products to provide for optimum practical use of wood material.

Timber will be harvested only where:

1. no irreversible, direct or indirect damage is expected to occur to soil, slope, or water;

2. water quality and fish habitat are protected;

3. and when adequate restocking of trees will be achieved in five years;

4. the choice of harvest system is not based primarily on maximum dollar return or output of timber.

Property corners will be in and lines will be run to at least "interim" standard or cutting boundaries secured before a timber sale is begun.

Standards will be complied with to insure that timber harvest methods for regeneration of even-aged timber stands will be used only when provisions are made to blend the cut with the terrain and in accordance with appropriate size limits; and only when the cuts are consistent with the protection of soil, watershed, fish, wildlife, recreation, and aesthetic resources, and the regeneration of the timber resource.

Standards will be complied with to insure that, prior to harvest, stands of trees generally shall have reached the culmination of mean annual increment of growth. Such compliance, however, shall not preclude the use of sound silvicultural practices such as: (a) thinning or other stand improvement measures; (b) salvage and sanitation harvesting of timber stands substantially damaged by fire, windthrow or other catastrophe or threatened by insects or disease; and (c) harvest of particular trees for multiple-use purposes after appropriate public review.

Regeneration and other appropriate silvicultural practices will have high priority and be concentrated on M20 and M30 strata.

Roads and trails will be constructed only after a transit-tape survey and design have been performed and will provide for a stabilized surface. Geotechnical input will be required to insure that landslide hazards are minimized.

Except for those planned for permanent use as part of the transportation system, roads constructed on National Forest lands in connection with timber contracts will be designed with the objective of reestablishing vegetative cover within ten years. All roads shall be constructed to standards appropriate for intended uses considering safety, transportation costs, and impact on land and resources.

The productive qualities necessary for a cold water fishery will be maintained along with aesthetic quality in the Otter Creek drainage.

Operating plans for mining activities must give special emphasis to maintaining water quality and preventing soil erosion.

Normally, between October 15 and June 1, no soil disturbing activities will be undertaken.

On any soil disturbing project, all erosion control work will be up-to-date by October 15 and then kept current daily, if work is allowed to continue.

Off-road vehicle use will be permitted only on designated roads and trails and restricted as to season of use.

Recreation management will be directed toward providing a Level I experience.

Fuelbreak construction will be done by hand methods only.

In those areas visible from the proposed Auburn Reservoir, management activities will be designed to at least provide for "partial retention" of visual character. (See Visual Quality Goals in Appendix C for further explanation.)

All activities on Forest Service lands will be performed in a manner which complies with applicable water and air quality standards and regulations established by the State of California.

Management Unit 3 - Management of this Unit will be primarily directed at enhancement of the timber crop to achieve maximum sustained yield of this commodity.

Standards will be complied with for the removal of trees and forest products to provide for optimum practical use of wood material.

Timber will be harvested only where:

1. no irreversible, direct or indirect damage is expected to occur to soil, slope, or water;

2. water quality and fish habitat are protected;

3. and when adequate restocking of trees will be achieved in five years;

4. the choice of harvest system is not based primarily on maximum dollar return or output of timber.

Property corners will be in and lines will be run to at least "interim" standard or cutting boundaries secured before a timber sale is begun.

Standards will be complied with to insure that timber harvest methods for regeneration of even-aged timber stands will be used only when provisions are made to blend the cut with the terrain and in accordance with appropriate size limits; and only when the cuts are consistent with the protection of soil, watershed, fish, wildlife, recreation, and aesthetic resources, and the regeneration of the timber resource.

Standards will be complied with to insure that, prior to harvest, stands of trees generally shall have reached the culmination of mean annual increment of growth. Such compliance, however, shall not preclude the use of sound silvicultural practices such as: (a) thinning or other stand improvement measures; (b) salvage and sanitation harvesting of timber stands substantially damaged by fire, windthrow or other catastrophe or threatened by insects or disease; and (c) harvest of particular trees for multiple-use purposes after appropriate public review.

Regeneration and other appropriate silvicultural practices will have high priority and be concentrated on M20 and M30 strata.

Lands within Management Unit 3 will have priority for purposes of conducting silvicultural activities, but portions of Management Unit 2 may be included in each project.

This Unit will be open to off-road vehicle use in all areas except where designated as closed or restricted as to season of use.

Any development in this Management Unit will be designed to meet a visual quality objective of "partial retention".

Recreation management will be directed toward providing an experience not to exceed Level II.

Roads and trails will be constructed which provide for a "stabilized surface".

Except for those planned for permanent use, roads constructed on National Forest lands in connection with timber contracts will be designed with the objective of reestablishing vegetative cover within ten years. All roads shall be constructed to standards appropriate for intended uses considering safety, transportation cost, and impact on land and resources.

Operating plans for mining activities must give special emphasis to maintaining water quality and preventing soil erosion.

All activities on Forest Service lands will be performed in a manner which complies with applicable water and air quality standards and regulations established by the State of California.

Management Unit 4 - Management of this Unit will be consistent with existing management direction which say that emphasis will be on maintaining or enhancing beauty and attractiveness and on maintaining suitable recreational sites.

The visual quality objective for this Management Unit will be "retention".

Recreation management will be directed toward not exceeding the Level II experience.

Off-road vehicle use will be permitted throughout this Management Unit except where designated as closed or restricted as to season of use.

Timber management activities will be directed toward maintaining a healthy stand through a selective harvest program that will meet visual quality objectives.

All activities on Forest Service lands will be performed in a manner which complies with applicable water and air quality standards and regulations established by the State of California.

ALTERNATIVE A (See Map O)

Management Direction

Prescription - Management of all National Forest land would be for maximum watershed protection and would emphasize water quality. Timber would be harvested only for salvage purposes and by specialized methods to minimize soil disturbance.

There would emphasize water quality. Timber would be harvested only for salvage purposes and by specialized methods to minimize soil disturbance.

There would be no new road construction except under special use permit in association with proved mineral development, and some of the poorer roads would be closed.

Dispersed recreation would be emphasized. Off-road vehicle use would be restricted to designated roads, trails, and seasons to prevent resource damage.

Archaeological and historical resources on National Forest land would be protected from disturbance.

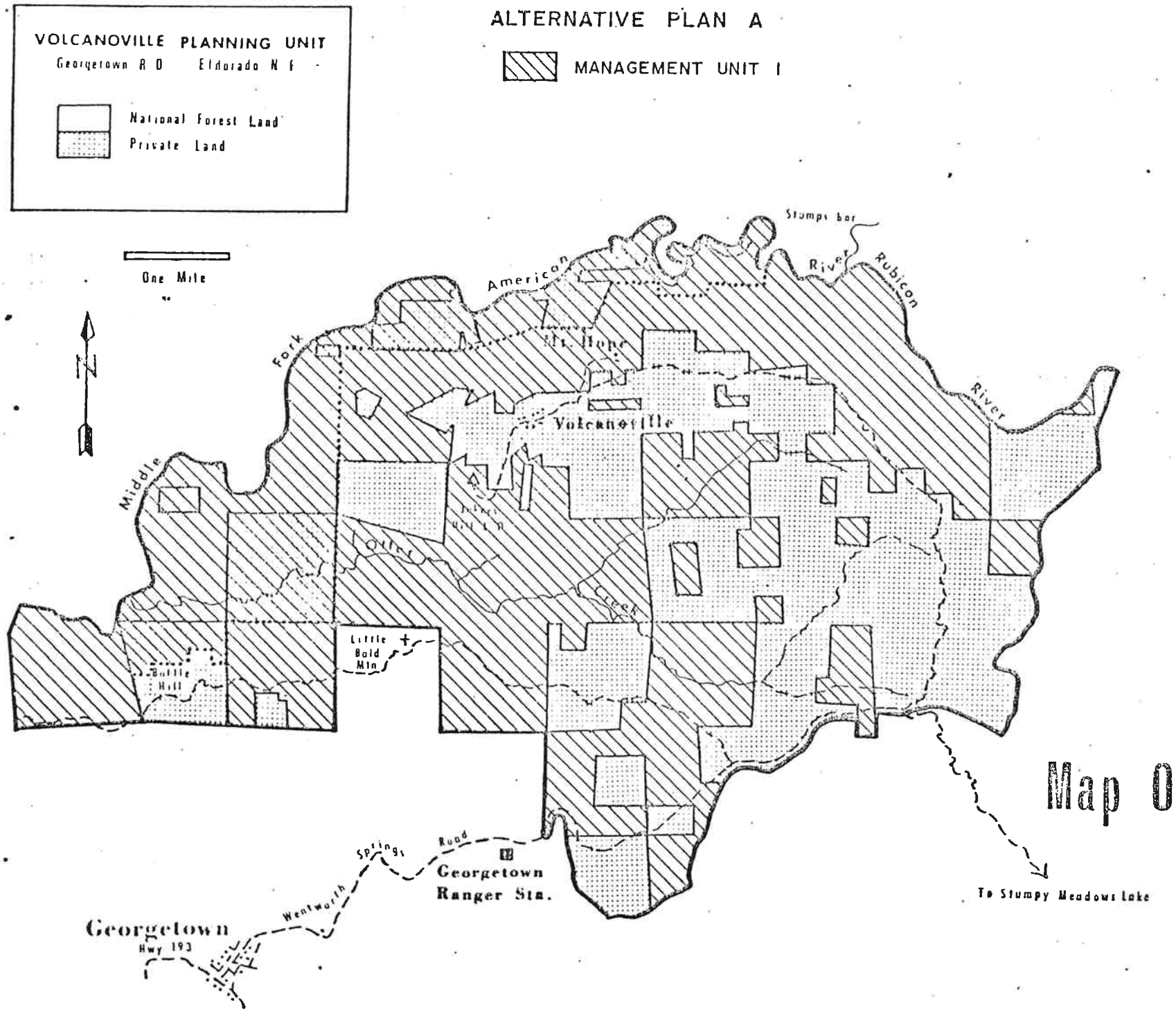
There would be no land exchange.

Management Unit 1 - All of the National Forest lands within the Planning Unit (approximately 12,700 acres) would be placed in this classification. It would provide essentially a custodial type management. Within the Forest boundary the Bureau of Reclamation has withdrawn, or intends to withdraw, within the area of the proposed Auburn Reservoir approximately 1,650 acres of private land which would be designated as Management Unit 1 under Alternative A when the Forest Service obtains management responsibility for these lands.

Additional Objectives

Harvest an average of 0.5 MMBF per year of timber on a high-risk or salvage basis.

Construct approximately 15 miles of fuelbreak.


VOLCANOVILLE PLANNING UNIT
Georgetown R D Eldorado N F
National Forest Land
Private Land
ALTERNATIVE PLAN A
MANAGEMENT UNIT I
One Mile
N
Stumpy Bar
American
River
Rubicon
River
Fork
Mt. Hope
Volcanoville
Middle
Otter
Creek
Little Bald Mtn
Battle Hill
Springs
Road
Wentworth
Georgetown
Hwy 193
Georgetown Ranger Sta.
To Stumpy Meadows Lake

Map 0

ALTERNATIVE B - (See Map P)

Management Direction

Prescription - Management of all National Forest land with high timber productivity potential (i.e. Site Classes I, II, III) and slopes averaging less than 30 percent would be managed for intensive timber production. Other National Forest timbered lands would be managed for modified timber production. The remaining National Forest lands not capable of sustaining commercial timber production would be managed for watershed protection. On the timbered slopes averaging less than 30 percent, there would be few restrictions on silvicultural practices or timber harvest methods. On timbered slopes averaging over 30 percent however, silvicultural practices and timber harvest methods would be controlled to insure that no irreversible soil disturbance occurs and to minimize soil losses.

Intermittent use roads would be constructed as needed and closed to general public use upon project completion to effectively protect resources.

Dispersed recreation would be emphasized over construction of developed recreation sites.

Off-road vehicle use would be slightly to moderately restricted in Management Units 3 and 4 and severely restricted in Management Units 1 and 2.

Archaeological and historical resources on National Forest land would be protected from disturbance until such time as inventoried sites could be evaluated by a qualified archaeologist.

The primary access corridor to Volcanoville, across National Forest lands, would generally follow the existing county road; a primary utility distribution corridor would follow the access corridor.

All reasonable measures would be taken to reduce the probability of spreading Scotch broom.

Land exchange to consolidate the ownership pattern would be encouraged.

Within the fuelbreak areas shown on Map J, hand thinning of Arctostaphylos nissenana would be necessary to make the fuelbreak effective for area protection. This would be done only if it would not significantly affect the survival of A. nissenana. In other areas there would be no disturbance of this threatened plant species.

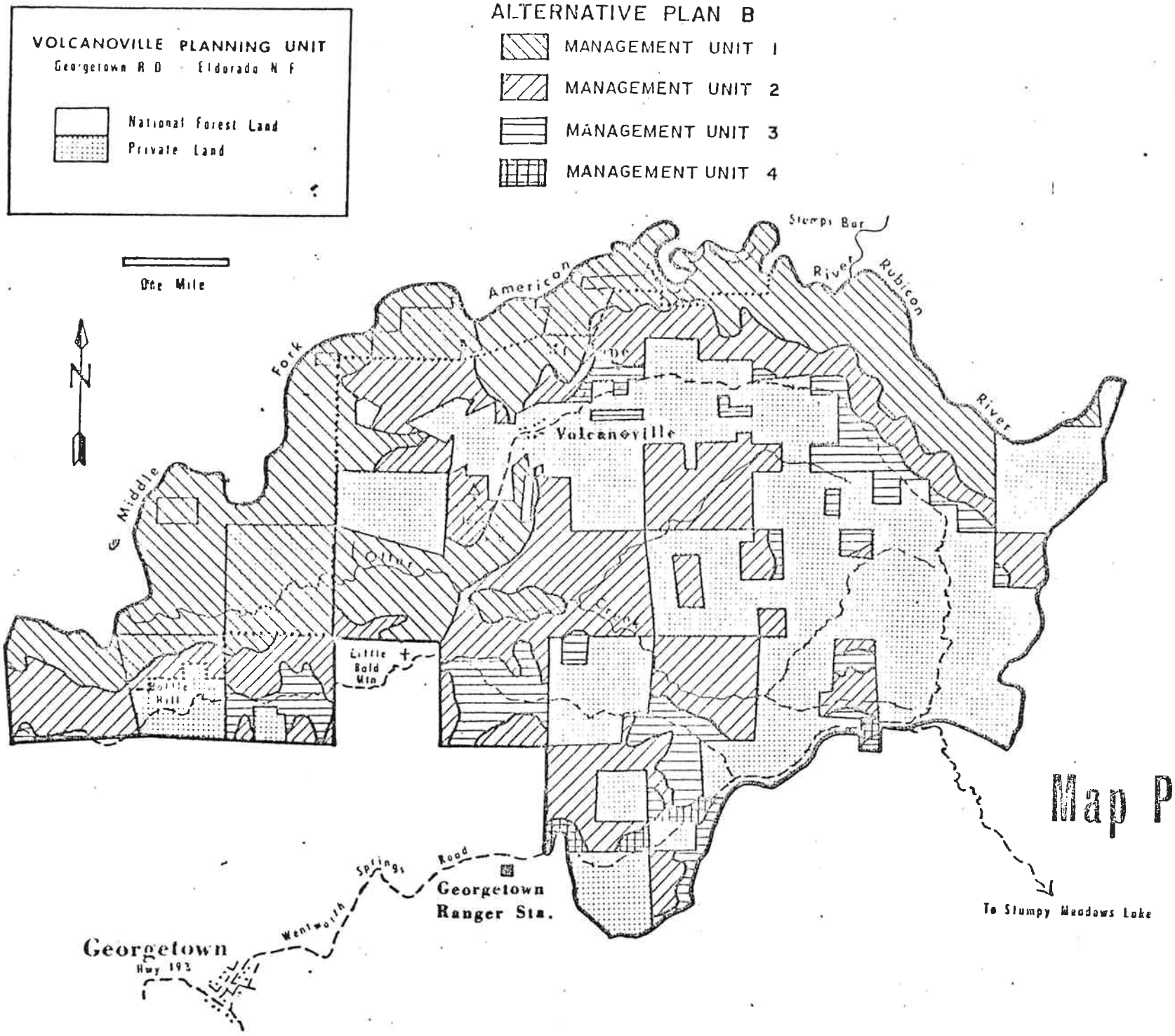
Objectives - The following objectives are applicable, but not necessarily equally, to more than one management unit as delineated under Alternative B. These objectives have not been quantified as to specific management units at the present time.

1. Transportation - Reconstruct about 36 miles of existing road on Management Units 2 and 3 by 2020.

2. Lands Exchange - Within 15 years, dispose of possibly 135 acres currently under consideration in addition to other "selected" lands identified below by management unit.

3. Timber

a. Complete compartment exam by 1985.


VOLCANOVILLE PLANNING UNIT
Georgetown R D - Eldorado N F
National Forest Land
Private Land
One Mile
ALTERNATIVE PLAN B
MANAGEMENT UNIT 1
MANAGEMENT UNIT 2
MANAGEMENT UNIT 3
MANAGEMENT UNIT 4
N
Stumpy Bar
American
River
Rubicon
River
Fork
Middle
Volcanoville
Little Bald Mtn
Georgetown
Hwy 193
Wentworth Springs Road
Georgetown Ranger Sta.
To Stumpy Meadows Lake

Map P

b. Complete the Programmed Allowable Harvest for the next ten years which consists of the Paymaster Sale scheduled for 1985 and approximately 6.0 MMBF (80 percent standard tractor component and 20 percent marginal cable component) from the Shotgun Sale scheduled for 1982.

c. Within five years begin a program of sales to harvest an annual average of approximately 3,000 board feet per acre of diseased, insect-infested and mechanical-risk trees in suppressed stands by intermediate cutting.

d. Begin, by 1980, a Scotch broom eradication program utilizing mechanical and herbicidal methods focused on areas of land disturbing activities which have the highest potential to spread via equipment vectors.

e. Establish landlines, corners, or enter into cutting boundary agreement; and obtain rights-of-way by 1982 for the Shotgun Sale.

f. Establish, by 1985, corners and property lines or enter into cutting boundary agreement; and obtain right-of-way in Management Units 2 and 3 for the Paymaster Sale.

g. Assure adequate regeneration on harvested areas within three years after completion of logging activities.

h. Harvest an average of 0.2 MMBF per year of timber on a salvage basis.

Additional objectives have been specified for each management unit under this alternative.

This alternative proposes the Planning Unit be delineated into four separate management unit classifications:

Management Unit 1 - This Unit contains approximately 5,680 acres of National Forest land consisting primarily of steep canyonlands covered by brush or oak-brush vegetation.

Of that private land within the Forest boundary already, or to be, withdrawn by the Bureau of Reclamation approximately 1,560 acres would be designated as Management Unit 1 under Alternative B when the Forest Service obtains management responsibility for these lands. About 760 acres of this Unit would be inundated by the proposed Auburn Reservoir.

Additional Objectives

Construction of about three miles of fuelbreaks within 20 years.

Maintain the remainder of the Unit in as near a natural condition as possible until at least the year 2020.

Management Unit 2 - This Unit contains about 5,030 acres of National Forest land. The average net annual increment of new growth is approximately 2.0 MMBF per year. Portions of this Unit will be visible from the proposed Auburn Reservoir.

Of that private land within the Forest boundary already, or to be, withdrawn by the Bureau of Reclamation within the area of the proposed Auburn Reservoir approximately 90 acres would be designated as Management Unit 2 under Alternative B when the Forest Service obtains management responsibility for these lands. Much of this Unit is intermixed with large aggregations of small parcels of private land.

Additional Objectives

Construction of about one mile of fuelbreak within 20 years.

Construction of approximately 33 miles of new road by 2020. Put-to-bed approximately 29 miles of road by 2020.

Treat all slash to bring residue within current Forest Fuel Management Plan standards within one year after completion of logging activities.

Within ten years, dispose of approximately 18 acres of "selected" lands within the Management Unit.

Management Unit 3 - There are about 1,820 acres of National Forest land within this Management Unit. Slopes are generally less than 30 percent.

The average net annual increment of new growth is about 0.7 MMBF. This Management Unit is not readily visible from any point outside the Unit.

Additional Objectives

Construction of about 11 miles of fuelbreaks within 20 years.

Construction of approximately six miles of new road by 1992. Put-to-bed about six miles of road by 2020.

Treat all slash to bring residue within current Forest Fuel Management Plan standards within one year after completion of logging activities.

Within ten years, dispose of approximately 137 acres of "selected" lands within the Management Unit.

Management Unit 4 - This Unit contains about 170 acres of National Forest land. The slopes are gentle, and the vegetation is mixed conifer with a shrub understory.

National Forest timber has an average net annual growth increment of about 0.07 MMBF.

The county-maintained Wentworth Springs Road, primary access to the Volcanoville Unit area and points beyond, runs through this Unit. The route is heavily used by recreationists and is, therefore, considered to be analogous to a traditional "Travel Influence Zone."

Additional Objectives

Maintain this unit under existing guidelines which provides for placing emphasis on maintaining or enhancing beauty and attractiveness, and on maintaining suitable recreation sites.

ALTERNATIVE C (See Map L)

THIS IS THE PREFERRED ALTERNATIVE

Management Direction

Prescription - Management of the National Forest land within the Planning Unit will be for the utilization of commodities while providing watershed, wildlife and scenic protection and enhancement where important.

Timber production and harvest will be intensified on land with high timber productivity (i.e. Site Classes I, II, III) but will be modified on slopes greater than 30 percent to protect water quality and scenic resources, minimize soil losses and insure that no irreversible soil disturbance occurs.

A scenic corridor will be maintained along the Wentworth Springs Road.

Dispersed recreation will be emphasized over construction of developed recreation sites.

Off-road vehicle use will be permitted but will be restricted in specified areas to either designated roads and trails and/or season of use.

The Forest Service will attempt to acquire rights-of-way for public use on Bottle Hill road and other routes where public use had been demonstrated.

Archaeological and historical resources on National Forest land will be protected from disturbance. All inventoried sites and any additional sites identified through future reconnaissance will be protected until they can be evaluated by a qualified archaeologist and recommendations made for their protection, salvage, or abandonment.

Land exchanges will be encouraged to help reduce management problems due to the ownership pattern. The Forest will continue to press for the responsibility to manage all lands (both National Forest and acquired) withdrawn for the Auburn Dam project within the National Forest boundary and 300 feet horizontal distance above high-waterline (see Map M).

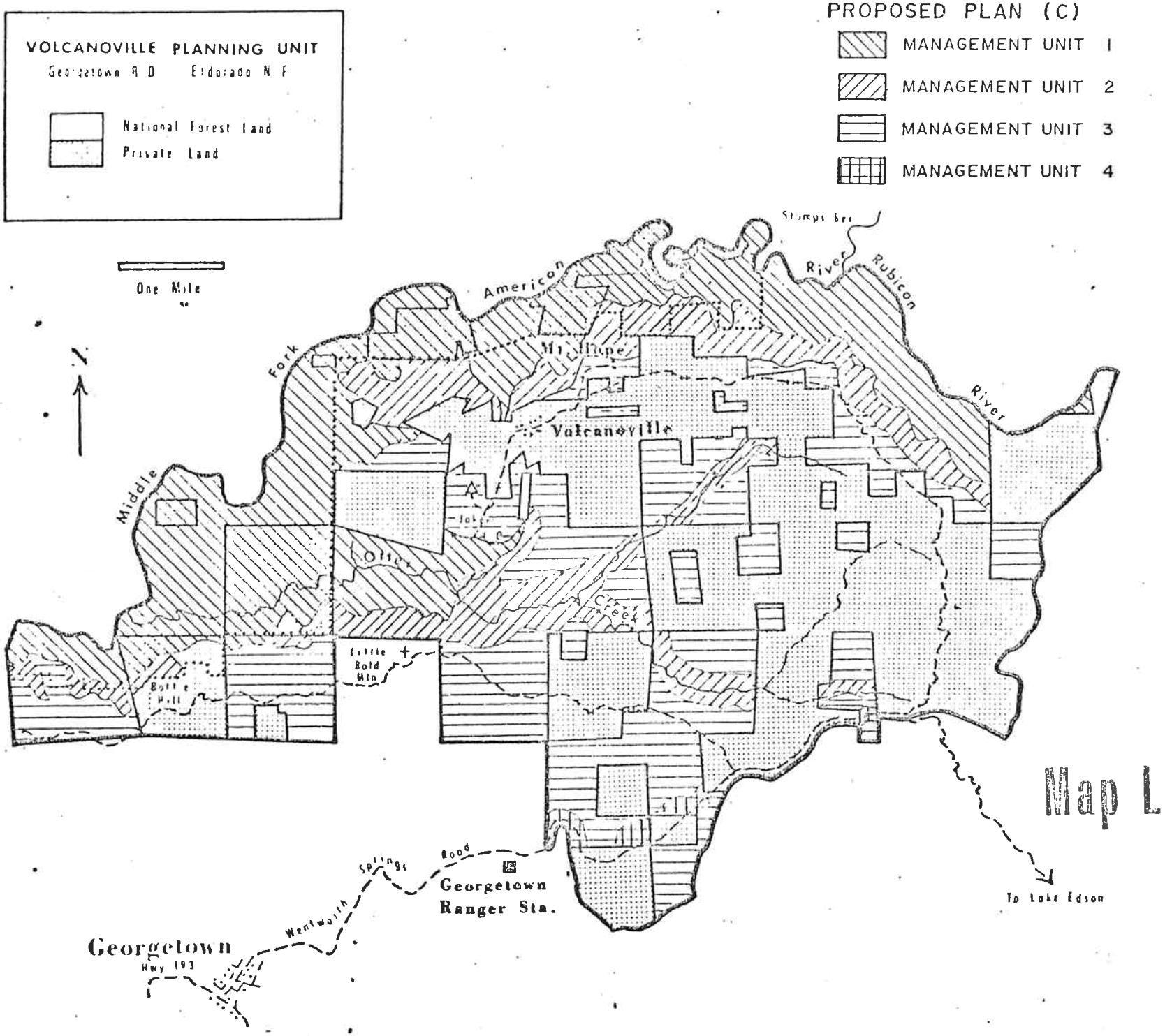
The primary access corridor to Volcanoville, across National Forest lands, will generally follow the existing county road; a primary utility distribution corridor will follow the access corridor.

The formation of local fire districts will be encouraged, and the construction of the planned fuelbreak system will be continued to afford fire protection to private and public lands.

All reasonable measures, including mandatory cleaning of equipment, will be taken to reduce the probability of spreading Scotch broom.

Within the fuelbreak areas shown on Map J, hand thinning of Arctostaphylos nissenana will be necessary to make the fuelbreak effective for area protection. This will be done only if it will not significantly affect the survival of A. nissenana. In other areas there will be no disturbance of this threatened plant species.

Objectives - The following objectives are applicable, but not necessarily equally, to more than one management unit as delineated under Alternative C. These objectives have not been quantified as to specific management units at the present time.


VOLCANOVILLE PLANNING UNIT
Georgetown R D Eldorado N F
National Forest Land
Private Land
One Mile
PROPOSED PLAN (C)
MANAGEMENT UNIT 1
MANAGEMENT UNIT 2
MANAGEMENT UNIT 3
MANAGEMENT UNIT 4
American
Fork
Middle
Rubicon
River
Mt. Pope
Volcanoville
Otter
Creek
Little Bald Mtn
Bald Mtn
Georgetown
Hwy 193
Wentworth Springs Road
Georgetown Ranger Sta.
To Lake Edson
Map L

1. Transportation - Reconstruct a total of about 36 miles of existing road in Management Units 2 and 3 by 2020.

2. Lands Exchange - Within ten years dispose of possibly 135 acres currently under consideration in addition to other "selected" lands identified for disposal below.

3. Timber

a. Complete compartment examination by 1985.

b. Complete the Programmed Allowable Harvest for the next ten years which consists of the Paymaster Sale scheduled for 1985 and approximately 6.0 MMBF (80 percent standard timber component and 20 percent marginal cable component) from the Shotgun Sale scheduled for 1982.

c. Within five years begin a program of sales to harvest an annual average of approximately 3,000 board feet per acre of diseased, insect-infested and mechanical-risk trees in suppressed stands by intermediate cutting.

d. Begin, by 1980, a Scotch broom eradication program utilizing mechanical and herbicidal methods focused on areas of land disturbing activities which have the highest potential to spread via equipment vectors.

e. Establish landlines, corners or enter into cutting boundary agreement; and obtain rights-of-way by 1982 for the Shotgun Sale.

f. Establish, by 1985, corners and property lines or enter into cutting boundary agreement; and obtain rights-of-way for the Paymaster Sale.

g. Assure adequate regeneration on harvested areas within three years after completion of logging activities.

h. Harvest an average of 0.2 MMBF per year of timber on a salvage basis.

Additional objectives have been specified for individual management units under this Alternative.

This Alternative proposes the Planning Unit be delineated into four separate management units based upon soil capability, public resource needs, and retention of critical scenic values.

Management Unit 1 - This Management Unit contains about 5,650 acres of National Forest land. Those steep, primarily brush-and-oak-covered canyonlands adjacent to major drainages are within this Management Unit. Much of this Unit will be visible from the proposed Auburn Reservoir. Of that private land which the Bureau of Reclamation has withdrawn, or intends to withdraw, within the Forest boundary and area of the proposed Auburn Reservoir approximately 1,490 acres of private land would be designated as Management Unit 1 under Alternative C when the Forest Service obtains management responsibility for these lands. About 760 acres of this Unit would be inundated by the proposed Auburn Reservoir.

This Unit is mostly unroaded. There are two jeep trails leading from Volcanoville to the Middle Fork American River and one road, which is almost entirely on private land, extending from the Volcanoville Road down to near the Rubicon River. There are also several trails within this Unit.

Additional Objectives (probable implementation action)

Construction, by hand methods, of about three miles of fuelbreak by 1996.

Maintain the remainder of the Unit in as near a natural condition as possible until at least the year 2020.

Management Unit 2 - There are about 2,880 acres of National Forest lands within this Management Unit which mostly consists of steep, timbered canyonlands adjacent to or near the major streams. Portions of this Unit will be visible from the proposed Auburn Reservoir.

Of that private land which the Bureau of Reclamation has withdrawn, or intends to withdraw, within the Forest boundary and area of the proposed Auburn Reservoir, approximately 90 acres of private land would be designated Management Unit 2 under Alternative C when the Forest Service obtains management responsibility for these lands.

This Management Unit is essentially unroaded except for the road to Buckeye Point.

The average net annual increment of new growth is approximately 1.15 MMBF.

Additional Objectives (probable implementation action)

Construct about one-quarter mile of fuelbreak by 1987.

Construct about 15 miles of new road by 2000. Put-to-bed 15 miles of road by 2020.

Treat all slash to bring residue within current Forest Fuel Management Plan standards within one year after completion of logging activities.

Management Unit 3 - There are about 4,000 acres of National Forest land within this Management Unit. The topography ranges from gently sloping to moderately steep. Vegetation is primarily mixed conifer with a shrub understory.

The average net annual increment of new growth is about 1.6 million board feet.

This Unit is well-roaded; a county road to Volcanoville and the Bottle Hill road are the primary connectors.

A portion of the deer winter range is within this Management Unit. Much of this Unit is intermixed with large aggregations of small parcels of private land.

This Management Unit is not readily visible from any place outside the Unit.

Additional Objecitves (probable implementation actions)

Construction of about 13 miles of fuelbreaks by 1992.

Construct approximately 24 miles of new road by 2000. Put-to-bed about 20 miles of road by 2020.

Treat all slash to bring residue within current Forest Fuel Management Plan standards within one year after completion of logging activities.

Within ten years dispose of approximately 155 acres of "selected" lands within the Management Unit.

Management Unit 4 - This Unit contains about 175 acres of National Forest land. The slopes are gentle and the vegetation is mixed conifer with a shrub understory. The average net annual growth increment is about 0.07 million board feet.

The Wentworth Springs Road, a county road, runs through this Unit. This road is the primary access to the Volcanoville Unit area and points beyond. The route is heavily used by recreationists and the Unit is, therefore, considered to be analogous to a traditional "Travel Influence Zone."

Maintain this Unit under existing guidelines which provides for placing emphasis on maintaining or enhancing beauty and attractiveness, and on maintaining suitable recreational sites.

ALTERNATIVE D - (see Map Q)

Management Direction

Prescription - This alternative would continue the present management policies. The Unit would be managed under the guidelines of the existing District Multiple Use Plan subject to existing and future Forest Service policies promulgated at Regional and National levels.

Dispersed recreation would be emphasized over construction of developed recreation sites. Restrictions on off-road vehicle use would generally be minimal as necessary to prevent unacceptable resource damage.

Archaeological and historical resources on National Forest land would be protected from disturbance until such time as inventoried sites could be evaluated by a qualified archaeologist.

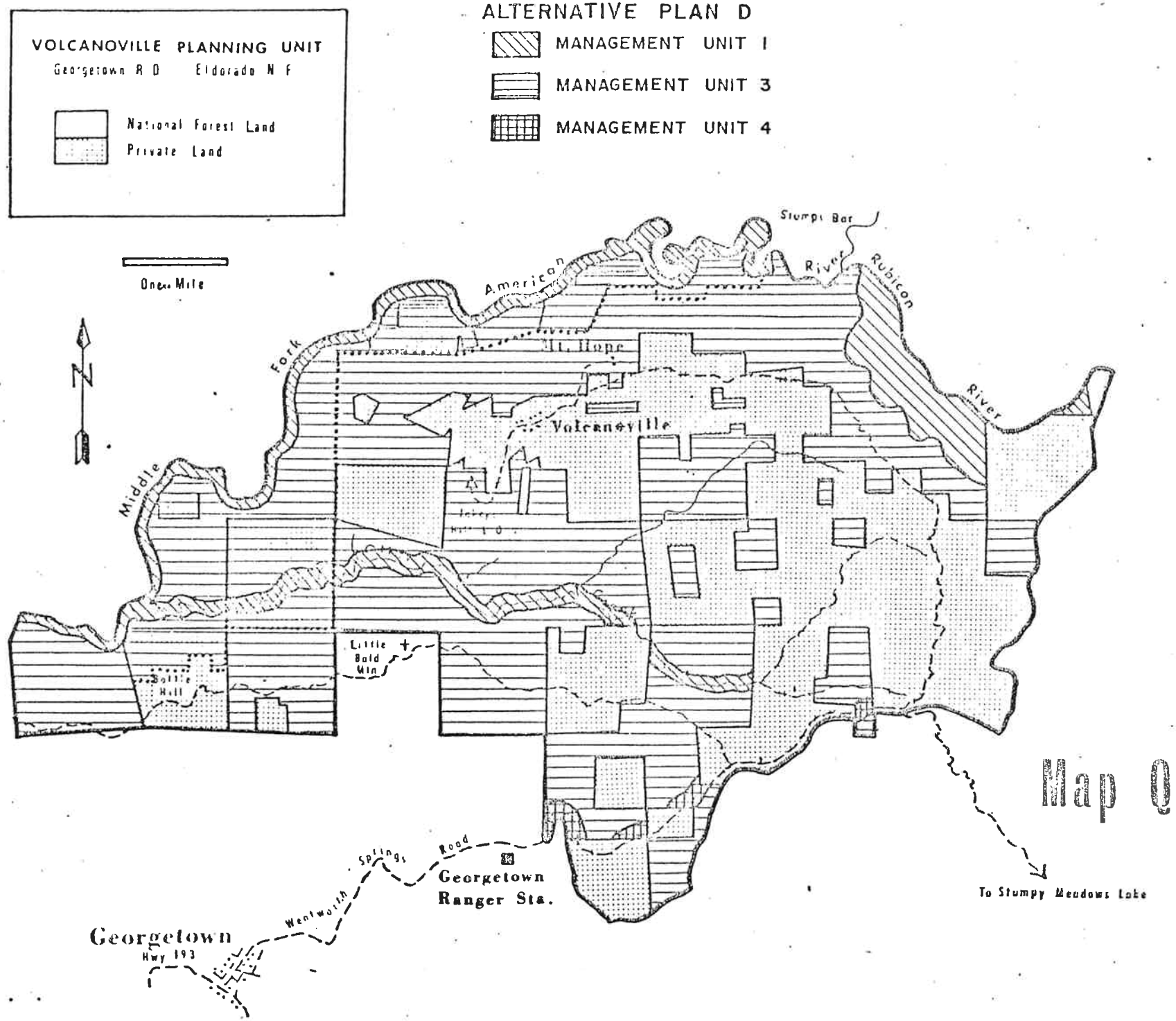
The primary access corridor to Volcanoville, across National Forest lands, would generally follow the existing county road; a primary utility distribution corridor would follow the access corridor.

All reasonable measures would be taken to reduce the probability of spreading Scotch broom.

The Forest would continue to press for the responsibility to manage all "Auburn Reservoir Area" lands withdrawn by the Bureau of Reclamation within the National Forest boundary (see Map M). Land exchange would be encouraged.

Within the fuelbreak areas shown on Map J, hand thinning of Arctostaphylos nissenana would be necessary to make the fuelbreak effective for area protection. This would be done only if it would not significantly affect the survival of A. nissenana. In other areas there would be no disturbance of this threatened plant species.

This Alternative proposes the Planning Unit be delineated into three separate management unit classifications based upon soil capability, public resource needs and existing or anticipated water-oriented recreation use.


VOLCANOVILLE PLANNING UNIT
Georgetown R D Eldorado N F
National Forest Land
Private Land
ALTERNATIVE PLAN D
MANAGEMENT UNIT 1
MANAGEMENT UNIT 3
MANAGEMENT UNIT 4
One Mile
N
Stumpy Bar
American
River
Rubicon
River
Fork
Mt. Hope
Volcanoville
Middle
Little
Bald
Mtn
Battle
Hill
Georgetown
Hwy 193
Wentworth Springs Road
Georgetown
Ranger Sta.
To Stumpy Meadows Lake
Map 9

Management Unit 1 - This Unit consists of areas adjacent to major bodies of water where there is existing or anticipated water-oriented recreational use. There are about 3,040 acres of National Forest land within this Unit with little available commercial timber.

Of the private land the Bureau of Reclamation has withdrawn, or intends to withdraw, within the Forest boundary and the area of the proposed Auburn Reservoir, approximately 740 acres would be designated as Management Unit 1 under Alternative D when the Forest Service obtains management responsibility for these lands.

Approximately 760 acres of this Unit would be inundated by the proposed Auburn Reservoir.

This Unit is largely analogous to the "watershed protection zone" of the existing Multiple Use Plan.

Additional Objective

Maintain the Unit in as near a natural condition as possible.

Management Unit 3 - This Unit contains almost all the commercial timber sites within the Planning Unit interspersed with occasional brush fields. There are about 9,490 acres of National Forest land in this Management Unit. The average net annual increment of growth is about 2.7 MMBF.

The remainder, or approximately 910 acres, of the private land withdrawn by the Bureau of Reclamation within the area of the proposed Auburn Reservoir inside the Forest boundary would be designated as Management Unit 3 under Alternative D when the Forest Service obtains management responsibility for these lands. This Unit is largely analogous to the "General Forest Zone" of the existing Multiple Use Plan.

Additional Objectives

1. Lands Exchange

   a. Within ten years, dispose of possibly 135 acres currently under consideration in addition to those "selected" lands identified below.

   b. Within ten years, dispose of about 155 acres of "selected" lands currently identified within the Unit.

2. Timber

   a. Complete compartment exam by 1985.

   b. Complete the Programmed Allowable Harvest for the next ten years which consists of the Paymaster Sale scheduled for 1985 and approximately 6.0 MMBF (80 percent standard tractor component and 20 percent marginal cable component) from the Shotgun Sale scheduled for 1982.

   c. Within five years, begin a program of sales to harvest an annual average of approximately 3,000 board feet per acre of diseased, insect-infested and mechanical-risk trees in suppressed stands by intermediate cutting.

d. Using funds generated by implementation of (2) (c) above apply silvicultural practices of thinning, plantation fertilization and release within Management Unit 3 lands logged during the 1930's and 40's.

e. Begin, by 1980, a Scotch broom eradication program utilizing mechanical and herbicidal methods focused on areas of land disturbing activities which have the highest potential to spread via equipment vectors.

f. Establish landlines, corners or enter into cutting boundary agreement; and obtain rights-of-way by 1982 for the Shotgun Sale.

g. Establish, by 1985, corners and property lines or enter into cutting boundary agreement; and obtain rights-of-way for the Paymaster Sale.

h. Assure adequate regeneration on harvested areas within three years after completion of logging activities.

i. Treat all slash to bring residue within current Forest Fuel Management Plan standards within one year after completion of logging activities.

j. Harvest an average of 0.2 MMBF per year of timber on a salvage basis.

3. Transportation

a. Construct by 2000 approximately 39 miles of new road and reconstruct about 36 miles of existing road.

b. Put-to-bed about 35 miles of road by 2020.

4. Fire

Construct about 12 miles of fuelbreaks within 20 years.

Management Unit 4 - This Unit contains about 170 acres of National Forest land. The slopes are gentle, and the vegetation is mixed conifer with a shrub understory. The average net annual growth increment is about 0.07 MMBF. The Wentworth Springs Road, a county road, runs through this Unit. As the primary access to the Volcanoville Unit and points beyond, the road is heavily used by recreationists, and the Unit is analogous to the "Travel Influence Zone" of the existing Multiple Use Plan.

POTENTIAL ENVIRONMENTAL IMPACTS

Implementation of alternatives could result in various environmental impacts, both direct and indirect, beneficial and adverse. Frequently the potential effects cannot be meaningfully quantified from existing data and methods of analysis. The following impacts are therefore generalized but should serve the important function of alerting both public and managers to potential consequences of resource use. As a result of this awareness the processes to monitor environmental damage should be greatly improved.

AQUATIC ENVIRONMENTS

Possible effects on water quality and the aquatic environment from activities occurring within the Planning Unit on both private and Forest Service lands are as follows:

INCREASED SILTATION AND TURBIDITY from;

Increased road construction and/or improper location and construction.

Increased logging and/or improperly conducted logging. Sedimentation rates from this source are highest immediately after logging or construction and tend to decrease to normal within three years. The extent of sedimentation depends upon logging method, soil type and depth, topography, the percentage and distribution of ground cover remaining after logging, antecedent moisture conditions and storm duration and intensity.

Land clearing for second home development.

Improperly conducted mining activities.

Road use and damage during the "wet" season.

Inappropriate off-road vehicle use.

Water development including dams, reservoirs, canals, and other structures.

Increased bank erosion caused by stream channel obstruction resulting from logging and construction debris accumulating in watercourses.

INUNDATION BY DAMS AND OTHER STRUCTURES

ALTERATION OF DOWNSTREAM FLOWS by:

Water developments such as dams, canals, tunnels, diversion pipes, and other structures which decrease flow resulting in increased temperatures leading to decreased dissolved oxygen and increased algal blooms.

Clearcutting - Increases in water yield can be expected to occur until the harvested areas are sufficiently revegetated with deep-rooted plants. Although replanting will occur within five years of harvest, increases in water yield may continue until sufficient crown closure is achieved.

ALTERATION OR WATER TEMPERATURE REGIME by:

Flow alteration resulting from water developments such as dams, canals, tunnels, pipes, and other structures.

Alteration of the riparian zone.

ALTERATION OF DOWNSTREAM CHANNEL PROFILES by:

Water development structures and diversions.

Increased streamflow resulting from timber activities which could cause channel scour. This damage should not be significant if the freshly disturbed acreage is limited in any one watershed.

ALTERATION OF DRAINAGE AND RUNOFF PATTERNS BY DEVELOPMENT OF PRIVATE PROPERTY

ALTERATION OR DESTRUCTION OF BIOLOGICALLY CRITICAL AQUATIC ENVIRONMENTS -e.g., SPAWNING AREAS IN PERENNIAL STREAMS OR INTERMITTENT STREAMS by:

Improper logging practices.

Improper off-road vehicle use.

CREATION OF BARRIERS AND HAZARDS TO MIGRATION OF AQUATIC AND TERRESTRIAL SPECIES BY WATER DEVELOPMENTS SUCH AS DAMS, CANALS, TUNNELS, TURBINES, DIVERSION PIPES AND OTHER STRUCTURES.

CREATION OF BARRIERS TO MIGRATION OF AQUATIC SPECIES BY IMPROPER LOGGING ACTIVITIES.

LOWERING OF WATER TABLES AFFECTING VEGETATION, SPRINGS, AND WELLS AS A RESULT OF WATER DEVELOPMENT PROJECTS AND INCREASED CONSUMPTION.

CONTAMINATION by:

Pesticides from intensive timber management operations.

Biostimulants from programs for intensive timber management, soil improvement, and wildlife habitat improvement resulting in algal blooms and low dissolved oxygen levels. Biostimulants may be either naturally occurring attached to colloidal clay and humus particles or chemical fertilizers.

Herbicides from programs for intensive timber management, wildlife habitat improvement and water yield modification.

Acid drainage from abandoned mines and/or improperly conducted mining operations possibly resulting in increased concentrations of heavy metals and lowered pH.

Oil from road surface stabilization projects.

Pathogens, biostimulants and other chemicals from poorly designed and/or failing sanitary systems on second home and/or public recreation sites.

Alkaline constituents released during improperly conducted concrete pouring projects.

Alternatives B, C, and D would have similar impacts resulting in a slight increase in turbidity and sedimentation. Alternative A would generate insignificant or immeasurable impacts on water quality.

Mitigation

Forest Service direction relating to watershed protection is contained in Chapter 2520 of the Forest Service Manual. FSM 2521, R-5 Supplement No. 17 (Feb. 1976) and FSM 2536.1, R-5 Supplement No. 15 (July 1975) relating to watershed protection and establishment of buffer strips are contained in Appendix F.

Commercial forest land adjacent to most major streams has already been placed in the Special Component where management direction will be protection and/or enhancement of the water resource and timber management will be a secondary activity. On Standard and Marginal Component lands that are adjacent to perennial,

intermittent and ephemeral streams a buffer strip of Special Component will be designated in accordance with a proposed Eldorado supplement to the Forest Service Manual (see Appendix F). Within these streamside buffer strips logging practices will be modified to the extent necessary to protect the aquatic environment. Within these riparian zones the primary objective is the protection and enhancement of the water dependent ecosystem.

Site preparation for tree planting activities will be carefully planned to minimize soil disturbance. Spray projects will be designed to leave as much competing vegetation as possible, consistent with adequate seedling establishment goals, to help stabilize the soil.

Additional precautions will be taken in the application of pesticides, road oils and fertilizers. Selecting the proper application methods (aerial versus ground) and proper materials (granular, thickened liquid sprays, or conventional sprays), as well as adhering to the strict standards set to prevent water contamination (distance from water, wind speed, temperature, humidity, and height above ground for application) will assure that little or no chemicals are placed directly on water surfaces. Spray-sensitive cards or dye tracers can be used to monitor for contamination near water surfaces. Water monitoring devices may also be used to detect any water contamination where the project is near a lake or perennial stream. Emergency measures for operations involving oil and hazardous substances are specified by the Oil and Hazardous Substances Contingency Plan.

The Forest Service in its Timber Management Program will comply with the quality objectives as described in the Water Quality Control Plans prepared by the State Water Quality Control Board.

All timber sale and other environmental analysis reports prepared for individual projects must address the impact on the aquatic environment and refer to mitigating or special protection measures to be taken. Plans for monitoring adverse effects will be prepared by the Forest Hydrologist and incorporated into project plans. Contracts prepared for a project will address specific mitigation.

Trees will be harvested from National Forest System lands only when protection is provided for streams, streambanks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of watercourses, and deposits of sediment where harvests are likely to seriously and adversely affect water conditions or fish habitat; and where soil, slope or other watershed conditions will not be irreversibly damaged. Cutting methods are regulated under FSM 2471.21a and FSM 2431.21.

SOILS

The effects of various alternatives with respect to erosion, soil compaction, and soil fertility are as follows:

ACCELERATED EROSION

Accelerated erosion occurs on road surfaces, on cuts and fills, and on land surfaces left unprotected by a management activity. The actual amount of erosion is a function of soil characteristics, slope, protective vegetative cover and litter densities, and implementation of various erosion prevention measures. All alternatives will result in some degree of accelerated erosion. Alternative A will have the least effect of compounding accelerated erosion. These erosion rates will be close to natural. Alternatives B, C, and D will have rates slightly higher than those for Alternative A, but these rates will remain within acceptable limits if adequate erosion prevention measures are implemented and maintained.

SOIL COMPACTION

Indiscriminate compaction by the use of heavy equipment on moist soils will adversely affect the soil resource by reducing infiltration of water and its percolation through the soil profile. As a result, surface runoff will increase which can cause an accelerated rate of erosion.

The potential for soil compaction will increase as the number and intensity of management activities requiring the use of heavy equipment increase. Impacts of Alternatives B, C, and D would be similar to one another and would all have greater potential for creating soil compaction than Alternative A.

SOIL FERTILITY

Management activities that induce accelerated erosion rates or activities requiring broadcast burning of slash and litter have the greatest and most detrimental effect on soil fertility. As the above management activities increase, the potential for loss of soil fertility increases. Impacts of Alternatives B, C and D would be similar and would all have greater potential than Alternative A for resulting in loss of soil fertility.

Mitigation

The Erosion Hazard Rating System was developed to provide a procedure to predict accelerated erosion potential so that appropriate mitigation measures might be incorporated into initial project planning. A description of this system may be found in Appendix F. Additional mitigation direction with respect to timber sales is contained in FSM Section 2482.

AIR

Burning of slash piles resulting from road or fuelbreak construction, timber harvest, and wildlife habitat manipulation can cause significant but temporary deterioration of air quality. Wildfire would generate the same type of emissions.

Land disturbing activities involved in road construction and timber harvest can introduce particulates in concentrations which can be locally significant. The production of crushed rock for road surfacing and erosion control can produce high levels of particulates locally and downwind of the source.

Increasing development of private property can result in increased emissions from fireplaces and other heating systems.

Engine emissions, as well as particulates resulting from brake and tire wear, can be generated in significant amounts relative to the ambient air quality of the forest environment in direct proportion to the increase in use of forest roads especially during periods of stagnant air conditions. Increased dispersed recreation as well as increased use of forest roads for access to private property contribute to the problem. Emissions from vehicles and machinery used in timber harvest and removal will be increased when the Shotgun and Paymaster Sales commence. This deterioration in air quality resulting from vehicle emissions is particularly significant because it is greatest for that envelope of vehicle-related space in which the majority of forest users remain during their visit.

The most serious impact to the quality of air within the Planning Unit, however, may occur as a result of a long-term increase in contamination transported from the Central Valley.

In general, Alternative A would result in the lowest level of air pollution by Forest Service action. It is likely, however, that Alternative A would indirectly result in greater development of private property and perhaps encourage greater dispersed recreation use even though there would be fewer miles of road available. Alternatives B, C and D would have similar effects at least for the next decade because of the limited programmed allowable harvest. With construction of additional roads and improvement of the ownership pattern permitting more intensive timber harvest, Alternatives B, C, and D would result in more contamination from logging related activities, but perhaps less from sources associated with the development of private land.

Mitigation

Those emission sources on private lands, although they may impact National Forest land, cannot realistically be mitigated by Forest Service activities.

On National Forest lands, under the guidelines of the Air Resource Management System (FSM R5-5153), all burning will be accomplished in a manner which prevents or minimizes the penetration of smoke into populated areas Agricultural burning regulations established by the Air Resources Board will also be followed for any project burning.

The alternatives to prescribed burning will be used wherever economically feasible or technically preferable. Chipping of smaller-sized residuals will be done mostly along roads. Mechanical equipment is being developed capable of breaking larger-sized material to expose more surface area for decomposition by insects and bacteria. Limited amounts of slash will be buried, but this practice creates poor regeneration sites and may contribute to an increased incidence of root rot. Some progress is being made towards more complete utilization of the tree. Because of soaring fuel costs, an increasing amount of slash disposal may be effected by offering the residual as firewood.

Provisions for dust abatement will be written into contracts for logging, road construction, rock crushing, commercial use of forest roads, and other activities under Forest Service jurisdiction to comply with State air pollution control regulations.

NOISE

Noise will be generated in varying intensities and frequencies from numerous sources and activities as follows:

Skidding and yarding equipment, chain saws, trucks, and other machinery associated with logging operations. Alternative A would result in negligible effects from these sources. Effects from Alternatives B, C and D would be similar to each other and greater than Alternative A.

Blasting, and equipment associated with road construction. Impacts from Alternatives B, C and D would be similar. Alternative A would produce no effect from these sources.

Off-road vehicle use. Alternatives B, C, and D would result in similar effects. Alternative A would result in the least impact from this source.

Firearms use. Effects would be similar under all alternatives.

Commercial, recreational and residential traffic. Effects of Alternatives B, C, and D would be similar. Alternative A would result in the least impact from these sources because of the low volume of commercial traffic.

ARCHAEOLOGICAL AND CULTURAL RESOURCES

Some historical and archaeological sites that escape detection may be destroyed by management activities. Such disturbance of unidentified sites will be the exception however. Alternatives B, C, and D would have similar effects. Alternative A would have no impacts related to construction or logging.

Mitigation

Historical and archaelological sites or areas will be inventoried and evaluated to assure compliance with the National Historical Preservation Act of 1966 (Public Law 98-665), and Executive Order 11593, May 13, 1971, "Protection and Enhancement of the Cultural Environment."

Prior to initiating any ground disturbing project resulting from this Plan, a reconnaissance or more intensive survey, if necessary, will be conducted to identify historical and archaeological sites or areas. The results of such reconnaissance or survey would be approved by a professional archaeologist. The process of this proposal is dynamic to the point that any additional sites that may come to light and qualify for nomination to the National Registry of Historical Places can, under the proposed process, be so accommodated within the scope of the Order and Act cited above.

The State Historical Preservation Officer will be consulted at the appropriate time during the project planning process to confirm and/or make recommendations concerning the disposition of historical properties located on lands within the Forest.

FIRE

The number of man-caused fires is expected to increase as access is improved, recreation use grows, and private land development increases. Effects have been described under transportation, recreation and landownership. Alternatives B, C and D would probably have similar effects. Alternative A would be expected to result in the least fire risk.

Mitigation

The potential for large fires and the associated increase in burned acreage will be offset by the proposed fuelbreak system and the improved road system which will improve fire control capabilities. The proposed fuels modification program would also aid in fire control. The establishment of a local fire district for private land would be needed to totally offset the increased risk.

LANDOWNERSHIP

Alternative A would maintain the present landownership status with existing management problems and access difficulties for public use. Under Alternatives B, C and D land disposal would improve National Forest management by eliminating problems associated with isolated parcels.

With completion of landownership planning the Forest Service might be able to acquire unique botanical or cultural sites and streamside areas for watershed protection that are now on private land.

TRANSPORTATION

Under Alternative A the transportation system would decrease somewhat in total road mileage. Under Alternatives B, C and D an expanded transportation system would be developed that would enhance the removal of resources, encourage dispersal of recreationists, and improve access for fire control.

WILDLIFE

Logging operations, road building and overuse or misuse by the public can destroy nest trees, disrupt wildlife reproduction, remove important food sources, alter cover and otherwise affect available habitat for existing species. Populations of species dependent on a particular habitat would be eliminated with the loss of that habitat. The changing of habitat from one type to another will result in a corresponding change in the animal species. Populations, especially of the mobile species such as larger mammals and birds residing outside the altered area may even be affected. Alternatives may affect deer winter range, early or late successional species and fisheries as follows:

Deer Winter Range - Under Alternative A winter range habitat would gradually decrease in the absence of any timber harvest in the winter range areas. Brush species would continue to grow out of reach for deer, and dense tree cover would become reestablished on some sites reducing available food on the forest floor.

Under Alternatives B, C and D deer winter range would be improved as timber harvest occurred and could be significantly enhanced depending on the extent to which harvesting is coordinated with habitat management.

Successional Species (early and late) - Generally those wildlife species dependent on early successional stages would decrease under Alternative A. However, species dependent upon old-growth would be favored under Alternative A as more trees mature. Snag dependent species would also be favored as more trees evolved into snags.

Populations of those wildlife species requiring old-growth habitat would remain low under Alternatives B, C, and D with suppression of this habitat type. Populations of snag dependent species could be expected to decrease as the intensity of timber management increased.

Fisheries - The fisheries resource would receive maximum protection under Alternative A and would gradually improve from present conditions.

Under Alternatives B, C and D adverse impacts to the fisheries could be expected to increase in relation to the increase in road construction, recreation and logging.

No adverse effects to Threatened or Endangered species of wildlife are expected as a result of implementation of any alternative.

Mitigation

To insure a diversity of habitats within those areas to be cleared and planted, maximum growth of grasses, forbs and brush species consistent with adequate tree seedling establishment and growth will be allowed. Seedlings will be spaced as far apart as possible consistent with successful stocking. Interspaces will be revegetated with species beneficial to wildlife. Application of herbicides by ground spraying techniques will be directed towards removal of only that vegetation actually competing with established trees. Establishment of roadside strips of brush species will be allowed to provide a cover screen from the road for deer and other species utilizing an adjacent clearcut. These screens will be maintained in a live condition regardless of any herbicide spray projects scheduled. If aerial spraying is required because of steep or inaccessible terrain, then sprays will be selected to insofar as possible remove only the competing species of vegetation and then only for a period of time necessary to allow adequate seedling establishment.

Shapes of clearcut areas will be as irregular as practicable to maximize the "edge effect" to benefit the many species of wildlife associated with the interface between forest and clearing.

Refined snag management guidelines will be available within two years. In the interim, guidelines contained in the Forest Service Manual will be used.

Logging will be planned to avoid critical habitat if and when identified.

For coordination with other resource management activities, specific mitigation measures are addressed in Section 2606 of the Forest Service Manual including the R-5 Supplement of November 22, 1971.

Additional mitigation which might affect fisheries is addressed under mitigation for watershed protection.

RECREATION

An increase in dispersed recreation can be expected for all alternatives, but a greater increase will result from expansion of the transportation system. Increased litter, noise, fire risk, destruction of flora, harassment of fauna, and intensified conflict with contractors and residents over vandalism and trespass will accompany recreation growth. Recreation users will also tend to encounter one another more frequently, and the opportunity for solitude will be reduced.

Road construction and timber harvest under Alternatives B, C, and D would result in temporary reduction of scenic quality in certain areas. This modification should only be noticeable to a ground observer on or very near the project site however.

The proposed Auburn Reservoir, although not a result of Forest Service action, would also increase recreation use within the Unit. Except for this effect, the present nature of recreational opportunities will remain essentially unchanged.

Alternative A would be most restrictive while Alternative D would be least restrictive to off-road vehicle use.

Alternative D would alter the scenic quality of those areas visible from the proposed Auburn Reservoir; Alternatives A, B and C would protect this scenic quality.

Mitigation

Scenic quality of those areas visible from the Wentworth Springs Road would be protected under all alternatives as Travel Influence Zone. A "seen area" map has been produced by the VIEWIT system for this zone as a management tool.

Off-road vehicle use will be regulated according to the new Off-Road Vehicle Plan. All impacts of recreation use will be monitored and controlled where necessary.

TIMBER

Under Alternative A commercial value of the timber would be lost unless it was decided at some time in the future to revise the plan to allow commercial harvest. Under Alternatives B, C and D average net annual increment of growth would increase in direct proportion to the increase in intensity of timber management. Until problems of access and right-of-way can be solved the programmed allowable harvest will remain low relative to the average net annual increment of growth.

Mitigation

Within the Standard Component clearcutting will be designed to maintain and enhance diversity. Clearcuts will be designed to be small in size and irregular in shape. Ages of various clearcuts in any given area will provide a full spectrum of successional stages.

Old-growth forest will remain essentially intact in the Special Component. Much of the old-growth in the Marginal Component will also remain relatively untouched in the foreseeable future.

Effects of all alternatives on private timber lands within the Planning Unit are anticipated to be minimal because of the large number of small landowners and the scattered ownership pattern.

ECONOMIC

Any increase in dispersed recreation will generate economic benefits for the affected area. However, increased economic losses primarily from theft, vandalism, and fire would also be incurred. Under Alternative A there would be no benefit from timber harvest while under Alternatives B, C and D the economic benefits through 1985 would be the same. Assuming a solution to problems of access and right-of-way, Alternatives B, D and D would result in increased economic benefit from timber sales subsequent to 1985.

MINORITIES, ETHNIC GROUPS, DISADVANTAGED PERSONS AND WOMEN

Implementation of these alternatives would have no known direct or indirect effect on the relocation, income, or property of these groups. Insofar as these groups may be employed in businesses or areas which could benefit from an increase in recreational use of the Planning Unit there may be direct or indirect favorable impacts regardless of the alternative selected. No information is available to support this view however. No significant impact either beneficial or adverse is expected from the programmed allowable harvest.

UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Implementation of Alternatives B, C and D will result in more roads and the permanent soil disturbance incurred during their construction. Timber harvest will result in minor increases in soil compaction and some loss of soil fertility from slash burning. Timber harvest will also result in some minor, temporary reduction in scenic qualities on or near roads and recently harvested areas. Periodic traffic noises will affect recreationists and residents in the area. Air quality will be temporarily degraded in the fall during slash-reduction burning. Dust will be created by road construction and timber harvest. Road construction and logging activities can be expected to contribute to some temporary increase in turbidity levels of streams in the Unit. Increased recreation use in the Unit will increase the possibility of deterioration of water quality in the Unit and it will also increase the man-caused fire risk. There will be some damage to historical or archaeological sites although the location of many sites is already documented, and each new project evaluation will require reconnaissance for other identifiable sites.

RELATIONSHIP BETWEEN SHORT-TERM USES AND THE MAINTENANCE AND ENHANCEMENT OF OF LONG-TERM PRODUCTIVITY

The proposed alternative provides for maintenance of long-term productivity of the renewable resources of the Planning Unit. Emphasis at the national level on maintenance and enhancement of species diversity should ensure long-term ecosystem stability necessary for continued productivity. This mandate and concept is embodied in the Multiple Use-Sustained Yield Act of 1960, and the Forest Management Act of 1976.

A few acres will be taken out of timber production through construction of roads and other facilities. These facilities, however, are essential for realizing benefits from renewable resources. Mining activities represent a short-term use of non-renewable resources that have adverse effects on long-term productivity of other resources in limited areas.

Short-term uses of the environment provided for in these alternatives and constrained as indicated are consistent with long-term productivity to the extent of existing knowledge.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Roads once developed essentially commit these land areas to a long-range irreversible use.

Harvest of old-growth timber will reduce the populations of wildlife species which require this habitat for a period of time at least equivalent to that needed to reestablish an old-growth stand. The aesthetic value provided by old-growth stands will also be lost.

Mining activities that cause surface disturbance usually commit resources to limited use and alter basic characteristics beyond a point that is generally retrievable.

V COMPARATIVE SUMMARY OF ALTERNATIVES AND EFFECTS

LAND, AIR, WATER	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
National Forest acreage in:				
Management Unit 1	12,700	5,677	5,650	3,040
2	-0-	5,028	2,880	-0-
3	-0-	1,821	4,000	9,480
4	-0-	174	174	174
Fire Management	Construction of 15 miles of fuelbreak.	Construction of 15 miles of fuelbreak.	Construction of 16.25 miles of fuelbreak.	Construction of 12 miles of fuelbreak.
	Access would not be improved.	Access would be significantly improved.	Same as B.	Same as B.
Land Adjustment	No land exchange.	Disposal of about 155 acres of isolated parcels.	Same as B.	Same as B.
Water Quality	Insignificant or unmeasurable effects.	Slight increase in sediment load and turbidity.	Same as B.	Same as B.
Air Quality	Very minor effect on air quality.	Greater impact than A because of heavier traffic and logging activities.	Same as B.	Same as B.
Road Construction	0 mile	39 miles	39 miles	39 miles
Road Reconstruction	0 mile	36 miles	36 miles	36 miles
TIMBER				
Estimated harvest from NF land for period 1977-1987:				
Salvage	500,000 bd.ft/yr	200,000 bd.ft/yr	200,000 bd.ft/yr	200,000 bd.ft/y
Intermediate cutting	None	3,000 bd.ft/yr	Same as B.	Same as B.
Regeneration cutting	None	6.0 MBF (Shotgun Sale)	Same as B.	Same as B.
		- MBF (Paymaster Sale)	Same as B.	Same as B.
WILDLIFE AND FISHERIES HABITAT	Minimal effect on wildlife habitat with maximum protection of fisheries habitat. General trend toward favoring "old growth" species.	Increased habitat diversity with continued suppression of "old growth" habitats. Successional wildlife species found. Greater potential for stream damage than Alternative A.	Same as B.	Same as B.
RECREATION				
Estimated Use by 2020	7,400 visitor days	7,400 visitor days	7,400 visitor days	7,400 visitor d
Off-Road Vehicle Use	Only on designated roads and trails.	Only on designated roads and trails in Units 1 and 2.	Same as B.	No restrictions except when post
		No restriction except when posted in Units 3 and 4.		
Scenic Quality	Retention of existing scenic quality.	Protected along Wentworth Springs Road and in areas visible from the proposed Auburn Reservoir.	Same as B.	Protected along Wentworth Spring Road.

CONSULTATION WITH OTHERS

Public involvement is essential in the planning process if the best possible strategy for the management of the public lands is to be discovered. Extensive public input is also necessary if there is to be general acceptance of any plan developed. The ultimate success or failure of a plan is largely predetermined by the extent to which it is accepted and how accurately it reflects resource demand.

Individuals, organizations, and other public agencies can assist the planning process by providing expertise, and special knowledge during the following planning stages:

1. A resource characteristics inventory in which data is collected on resource conditions and values within the planning unit.

2. A socio-economic demand survey in which: (1) current and future resource demand in the affected area is identified and its impact on the planning unit is evaluated. (2) Land use activities desired within the planning unit are specified.

3. Establishment of capability and suitability criteria for each land use activity identified in the demand survey, and correlation of these criteria with resource character inventory data.

4. Formulation and analysis of alternative plans of management.

An initial presentation of the planning process to be undertaken for the Volcanoville Unit was made before the Georgetown Divide Rotary Club on October 23, 1974. On November 15, 1974, a fact sheet outlining preliminary alternative courses of action and extending an open invitation to become involved in the process was mailed to local residents, property owners, and others with an interest in the area. A press release extending an invitation to participate was issued on December 5, 1974. Advertisements giving notice of public meetings to be held were placed in the Georgetown Gazette and Mountain Democrat. Approximately one week prior to the first scheduled public meeting, a discussion with the public information officer of the Eldorado National Forest and a representative of mining interests was aired on radio station KAHI to generate interest and participation in the planning process.

The first formal public meeting was held on December 10, 1974 in Georgetown. This was followed on December 12, by a public meeting in Placerville. Both meetings were held in the evening. A total of about 75 people attended the two meetings. Also on December 12, 1974, a meeting was held with the El Dorado County Planning Commission. A slide-tape program describing the Volcanoville area, the planning process, and preliminary plans was presented at each of these meetings.

Following is a listing of agencies and organizations who were consulted or from whom comments were received during the preparation of this Environmental Statement and Alternative Plans:

Western Timber Association
California Highway Patrol
El Dorado Jeepherders
California 4-WD Club
Georgetown Divide Public Utility District

California Department of Fish and Game
Mother Lode Chapter, Society of American Foresters
Soil Conservation Service
Bear State Property Owner's Association
Bureau of Land Management
El Dorado County Office of Education
Ponderosa High School
El Dorado County Planning Commission
El Dorado County Recreation Commission
Bureau of Reclamation
California Department of Parks and Recreation
State Historic Preservation Office
California Native Plant Society

In addition, valuable input was received from numerous individuals representing no particular group or organization.

Official comment received from other agencies and selected technical sources prior to distribution of the draft Statement is contained in Appendix B.

On September 3, 1975, a letter was mailed which indicated that the draft Environmental Statement was in the final days of preparation and inquired as to the need for an additional public meeting(s) subsequent to distribution of the draft Statement. Response indicated six persons in favor of further meetings and eight who felt that such meetings were not necessary. Based on these responses no further meetings were held.

Official Forest Service communications pertaining to the public involvement process may be found in Appendix B.

The draft Environmental Statement was distributed on June 7, 1976. Comments on the Statement were received as indicated in the Distribution Section of the Summary. These comments and Forest Service response may be found in Appendix A.

APPENDIX

A. Responses to Draft Environmental Statement

B. Initial Public Involvement

C. Recreation Experience Levels

D. Visual Quality Objectives

E. Socio-Economic Data

F. Soil Erosion Hazard Rating System and Watershed Protection Measures

G. Sediment Yield Predictions

H. Water Quality Objectives and Beneficial Uses

I. Criteria for the Determination of Land Suitability

J. Glossary

K. Bibliography

Letters of comment on draft Environmental Statement and Forest Service response:

AGENCY, ORGANIZATION OR PERSON	Comment	Response
Federal Government		
Advisory Council on Historic Preservation	A-1	
Congressman Harold T. Johnson	A-1	
USDA, Forest Service, Washington Office	A-2	A-2
USDA, Soil Conservation Service, State Conservationist	A-4	A-4
USDI, Geological Survey, Conservation Division	A-5	A-6
USDI, Office of Secretary, PSW, Region	A-7	A-9
US Environmental Protection Agency, Region IX	A-10	A-11
State and Regional Government		
The Resources Agency of California	A-12	A-13
Sierra Planning Organization	A-14	
Academic Institutions		
Blodgett Forest Research Station	A-15	A-15
California State University, Sacramento, Department of Recreation and Park Administration	A-16	A-16
Organizations		
California Association of 4-WD Clubs, Inc.	A-17	
Sierra Club, Mother Lode Chapter	A-18	A-18
Western Timber Association	A-19	A-19
Individuals		
Thomas E. Horobik	A-20	A-20
Mr. & Mrs. Robert S. Perona	A-21	A-21

In the reproduced letters which follow, comments considered by the Forest Service to be substantive are numbered on the right margin of each letter received. Immediately following each letter is the Forest Service response keyed by the same reference number. All letters in response to the Volcanoville Planning Unit draft Environmental Statement are included.

The review procedure evaluated all written comments and identified those which dealt directly with the Unit Plan or the land use planning process. In several cases the writer was contacted in order to better understand a particular comment.

The staff and management of the Eldorado National Forest wish to thank all those who have contributed their time, energy, and insight to this planning effort. We invite your written comments on the final Environmental Statement and encourage your participation in future planning projects.

A-1

Advisory Council
On Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

JUN 18 1976

June 16, 1976

Mr. Joseph H. Harn
Forest Supervisor
Forest Service
Eldorado National Forest
100 Forni Road
Placerville, California 95667

Dear Mr. Harn:

This is in response to your request of June 7, 1976 for comments on the draft environmental statement (DES) for the land use plan of the Volcanoville Planning Unit, Eldorado National Forest, California. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council has determined the DES appears adequate concerning compliance with Section 106 of the National Historic Preservation Act of 1966.

With respect to compliance with Executive Order 11593, "Protection and Enhancement of the Cultural Environment" issued May 13, 1971, we note that while cultural resource studies to date indicate the undertaking will not effect cultural resources which may be eligible for inclusion in the National Register of Historic Places, further studies are necessary before final determinations can be made. In addition, we note that should these studies subsequently identify that cultural resources determined eligible for inclusion in the National Register will be affected, the Forest Service will afford the Council an opportunity to comment pursuant to the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800). Accordingly, we look forward to working with the Forest Service in accordance with the procedures as appropriate.

Should you have questions or require additional assistance in this matter, please contact Michael H. Bureman of the Council staff at P. O. Box 25085, Denver, Colorado 80225, telephone number (303) 234-4946.

Your continued cooperation is appreciated.

Sincerely yours,

Louis S. Wall
Assistant Director, Office
of Review and Compliance

I-V

HAROLD T. (BIZZ) JOHNSON
1st District, California

Office Address:
2347 House Office Building
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District Office:
320 Vernon Street
Roseville, California 95678

Congress of the United States
House of Representatives
Washington, D.C. 20515

Committees:
INTERIOR AND INSULAR AFFAIRS
Subcommittees:
Water and Power Resources, Chairman
National Parks and Recreation
Public Lands

PUBLIC WORKS AND TRANSPORTATION
Subcommittees:
Surface Transportation
Economic Development
Water Resources
Aviation

June 11, 1976

Mr. Joseph H. Harn
Supervisor
Eldorado National Forest
100 Forni Road
Placerville, California 95667

Dear Mr. Harn:

Just a note to thank you for your thoughtfulness in sending me the draft environmental statement for the land use plan of the Volcanoville Planning Unit. This is a most comprehensive and interesting report, and I will certainly keep it on hand as a valuable reference.

Again, thank you, and please continue to keep me posted. If I can be of any assistance to you or the Eldorado National Forest, please do not hesitate to let me know.

Sincerely yours,

HAROLD T. (BIZZ) JOHNSON
Member of Congress

J:C

6/15/76

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF EQUAL OPPORTUNITY
WASHINGTON, D.C. 20250

JUN 29 1976

IN REPLY
REFER TO: 8140 Supplement 7

SUBJECT: Draft Environmental Statement for the Land Use Plan of the Volcanoville Planning Unit

TO: Joseph H. Harn
Forest Supervisor

THRU: Chester Shields, Associate Deputy
Chief for Administration, FS

This office has reviewed the Draft Environmental Statement for the Land Use Plan of the Volcanoville Planning Unit with a particular concern on the analysis of the impact the proposed action will have upon minority persons in the affected area.

In Section D, No. 17, pages 28, 29 and 30, (Socio-Economic) no mention, either favorably or unfavorably, is made of the impact of the proposed plan on minorities. A review of the population census for the affected area shows that minorities constitute 5.8 percent of the total population. Without specific reference to minorities in the area, it is difficult to fully assess the civil rights impact of the proposed action. ①

For the final draft, we recommend that you include an assessment of the impact of the proposed plan on all segments of the population. This should be accomplished in accordance with existing Forest Service EIS guidelines (Federal Register, Vol. 39, No. 210, October 30, 1974) to include in the impact analysis consideration of civil rights, minority groups, low income persons, and rural poverty.

Miles S. Washington Jr.

MILES S. WASHINGTON, JR.
Acting Director

Forest Service response to:
USDA, OEO

1. An assessment of the impacts of the preferred plan and alternatives with respect to civil rights, minority groups, women, low income persons, and rural poverty has been included in this Statement.

JUL 2 1976

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
2828 Chiles Road, Davis, California 95616

JUL 27 1976

July 23, 1976

Joseph H. Harn
Forest Supervisor
El Dorado National Forest
100 Forni Road
Placerville, CA 95667

Dear Mr. Harn:

We acknowledge receipt of the draft environmental statement for the Volcanoville Planning Unit of the El Dorado National Forest, California that was addressed to the Soil Conservation Service on June 7, 1976 for review and comment.

We find no conflict with any Soil Conservation Service on-going or planned program or project. We have reviewed the above draft environmental impact report and find that there are no controversial items in the statement within the realm of the SCS's expertise and responsibilities.

We noted that you did not refer to the published Soil Survey of El Dorado Area, California. We are enclosing one copy for your reference and suggest that you may want to refer to the published soil survey in your final environmental statement. (1)

We appreciate the opportunity to review and comment on this proposed project.

Sincerely,

G. H. STONE
State Conservationist

cc: R. M. Davis, Administrator, USDA, SCS, Washington, D. C. 20250
Kenneth L. Williams, Director, WTSC, SCS, Portland Oregon
Fowden G. Maxwell, Coordinator of Environmental Quality Activities, Office of the Secretary, USDA, Washington, D. C. 20250
Council on Environmental Quality, 722 Jackson Place, N. W. Washington, D. C. 20006 - Attn: General Counsel (5 copies)
Ray Borchard, SCS, Sacramento
Linden Brooks, SCS, Placerville

Enclosure

250 N.F.
7/27/76

Forest Service response to:
USDA Soil Conservation Service

1. Soils data used in the Draft Statement was obtained from the Interim Report, Soil Vegetation Survey, West One-Third of the Georgetown Ranger District, (Forest Service, California Region, 1963) which we understand was used by the Soil Conservation Service in compilation of the Soil Survey of El Dorado Area, California, now referred to as the most recent source and listed in the bibliography of this Statement.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Conservation Division
W-2231 Federal Building
2800 Cottage Way
Sacramento, California 95825

July 14, 1976

Mr. Joseph H. Harn
Forest Supervisor
El Dorado National Forest
100 Forni Road
Placerville, CA 95667

Dear Mr. Harn:

We have reviewed the draft environmental statement for the Volcanoville Planning Unit and have the following comments to offer:

A portion of the land within the Volcanoville Planning Unit is classified by the Geological Survey as valuable for water resource development and/or withdrawn for Federal Power Commission Projects. This classified and/or withdrawn land within the planning unit is identified below:

Power Site Reserve 693, approved September 11, 1918 as interpreted on April 27, 1927.

Mount Diablo Meridian

T. 13 N., R. 10 E.,
sec. 14, S½NW¼;
sec. 20, lots 5, 6, and 7;
sec. 22, W½SW¼.

Power Site Classification 168, approved February 9, 1927:

Mount Diablo Meridian

T. 13 N., R. 11 E.,
sec. 2, SW¼;
sec. 3, lots 9 and 10.

Power Site Classification 178, approved May 6, 1927:

Mount Diablo Meridian

T. 13 N., R. 10 E.,
sec. 1, S½NE¼, S½;
sec. 11, all;
sec. 12, N½NE¼, NW¼, NW¼SW¼;
sec. 14, NW¼, NW¼SW¼;
sec. 15, NE¼, SE¼NW¼, S½;
sec. 21, NE¼, N½SE¼, SW¼SE¼;
sec. 22, NW¼NE¼, NW¼.

T. 13 N., R. 11 E.,
sec. 3, lots 5, 11, 12, 13, 14, 15, 16;
sec. 4, all;
sec. 5, all;
sec. 6, all;
sec. 7, fractional N½N½;
sec. 10, lots 1, 2, 3, 4, 8;
sec. 11, all;
sec. 12, S½;
sec. 14, NE¼, NE¼NW¼.

Power Site Classification 296, approved March 5, 1937:

Mount Diablo Meridian

T. 13 N., R. 10 E.,
sec. 22, NW¼SE¼ and S½SE¼.

Federal Power Project 816 pursuant to the filing of an application on June 17, 1927:

Mount Diablo Meridian

T. 13 N., R. 11 E.,
sec. 2, SW¼;
sec. 3, lots 9 and 10.

A preliminary permit for Project 816 was rejected on July 9, 1928; however, the land remains withdrawn.

Federal Power Project 866, pursuant to the filing of an application on January 11, 1928:

Mount Diablo Meridian

T. 13 N., R. 10 E.,
sec. 1, lots 9, 10, 13, and 14;

sec. 11, lots 1, 2,
S½NE¼, and SE¼;
sec. 12, lots 4, 5, 6, and 7;
sec. 14, lot 2, NW¼NE¼,
S½NW¼, and SW¼;
sec. 15, lots 4, 5, 6, S½NE¼, SE¼;
sec. 21, lots 5 and 6;
sec. 22, lots 3, 4, 5, 6, 9, 10,
W½SW¼;
sec. 28, NE¼, N½NW¼.

A preliminary permit for Project 866 was rejected on August 21, 1930, however, the land remains withdrawn.

Federal Power Project 1202, pursuant to the filing of an application on March 16, 1932:

Mount Diablo Meridian

T. 13 N., R. 10 E.,
sec. 1, lots 3, 4, 5, 8, 11, 12
S½NW¼, E½SW¼, and W½SE¼;
sec. 12, lots 1, 2, 3, 8, 9, and 10;
sec. 14, lots 1, 4, and SW¼NE¼;
sec. 22, lots 1, 2, 7, and 8.

T. 13 N., R. 11 E.,
sec. 3, lots 11, 12, 13, 14,
15, and 16;
sec. 4, lots 1, 4, 5, SE¼NE¼, S½,
and unpatented portions of lots
2, 3, SE¼NW¼, and SW¼NE¼;
sec. 5, lots 6, 8, S½SE¼NW¼, SE¼SW¼NW¼,
and S½;
sec. 6, lots 5, 6, 7, 8, E½SW¼, W½SE¼,
S½NE¼SE¼, and SE¼SE¼.

A preliminary permit for Project 1202 was rejected on September 25, 1934, however, the land remains withdrawn.

Federal Power Project 2079, pursuant to the filing of an application on March 29, 1951; and revised and amended on June 23, 1952; August 6, 1958; and July 12, 1963:

Mount Diablo Meridian

T. 13 N., R. 10 E.,
sec. 1, lots 8, 9, 10, 14,
and S½NW¼;
sec. 11, lot 1, N½SE¼NE¼,
and SE¼.

T. 13 N., R. 11 E.,
sec. 2, N½SW¼ and S½SW¼;
sec. 3, lots 4 through 16;
sec. 4, lots 1, 5, 6, the
unpatented portions of lots 2
and 3, S½NE¼, SE¼NW¼, NE¼SW¼,
and N½SE¼;
sec. 5, lots 6, 8, SE¼SW¼NW¼,
S½SE¼NW¼, and N½SE¼;
sec. 6, lots 5, 6, E½SW¼, S½NE¼SE¼,
W½SE¼, and SE¼SE¼;
sec. 7, lot 1, N½NE¼, and NE¼NW¼;
sec. 10, lots 1 through 4;
sec. 11, NW¼, E½SW¼, W½SE¼, and
SE¼SE¼.

A 50-year license for Project 2079 was issued to the County of Placer on March 1, 1963.

Section I.D.1. of the draft environmental statement should be amended to show that the classifications and withdrawals listed above do exist within the Volcanoville Planning Unit. (1)

Sincerely,

R. D. Morgan
District Hydraulic Engineer

Forest Service Response to:
USDI, Geological Survey

1. The information provided in your letter of July 14, 1976 has now been referred to in the subsection which discusses increasing quantity of the water resource.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
PACIFIC SOUTHWEST REGION
BOX 36098 • 450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102
(415) 556-8200

E.I 76-604

August 9, 1976

Mr. Joseph H. Harn
Forest Supervisor
Eldorado National Forest
100 Forni Road
Placerville, California 95667

Dear Mr. Harn:

The Department of the Interior has reviewed the draft environmental impact statement for the land use plan of Volcanoville Planning Unit, Eldorado National Forest.

General comments

The northern part of the management area is in the Middle Fork American River watershed. Management activities there would have an effect on the proposed Auburn Reservoir as well as the existing Folsom Reservoir. The remainder of the management area would be within the South Fork American River watershed and would affect the Folsom Reservoir.

It appears that the proposal (plan C) would be generally beneficial to the above two reservoirs in providing watershed protection in increased runoff. It is somewhat unclear, however, whether the timber management activities proposed would be greater or less than current levels. A comparison of alternative C with alternative plan D indicates that road construction and timber harvest may be less than present authorized levels. However, it is unclear whether alternative plan D is the current planned level or actual harvest levels. There are some indications, in the existing environmental section in the environmental statement, that present actual levels are considerably below plan. A clearer definition of the current baseline condition would be helpful in determining the overall impact of proposed plan C. (1)

Land ownership patterns as found in the Volcanoville planning unit present definite problems in the design and enforcement of management plans. One obvious example is the enforcement of the off-road vehicle policies of the different management units. The intermingling of management units 1, 2 and 3, each with different off-road vehicle regulations, would appear to make enforcement of these regulations a (2)

formidable if not impossible task. These regulations make sense from a planning standpoint, but their mode of enforcement should be discussed in the environmental statement.

The draft environmental statement indicates there is no concentrated recreational activity within the Volcanoville planning unit. In the future, with the completion of Auburn Dam and increase in second home development, some increase in recreational activity will undoubtedly occur. The draft environmental statement gives the impression that this planning unit will play little, if any, role in the recreational activities related to the Auburn Reservoir (except as a scenic backdrop). Presently, the most productive activity in terms of future recreational benefits would be to preserve the unique resources of the area. The availability of exchange lands offers the best opportunity of preserving these resources. Appropriate measures that could be taken are: 1) obtaining the site where the "threatened" Eldorado manzanita occurs along Otter Creek and the western portion of the planning unit, 2) protecting wildlife corridors to and within the deer winter range. These resources are primarily on private lands and bringing them within Forest Service jurisdiction would ensure their protection. (3) (4)

With the proposed inundation of a portion of the Middle Fork by Auburn Reservoir, the possibility arises that any remaining placer gold deposits in the reservoir area could be dredged economically with little additional impact on the environment. We suggest that this possibility be investigated before inundation because boulders may prohibit dredging after the reservoir is formed. (5)

Specific comments

Pages 2-5, Land Ownership and Land Uses: - The proposed action will not affect any existing or proposed units of the National Park System or any proposed or known potential sites or properties listed as National Landmarks.

With reference to land use and the Auburn Reservoir Project, it should be noted that the Bureau of Land Management is not acquiring lands for the project. There is a contract between the Bureau of Reclamation and the State of California which calls for turning over acquired and withdrawn lands to state administration. (6)

Page 6 (Map D) - A generalized geologic map would be a useful companion to the soils map. (7)

Page 9 (Map E) - Although the limits of the proposed Auburn Reservoir are clearly outlined on the map, the text does not include a statement of the number of acres to be withdrawn. (8)

Page 14, Wildlife Resource: - It should be indicated if an intensive wildlife study has been done in this area. The middle fork of American River is a historical feeding area for the endangered peregrine falcon and southern bald eagle. (9)

Page 19-20, Cultural Resource: - We recommend that the archeological reconnaissance survey required for any project causing land disturbance be an intensive survey performed by a professional archeologist. The survey should take place early in the planning stages of all projects so the results may be incorporated into the final decision-making process. (10)

In addition to the direct impact upon cultural resources as a result of timber harvesting and road construction, indirect impacts may also occur due to increased recreational use. Areas designated for recreational use should be intensively surveyed for cultural resources.

Page 23 (Mineral Resources) - Gold and chromite resources are adequately described, but construction materials have been neglected. A description of the resources of sand, gravel and stone, preferably with a map showing recommended quarry sites and borrow areas, should be included. (11)

Page 25-26, Fire: - The discussion could properly include a section on use of prescribed fire for fuel reduction and wildlife habitat improvement. (12)

Page 40, Biological Effects: The assertion that continuing timber harvest will help offset losses of critical deer winter range on private property is questionable. Timber harvest is an established use of forest lands, and proceeds regardless of encroachment by private interests on critical deer winter range. Also it appears that management practices on cut-over lands reduce general wildlife benefits resulting from timber harvest. (13)

It is true that valuable wildlife browse species usually invade a clear cut after one or two years. However, this forage may be killed by spraying to encourage rapid regeneration of trees utilized for timber. Therefore, under current practices wildlife benefits from timber harvesting may be rather small.

We appreciate the opportunity to review and comment on the draft statement.

Cordially,

Webster Otis

Webster Otis
Special Assistant to the Secretary

cc: OEPR w/c incoming
St. Dir., BLM, Sacramento
RD, BOR, San Francisco
RD, FWS, Portland
RD, NPS, San Francisco
USGS, Reston
Dir., BOM, D.C.
RD, BuRec, Sacramento
AD, BIA, Sacramento

Forest Service response to:
Department of the Interior,
Office of the Secretary

1. The harvest level under Alternative D in the Draft Environmental Statement was an estimate of potential yield which was considerably higher than the actual harvest level for the past 15 years as shown in Table 5. However, timber harvest estimates stated in the Draft Environmental Statement under all alternatives were incorrectly computed. Programmed allowable harvest and a revised estimate of average net annual increment of growth have been incorporated into the Final Environmental Statement.

2. Off-road vehicle management policy and the enforcement of regulations is covered in more detail in the Off-road Vehicle Plan soon to be published. Also available will be a map designed for use by the public indicating regulated routes and areas within the Forest.

3. The section on recreational resource capabilities has been rewritten to more clearly indicate anticipated use.

4. For Section 23 which contains the site (#5) where El Dorado manzanita occurs north of Otter Creek in the western portion of the planning unit, management responsibility is expected to be transferred to the Forest Service with execution of a Memorandum of Understanding about to be consummated.

   Some of the "acquisition lands" under consideration comprise a portion of the deer winter range.

5. The Forest Service and Zone Mining Geologist agree with your concerns and those of the Bureau of Mines that any remaining placer gold deposits in the Middle Fork of the American River should be mined prior to inundation. Access remains difficult, however, due to the steep topography.

6. This correction and references to the Memorandum of Understanding have been made in the Final Environmental Statement.

7. A geological assessment section and generalized geologic map have been included.

8. Based on the most recent information made available to the Forest Service, Map M has been revised, and a statement which indicated the number of acres withdrawn, or planned for withdrawal, in the Eldorado National Forest has been included.

9. See the wildlife section in the assessment of biotic communities.

10. A professional archaeologist, Mr. James Snoke, is employed part-time as needed by the Eldorado National Forest. He has trained two full-time archaeological aides who perform the majority of reconnaissance. All three persons are under the supervision of a full-time, staff Cultural Resources Coordinator. See also the sections on cultural resource assessment and applicable management direction in the Alternatives.

11. See the section on minerals within the discussion on geologic capabilities.

12. See response to comment number three from the State of California, Resources Agency.

13. Although additional habitat provided by timber harvest may only enable maintenance of existing numbers of deer as their habitat on private land is encroached upon, and whereas this additional habitat generated by harvest would otherwise allow an increase in the population; the effect is mitigating nevertheless. New direction is being undertaken in wildlife habitat management, and properly conducted management practices on harvested lands should increase the quantity and quality of available habitat.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
100 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94111

D-AFS-K65015-CA

Mr. Joseph H. Harn, Forest Supervisor
Eldorado National Forest
100 Forni Road
Placerville CA 95667

AUG 2 1976

Dear Mr. Harn:

The Environmental Protection Agency has received and reviewed the draft environmental impact statement and land use plan for the Volcanoville Planning Unit, Eldorado National Forest, Eldorado County, California.

EPA's comments on the draft environmental statement have been classified as Category ER-2. Definitions of the categories are provided on the enclosure. The classification and date of EPA's comments will be published in the Federal Register, in accordance with our responsibility to inform the public of our views on proposed Federal Actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on the consequences of the proposed action, and the adequacy of the environmental statement.

EPA appreciates the opportunity to comment on the draft of this environmental impact statement, and requests two copies of the final statement when available.

Sincerely,

Paul De Falco, Jr.
Regional Administrator

Enclosure

cc: Council on Environmental Quality

Comments on Volcanoville Land Use Plan, Draft Environmental Impact Statement for the El Dorado National Forest, El Dorado County, California

The Volcanoville draft environmental impact statement is a program statement to be used for selecting a land use plan for the unit. EPA recognizes that a statement of this nature must be completed at a stage in planning when the specifics regarding proposed activities are frequently unknown or undefined. However, for compliance with NEPA guidelines on impact statements and for use of the document by the public and decision makers in plan selection, a more intensive environmental analysis must be undertaken.

The discussion of proposed activities in the four alternative plans contains insufficient information for selection of an environmentally sound land use plan. Although activities proposed for each of the alternative plans are mentioned, an adequate description of the probable effects of these activities, and the expected extent of the effects, is not given. EPA is also concerned with some aspects of the Water and Air Quality sections of the draft statement.

Water

1. Impacts on Water Quality

No mention is made in the land use plan of adherance to the State Water Quality Control Basin Plan. ①

Within the state basin plan, beneficial uses are outlined for the water segments involved in the EIS. The EIS has selected a plan which will result in an increase in private property development mining, and timber harvest activities. An adequate discussion of the effects of these activities on water quality parameters, such as suspended solids settleable solids, floatables, fecal coliform count, dissolved oxygen content, and biostimulants increases must be included in the statement so that it may be compared to the description of beneficial uses in the basin plan. ②

2. Mitigation Measures

As EPA looks to the EIS as an indicator of commitment to enforce mitigative measures at the inception of the proposed activities, the lack of detail in this EIS is cause for some concern. Since the probable impacts of proposed activities and the expected extent of these impacts were not adequately discussed in the EIS, sufficient description of mitigative measures could not follow. Where there is doubt about the level of detail required for discussion of environmental impact, the discussion should be of sufficient detail so that specific mitigative activities can be discussed.

Air

1. Alternatives

The difference in air quality effects for each of the proposed alternatives should be documented in detail in the final environmental impact statement. (3)

2. Significant Deterioration

EPA has published regulations governing the prevention of significant deterioration of air quality (40 CFR 52.21) in areas such as National Parks and Forests where the air is cleaner than the National Ambient Air Quality Standards for sulfur dioxide and particulate matter require. These regulations establish three classes of allowable incremental increases for these two pollutants. Class I applies to those areas in which deterioration associated with moderate growth would be acceptable. Class III applies to those areas in which deterioration up to the national standards would be considered acceptable.

Under these regulations all areas of the nation were initially designated Class II, with provisions for the states and Federal Land Managers to reclassify areas to accommodate the social, economic and environmental needs and desires of the public.

Federal Land Managers may reclassify their lands after consultation with the state(s) involved. However, such lands may only be reclassified to a more stringent classification than those proposed by a state or published by EPA (i.e., Class II to Class I).

EPA has issued guidelines for preparing the reclassification document. The information required for the document is very similar to information required for Environmental Impact Statements. Should the BLM in conjunction with the Forest Service decide to reclassify the national resource lands discussed in this environmental statement much of the information required for such action would be included in the EIS accompanying the reclassification proposal. If you have any questions about these regulations, please contact Ms. Laurie Gresham at 415/556-7424.

cc: Council on Environmental Quality

Forest Service response to:
U.S. Environmental Protection Agency, Region IX

1. Adherence to applicable regulations of the State Water Resource Control Board has been stated in the sections on Coordination and Compliance, on Political Interrelationships, and on general prescription for each of the management units.

2. The preferred alternative will not result in an increase in private property development by any Forest Service action since such development is beyond our control. Construction on lands formerly in Federal ownership prior to an exchange would most likely be balanced by the preclusion of construction on those lands obtained by the Forest Service through the exchange.

   If any alternative were to have an indirect effect of stimulating development on private property within or adjacent to the Unit, it would be Alternative A which emphasizes preservation of resources and enhancement of aesthetic values. The majority of people would prefer to reside near a park rather than a clearcut.

   Timber harvest activities under Alternatives B, C, and D, will increase over present levels but not for at least a decade. The discussion of effects of activities subject to Forest Service control has been rewritten.

3. The differences in air quality effects for each of the proposed alternatives is discussed in this Statement.

OFFICE OF THE SECRETARY
RESOURCES BUILDING
1416 NINTH STREET
95814
(916) 445-5656

Department of Conservation
Department of Fish and Game
Department of Navigation and Ocean Development
Department of Parks and Recreation
Department of Water Resources

EDMUND G. BROWN JR.
GOVERNOR OF
CALIFORNIA

Air Resources Board
Colorado River Board
San Francisco Bay Conservation and Development Commission
Solid Waste Management Board
State Lands Commission
State Reclamation Board
State Water Resources Control Board
Regional Water Quality Control Boards
Energy Resources Conservation and Development Commission

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

AUG 26 1976

AUG 30 1976

Mr. Joseph H. Harn
Forest Supervisor
Eldorado National Forest
100 Forni Road
Placerville, CA 95667

Dear Mr. Harn:

The State of California has reviewed your "Draft Environmental Statement, Volcanoville Planning Unit", transmitted by Notice of Intent (SCH 76061478) dated June 14, 1976, and submitted to the Office of Planning and Research (State Clearinghouse) in the Governor's Office. This review fulfills the requirements under Part II of the U. S. Office of Management and Budget Circular A-95 and the National Environmental Policy Act of 1969.

The Draft Statement has been reviewed by the Departments of Conservation, Fish and Game, Parks and Recreation, Water Resources, Commerce, Food and Agriculture, Health, and Transportation; the Air Resources Board; The Reclamation Board; the Solid Waste Management Board; the State Water Resources Control Board; the Energy Commission; the Public Utilities Commission; and the State Lands Commission.

Recommendations

The report should include sections regarding the treatment, collection, and disposal of wastes from recreational activities. The various waste volumes should be estimated for each plan and treatment facilities selected for disposal should be identified. (1)

Alternative management plans or possible adverse impacts of the proposed alternatives on rare plants in the planning unit should be considered. (2)

Fire prevention and suppression practices should be amended to incorporate the benefits of planned, controlled burns to manage fuels and plant communities for a more productive forest. (3)

Maintenance should be funded if fuel breaks are to be maintained as a viable system. (4)

There are some questions concerning the use of the 10-acre maximum size fire objective. We would rather see a maximum value objective as opposed to size. This system is presently under study by the Division of Forestry task force.

Under the present set of alternatives, completion of the fuel break is uniformly proposed. An alternative should be considered which would recognize the possible adverse impact of a fuel break which follows the proposed alignment. (5)

Specific Comments

Page 31 assumes that the Regional Board will establish water quality standards for mountainous areas of El Dorado County. The Water Quality Control Plan adopted by the Board on July 25, 1975, provides water quality objectives and other information which will be useful in preparation of the final report. (6)

The U. S. Forest Service suppression crew and tanker at Georgetown are presently green book state funded. Would this suppression crew and tanker continue to be assigned at the location if state support funds were reduced or eliminated? (7)

Structural inspections are undertaken as per Public Resources Code 4291 on private land as per master agreement with the Division of Forestry.

The Division of Forestry maintains two engines in Garden Valley.

General Comments

The water quality aspects of the subject report primarily concern the estimated stream sediment increase over natural background conditions for the various alternatives. Prior to selection of the best management plan, consideration should be given to relating each alternative to the impact on beneficial uses of the receiving waters. This method of comparison will allow a more meaningful evaluation of this matter. (8)

In the discussion, "Environmental Effects from Implementation of Proposed Plan (Alternative C), Physical Effects", the effect on timber is claimed to include fewer losses to insects, tree diseases and fire. Reduction of

these is supposed to provide greater diversity in vegetative cover. (9)
Insects, tree diseases, and fire are the principal natural sources of diversity in the plant community, and reduction of these sources acts to depauperate the diversity of the plant end dependent animal community.

A properly implemented program of fire management should be proposed in (10)
at least one of the alternative plans. Such an alternative offers greater benefits for wildlife than any alternative proposed in this Draft EIS and, when successfully implemented, may result in considerable savings over proposed plans in the cost of fire control.

Effect on timber resources for the private lands involved in this planning (11)
unit should be discussed.

Thank you for the opportunity to review and comment.

Sincerely,

CLAIRE T. DEDRICK
Secretary for Resources

By
L. Frank Goodson
Assistant to the Secretary
Projects Coordinator

cc: Director of Management Systems
State Clearinghouse
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
SCH No. 76061478

Forest Service response to:
The Resources Agency of California

1. The discussion of Recreation Resource Capability has been rewritten to more clearly indicate the types and intensities of recreational activities anticipated. The possibility that a need may arise in the future for toilet facilities in some areas has been identified. With regard to solid waste, the interests of not only the environment but the taxpayer as well would best be served if all Forest users were to "pack out" to the nearest disposal site whatever refuse they generate during their visit. This is an especially important practice where activities are predominantly dispersed.

2. Sections dealing with effects and mitigating measures have been rewritten and rare plants are discussed. Management direction for all alternatives provides for "special component" classification to preserve and protect rare botanical species.

3. See subsection on Prescribed and Broadcast Fire within the section dealing with Resource Inventories and Capabilities.

4. This requirement has been addressed in the subsection on the Fuelbreak System. Funding, however, cannot be guaranteed by the planning process.

5. Mitigating measures to protect unique botanical species will ensure that fuelbreak construction will have no significant adverse impacts on these plants. No other significant adverse effects are anticipated from construction of the proposed fuelbreak system. The several beneficial effects identified in the text therefore make the system a desirable element of each alternative.

6. The Water Quality Control Plan has been referred to in preparation of this Statement and is listed in the bibliography.

7. The Forest Service suppression crew and tanker at Georgetown are presently funded under contract with the State. Should responsibilities to the State cease upon termination of the contract with nonrenewal of State funding, this crew and tanker would possibly be moved to the Eleven Pines-Wentworth Springs area as soon as facilities could be developed. In the interim, the crew could be reassigned and more routinely shifted to duty assignments in more remote areas of the District; patrol and inspection activities might be reassigned elsewhere or eliminated.

8. The impacts of each alternative on beneficial uses of receiving waters are assessed in the sections dealing with effects which have been rewritten.

9. We agree that "insects, disease, and fire are the principal natural sources of diversity in the plant community, and reduction of these sources acts to depauperate the diversity of the plant and dependent animal communities. Accordingly, this view has been reflected in the rewritten sections on effects.

10. See our response to number 3.

11. Effects on timber resources on private lands are discussed in the sections on effects.

SIERRA PLANNING ORGANIZATION
A Joint Powers Agency Consisting of
Nevada County
Placer County
Sierra County
El Dorado County
205 Willow Valley Road
Nevada City, Ca. 95959
(916) 265-5887

June 18, 1976

JUN 21 1976

Joseph H. Harn, Forest Supervisor
El Dorado National Forest
100 Forni Road
Placerville, CA 95667

Dear Mr. Harn:

The Sierra Planning Organization has received from your agency the Environmental Impact document for the following project:

VOLCANOVILLE PLANNING UNIT

In accordance with areawide review procedures, copies of your submitted document have been forwarded to concerned local entities and agencies for review and comment.

Unless negative comments are received by this office from those entities and agencies contacted, the Sierra Planning Organization will consider that the environmental impacts are in keeping with areawide environmental policies. If negative comments or questions regarding your document are received, it will be necessary to schedule the matter for review by appropriate advisory committees and the policy board of the Sierra Planning Organization. You will be notified of such meetings if they are necessary.

If you have any questions, please call me at our office.

Yours truly,

Jennifer M. Clifford

Jennifer M. Clifford
Planner

WPF/dk

SIERRA PLANNING ORGANIZATION
A Joint Powers Agency Consisting of
Nevada County
Placer County
Sierra County
El Dorado County
205 Willow Valley Road
Nevada City, Ca. 95959
(916) 265-5887

July 21, 1976

Joseph H. Harn, Forest Supervisor
El Dorado National Forest
100 Forni Road
Placerville, California 95667

Dear Mr. Harn:

The Sierra Planning Organization received from your agency, on June 14, 1976, an Environmental Impact document for the following project:

VOLCANOVILLE PLANNING UNIT

In accordance with areawide clearinghouse review procedures, copies of your submitted document were forwarded to concerned local entities and agencies for review and comment.

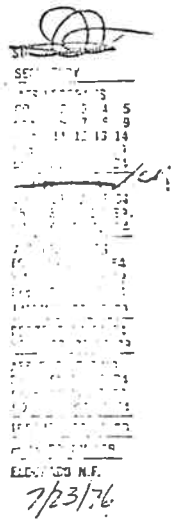
No negative comments have been received by this office from those entities and agencies contacted. Therefore, the Sierra Planning Organization will consider that the environmental impacts are in keeping with areawide environmental policies. It will not be necessary to schedule the matter for review by an advisory committee or the policy board of the Sierra Planning Organization.

Sincerely,

Jennifer M. Clifford

Jennifer M. Clifford
Planner

JMC:cmz



NEVADA COUNTY HEALTH, EDUCATION and WELFARE COMPLEX

June 10, 1975

Mr. Joseph F. Harn
Forest Supervisor
El Dorado National Forest
100 Forni Road
Placerville, Calif. 95667

RE: Volcanoville Planning Unit Draft Environmental Statement

Dear Joe:

In general I find the Volcanoville Unit Plan quite satisfactory. It represents a significant advancement in planning intensity and public involvement. The extension of this level of knowledge and planning to all of the El Dorado National Forest will be an interesting although time consuming and costly procedure.

In particular I find one apparent inconsistency in the several alternatives somewhat disturbing. This inconsistency can best be illustrated by demonstrating the contrast between expressed goals and proposed alternatives.

Under the title "Forest Service Goals" (page 1 and 2) are listed: "Improving Economic Efficiency" and "Promote and Achieve a Pattern of Natural Resource Uses that will Best Meet the Needs of People Now and In the Future". These goals are further defined in part as "to provide for a reasonable timber harvest". The unit plan goes on to rate timber productivity at "moderate to high" with present annual growth on about 8,900 acres "suitable for timber management" about 2.6 million board feet (page 22). Furthermore (page 23), national and California demand for timber products are projected to increase 5% and 15% by the year 2000.

The four alternative plans go on to describe several levels of annual wood production ranging from 0.5 MBF (Plan A) through 2.0 MBF (Plan D). These possible timber yields are difficult to intelligently contrast with various possible levels of other goods and services or measure against the previously expressed goals. These yields are portrayed as estimated future harvests yet they are apparently based on past growth performance of unmanaged stands. These estimated yields average: 55 board feet/acre/year in Alternative A; 170 board feet/acre/year in Plan B; 210 board feet/acre/year in Plan C; and 241 board feet/acre/year in Plan D. Even the high site land (2000 acres) (Management Unit 2) in Plan B produces only 94 board feet/acre/year. All these growth rates are far below those indicated for moderate to high sites at culmination of mean annual increment in Sierra normal yield tables. (See Forestry Todd Tech. Bull. #63; Schumacher U.C. Bulletin #407 and 421; and Meyer USDA Tech. Bull. #630). Many foresters believe (and much empirical data support this) that managed stands should produce at or above so called "normal" stand rates.

Do any of the alternatives provide for any intensification of management and resultant increased yields/acre/year? This seems to be virtually required if economic efficiency guides are imposed since recent studies indicate that only relatively intensively managed sites I, II, and some III are capable of producing wood at a present cost less than the discounted value of the future crop. ①

In the absence of significant management intensification, do the above yield averages accurately reflect the most likely result of current U.S. Forest Service management? If not, then projected economic benefits are understated, hence, comparisons with possible sedimentation and alternative uses are biased against wood production. If accurate, then (page 39, paragraph 5) the statement of physical environmental effects of proposed Plan C indicating increased growth may be incorrect. ②

I urge you and your planning team to incorporate reasonable growth increases resulting from current management technology (stocking control, rapid regeneration, better protection, younger average stand age, etc.) into yield projections. The most equitable basis of comparing alternative plans is the long-term sustained production of various goods, services, and amenities and their associated costs. Any contribution to allowable cut or a past productivity measure serves only to cloud the issues, particularly when some services are evaluated on another basis. I recognize the difficulties in any attempt to develop reliable future growth estimates. However, such estimates are usually as reliable as similar estimates for other goods and services.

Sincerely,

Robert C. Heald
Acting Manager
Blodgett Forest Research Station
Star Route
Georgetown, Calif. 95634

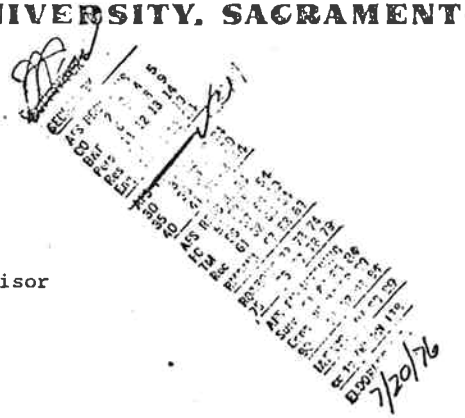
Forest Service Response to:
Blodgett Research Station

1. Management direction for Alternatives B, C, and D, specifies that intensive, cost effective timber management will be practiced on all high productivity timber land (sites I, II, III). Modified management for timber production will be practiced on other regulated, commercial forest land.

2. The yield averages for the Planning Unit have been recomputed. Based on data of forestwide growth and strata gathered for the new ten-year Timber Management Plan, there is an estimated annual net growth on commercial forest land within the Volcanoville Unit of about 430 board foot/acre/year. The long term sustained yield for the commercial forest land when organized for intensive management is estimated to be 760 board feet/acre/year for the Forest as a whole. Economic benefit derived from the programmed allowable harvest for the next ten years should be based on the two proposed timber sales as indicated in the text of this statement.

CALIFORNIA STATE UNIVERSITY, SACRAMENTO
6000 J STREET, SACRAMENTO, CALIFORNIA 95819

DEPARTMENT OF RECREATION AND PARK ADMINISTRATION



July 19, 1976

Mr. Joseph H. Harn, Forest Supervisor
Eldorado National Forest
USDA Forest Service
100 Forni Road
Placerville, California 95667

Dear Mr. Harn:

Thank you for providing the Department of Recreation and Park Administration, California State University, Sacramento, with an opportunity to review the Volcanoville Planning Unit Draft Environmental Statement.

To the best of our knowledge of the Unit area, we feel the alternatives in the Draft Environmental Statement cover the reasonable management options, and compliment your planning staff for the job it has done.

Our specific comments pertain to several points discussed in the "Recreation Resources" section of the draft, pages 16 and 17. On page 16, paragraph 3, the sentence, "On the contrary, recreation developments would in all likelihood generate intolerable impacts on the wildlife resource of the Unit." seems troublesome because no definition of what comprises "tolerable" or "intolerable" impact is given. Perhaps this could be defined or a word such as "detrimental" impact substituted to avoid a "tolerable" or "intolerable" decision at this point in the Plan. (1)

The same type of comment applies to the last paragraph, page 16, which states, ". . . the steep faces adjacent to the Rubicon and Middle Fork Rivers are extremely limited as to the type uses that can be accommodated and/or tolerated." Perhaps adding wording to the effect that types of uses that can be accommodated ". . . without significant erosion or environmental damage" would be helpful. (2)

On page 17, the opening sentences of the first two paragraphs both state in effect that the recreational capabilities of the Unit area are of a dispersed nature. Perhaps these two sentences and/or paragraphs can be combined. (3)

Last, the information given in the final paragraph of the "Visual Resources" section, page 19, that "Recreationists will be able to boat into the extreme western edge of the study area when Auburn Reservoir is at maximum pool" might also be helpful when reading the ". . . completion of the proposed Auburn Reservoir . . ." paragraph in the "Recreation Resource" section. (4)

Thank you again for the opportunity to review the Draft Environmental Statement; we look forward to receiving a Final Statement in the coming months.

Sincerely,

Leon J. Buist, Ph.D.
Assistant Professor
Department of Recreation
and Park Administration

LJB/fb

Forest Service response to:
California State University,
Sacramento

1. The sentence you refer to was inaccurate and has been deleted from the text. The following sentences have been inserted: Because of site alteration or human activity during or following development, recreational developments such as campgrounds would have significant, adverse, localized effects on some species of wildlife which utilize the site or immediate vicinity. However, outside the disturbed area of the development, no significant adverse impacts would be anticipated on the wildlife resource within the Unit.

2. We agree that the sentence was ambiguous as stated and have appended the phrase you suggest.

3. On page 17 in the Draft Statement, the second paragraph referred to the present inventory of recreational facilities and uses. The first paragraph referred to the "capability" of the Unit to support recreational development and facilities. These distinctions have been retained in the Final Statement although relocated within the text.

4. The text has been modified to include this phrase.

CALIFORNIA ASSOCIATION OF 4WD CLUBS INC.

P. O. Box 669, Sacramento, California 95803

July 29, 1976

SUBJECT: Volcanoville Planning Unit Draft Environmental Statement,(Your letter, June 7, 1976)

ElDorado National Forest
Forest Supervisor
Mr. Joseph H. Harn

Dear Sir,

The subject statement has been reviewed and we believe that all practical management alternatives have been considered and submitted for our evaluation. We recommend management alternative Plan D be selected for the final land use plan because it provides the maximum yield in timber harvest, local economy, recreational experiences and some wildlife gains. The loss of quality in water, fisheries and scenic will be minor as compared to anticipated problems resulting from development of private lands in this unit over the next 20 years.

We recommend intensive effort be made to exchange isolated parcels of land in order to block up Federal lands in a more manageable unit. Right of way and trespass agreements should also be obtained where roads and trails cross from federal through private lands.

We consider the subject statement to be fully accurate and complete in its evaluation of each management alternative. Your Staff should be complimented for such an excellent preparation.

This reply constitutes an official reply from our membership of 11,000 Four Wheel Drive vehicle owners in the state of California.

Sincerely,

Ed Dunkley,,
Conservation Coordinator

A-17

Sierra Club
Mother Lode Chapter

P O. BOX 1335, SACRAMENTO, CALIFORNIA 95806

July 22, 1976

Mr. Joseph Harn
Forest Supervisor
Eldorado National Forest
Placerville, Calif.

Dear Mr. Harn:

We have reviewed the draft Environmental Statement for the Volcanoville Planning Unit and have the following comments:

(1) Otter Creek is one of the most attractive low elevation streams in the Eldorado National Forest and is relatively unspoiled. We believe that roads within Otter Creek Canyon downstream from the forks would be damaging even if constructed after performance of a "transit-tape survey" as suggested in your ES. We instead would prefer that Management Unit 1 be extended upstream as far as the forks and that no new roads be permitted to penetrate the Canyon. We also believe that one of Otter Creek's principal charms is its cool shadiness, which benefits hot hikers as well as rainbow trout. ①

Retention of old growth trees within the Canyon bottom is essential if the charm and beauty of the Canyon is to be maintained. We note that the Timber Condition Class Map on pg. 21 indicates that our area of concern is largely a mixture of Class 2 land (poorly stocked stands) and non-commercial sites; hence loss of timber production would be relatively minimal if our recommendation were accepted. ②

(2) We believe that acquisition of private inholdings in the Rubicon River Canyon within and upstream from the planning area should be given a high priority. Small scattered and isolated parcels of national forest land within the planning unit should be used as trading stock. ③

Thank you for considering our comments.

Sincerely,

A. R. Gutowsky

Serving 24 counties in Superior California

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Forest Service response to:
Sierra Club, Mother Lode Chapter

1 Extension of Management Unit 1 along the south side of the canyon and into Section 28 was not proposed in Alternative C because of the timber resource present on these north-facing slopes. It is highly unlikely, however, that any roads will be constructed on these slopes to harvest timber because of the high cost and environmental constraints associated with such a project. More likely is the construction of a road along the top of the ridge to provide the access necessary for timber harvest.

An extension of Management Unit 1 upstream on the north side of Otter Creek to the boundary of timber stratum 4 and extending up Missouri Canyon to the boundary of stratum 3 was proposed for Alternative C and seriously considered by management. Although no road construction is planned for these south-facing slopes either, it was decided that this option should be left open, at least for the present, by retaining the Management Unit 2 classification.

It has been noted in the text that the possibility exists for the construction of a county road to provide additional access to the Volcanoville area. Although no road has been officially proposed, a route crossing Otter Creek upstream from Missouri Canyon is one possibility.

2. Stratum 2 (class 2) consists of poorly stocked stands, but this condition may be the result of poorly conducted selection cutting rather than poor site class. You are correct, however, in your evaluation of the effects related to the non-commercial sites.

In any case, the Otter Creek watershed where it occupies government land will be protected in accordance with the Forest Management Act and responsive Forest Service direction. The riparian zone along the Creek, which is a very important wildlife habitat and possesses high esthetic values, will be managed under a "special component" classification for the preservation of these qualities.

3. Acquisition of private lands in the Rubicon River Canyon within the Planning Unit is being considered.

TELEPHONE
(415) 956-0410

WESTERN TIMBER ASSOCIATION
212 SUTTER STREET, SAN FRANCISCO, CALIFORNIA 94108

July 21, 1976
File No. 2.4221-3
Volcanoville Unit

Joseph H. Harn, Supervisor
Eldorado National Forest
100 Forni Road
Placerville, CA. 95667

Dear Joe:

Thank you for the opportunity to review the proposed plan and draft environmental statement for the Volcanoville Planning Unit. Considering the ownership patterns and resources involved, both the plan and environmental statement appear adequate, but some deficiencies were noted.

We encourage Forest Service planners to include a full development alternative in the array presented in the environmental statement. In this case Alternative D would appear to be the development alternative, but it is actually maintenance of the present condition. Perhaps it would have been better to include an alternative which was put together as were the other three but with fewer restrictions on timber harvest systems. In this manner the decision makers and the public would be accurately appraised of the actual cost of these constraints. ①

The 450,000 board foot per year drop in harvest levels from those under the current multiple use plan is probably as much a function of the Forest Service's nondeclining yield policy as it is land use constraints. We hope this is not the expected course as other unit plans are made. It would be interesting to see an alternative developed which allocates the timber resource on other than the nondeclining yield approach. ②

According to the environmental statement, 43% of the National Forest land is apparently under stocked. Much of that has mature to overmature timber on it which should be harvested before a proper restocking job can be done. A combination of the allowable cut effect and the nondeclining yield policy is preventing this needed treatment from taking place and is artifically holding down yields. ③

Since the new timber management plan soon will be released for the Eldorado National Forest, we will address those issues in more detail at that time.

We appreciate the opportunity to be a part of the land use planning process.

Sincerely,

Richard G. Reid

Richard G. Reid
Information Forester

RGR:dm

cc: Regional Forester
Council on Environmental Quality

Forest Service response to:
Western Timber Association

1. Alternative D is essentially the present management strategy; however, its implementation would not require maintenance of the "present condition" or status quo in terms of volume harvested over the past fifteen years. Programmed allowable harvest to 1985 would be limited, however, to the two sales indicated.

   In any case, Alternatives B, C and D represent the maximized "full development" strategy given those constraints imposed by the National Forest Management Act including a mandate to manage for long-term productivity of renewable resources while protecting the environment from significant damage. The anticipated short and long-term, internal and external costs resulting from operations not so constrained are the very reasons the restrictions were imposed.

2. The policy of nondeclining yield has been reaffirmed by passage of the National Forest Management Act of 1976. Any alternative inconsistent with this policy could not be considered legally feasible.

3. Restocking of these understocked lands would be given priority under timber sale programs.

4000 4th Avenue, North
Great Falls, Montana
59401

Joseph H. Harn
Forest Supervisor
Eldorado National Forest
100 Forni Road
Placerville, California
95667

August 4, 1976

Dear Mr. Harn;

Thank you for providing me with a copy of the draft environmental statement for the Volcanoville Planning Unit. It is my opinion that the ecologic cost of the proposed timber harvest is too great. I support alternative B with restrictions on timber harvest on slopes greater than 30% or soils possessing high or very high erosion or mass movement potentials. On such areas timber harvest should be permitted only where soil disturbing activities that accompany timber harvest can be eliminated or on an individual tree basis. No road construction should be allowed within these areas. The resultant program is somewhere between alternatives A & B.

I am particularly irked by the obcene degree of sedimentation being tolerated in the proposal. An increase of 11% or 12% (depending where you look in the statement) is wholly inconsistant with long term soil productivity goals. The 9% allowance for alternative B is scarcely better, but, I believe, the alternative sketched in above could reduce sedimentation excesses in half. Without an effective method of reducing proposed sedimentation, this plan is nothing more than exploitation, a tragic end to a renewable resource. I strongly urge the planning staff to reconsider their priorities. Long term productivity is far more important than maximized profits.

Sincerely,

Thomas E. Horobik

Thomas E. Horobik

Forest Service response to:
Mr. Thomas E. Horobik

1. We agree and believe that long-term productivity of renewable resources should be the most important consideration of forest management. The Renewable Resources Planning Act of 1974 and recently the National Forest Management Act of 1976 have provided new direction to the Forest Service. This legislation and resulting Forest Service policy speak to the concerns you express. Compliance with the spirit and letter of these laws will ensure the long-term productivity we both advocate.

It should be noted that sediment yield predictions are only estimates based upon an imperfect model with inputs which in some cases may be less then exact but are nevertheless the best estimate at the present time. As more data becomes available it will be possible to revise estimates and as monitoring programs are established, to verify predictions.

July 28, 1976

CERTIFIED NO. 623588
RETURN RECEIPT REQUESTED

Mr. Joseph H. Harn, Forest Supervisor
United States Department of Agriculture
Forest Service
Eldorado National Forest
100 Forni Road
Placerville, Calif. 95667

Dear Mr. Harn:

You and your staff are to be complimented for your efforts on the environmental statement for the Volcanoville Planning Unit. We were particularly pleased that the statement not only considered the natural environment, but also included the economical environment as well, an area too often overlooked.

We have been in and out of residence for the last seven years in the Volcanoville area and plan to be permanent residents in the future. Over this period of time we have had an opportunity to become acquainted with the area and the people.

Our personal interest is to maintain most of the environmental qualities that attracted us to the area and to develop or maintain the necessary economical factor to support the surrounding communities. For this reason we would support "Alternate Plan D" of the environmental Draft.

However, since we are also interested in mining, our concern is directed to that portion of "Management Direction":

> "Operation plans for mining activities will give special emphasis to maintenance of water quality and preventing soil erosion."
>
> "Normally, between October 15 and June 1, no soil disturbance activities will be undertaken."
>
> "On any soil disturbance project, all erosing control work will be up to date by October 15, and then kept current daily if work is to be continued."

Our objection, or questions, goes to the area of the broad statements contained within this section and the restrictive dates of operation from June 2 through October 14 of each year for the total area, without consideration as to slope of terrain, soil stability, soil porosity, etc. Further, no definition is given as to controlling agency or agencies relative to reports or type of daily reports of erosing controls, nor to the degree of erosion permissable, if any. (1)

Is only the surface erosion to be considered, or is subsurface erosion to be controlled and reported? If you or your staff could clarify this vague section it would remove any of our anxieties.

We also note that in each of the alternate plans your Department indicates a desire to exchange certain parcels of land.

Approximately three years ago we approached your real estate member, Melvin McLaury, about the possibility of doing just that. We had further conversation this year and he has indicated that the Department might consider exchanging three parcels of land; 40 acres in Section 9 (E½ of SW¼ of SE¼) - approximately twenty (20) acres; (S½ of SE¼ of SE¼) - approximately twenty (20) acres; 10 acres in Section 16 (SE¼ of NE¼ of NE¼) and Lot 5 of Section 15, 44.9 acres.

Again, we would appreciate your response to this question, so that we may proceed. (2)

We do apologize for our late response and hope this causes no difficulty in an already difficult task.

Sincerely yours,

Robert S. Perona

Mr. and Mrs. Robert S. Perona
1910 Espanola Drive
San Pablo, Calif. 94806

Forest Service response to:
Mr. and Mrs. Robert S. Perona

1. In regard to your statement "...the restrictive dates of operation from June 2 through October 14 of each year...", it should be noted that the dates of restrictive operation would be from October 14 through June 2 and do not include the dry summer period. As you mention physical and biological characteristics may vary from one location to another. Methods of operation will also vary. These factors should, therefore, be considered when formulating the operations plans for each activity.

   The standards applicable to all mining activities on government lands are contained in federal and state law. The Corps of Engineers, the State Water Quality Control Board, and State Fish and Game Department all have promulgated regulations concerning water quality. Monitoring and administrative action by the Forest Service will be directed toward ensuring compliance with these regulations and law.

2. We have addressed questions concerning exchange of your land under separate cover.

APPENDIX B

Initial Public Involvement

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Eldorado National Forest
100 Forni Road
Placerville, California 95667

8200
November 15, 1974

This letter and fact sheet is sent to inform you of current Land Use Study Plans for the Eldorado National Forest. As you may know, the U. S. Forest Service is embarking on a comprehensive Land Use Planning Program designed to intensify our multiple-use planning process. We are asking you to participate in the development of plans, starting with the Volcanoville Planning Unit.

The objective of the planning effort is to determine the optimum balance of land uses for this particular tract of land. The plan must reflect need, yet assure that use options for the future are not lost.

The enclosed fact sheet outlines the plan objectives and alternative plans for the Volcanoville Unit. Certain assumptions used as a basis for future planned activities are also listed. Because of the large amount of private land in the Volcanoville area, assumptions about private land uses were also made. It is important to understand that future planned activities on either National Forest land or private land have a direct bearing on the future of each.

The Volcanoville Unit Plan is being put together by the Eldorado National Forest Multidisciplinary Planning Team. The Team realizes that the alternatives listed here are not the only ones feasible for the planning unit and other alternatives will be considered. We welcome other suggestions and ideas.

To help obtain comments about the plan . . . we will be holding public meetings as follows:

Georgetown - Georgetown Divide
Elementary School
Library - 7:30 pm
December 10, 1974

6200 - 11b (4/74)

Placerville - Edwin Markham School
Auditorium - 7:30 pm
December 12, 1974

We hope that you will be able to attend one of the meetings: If this is not possible we would appreciate hearing from you, either in person or by mail. Arrangements can be made by contacting the Forest Supervisor at 916-622-5061, or the District Ranger at Georgetown, 916-333-4312. Mail replies to:

Forest Supervisor
Eldorado National Forest
100 Forni Road
Placerville, CA 95667

District Ranger
Georgetown Ranger District
Georgetown, CA 95634

Mail replies should be in our hands by January 15, 1975.

Sincerely,

JOSEPH H. HARN
Forest Supervisor

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Eldorado National Forest
100 Forni Road
Placerville, California 95667

8200

September 3, 1975

Mr. Ron Kallaus
Ponderosa High School
Shingle Springs, CA 95682

Dear Forest User:

The Eldorado National Forest has come to the point where the draft Environmental Statement for the Volcanoville Unit Plan is in the final stages of preparation. This draft statement will be distributed to all those individuals who signed the register at the public meetings and those from whom we received written comments. In addition, copies will be sent to all interested public agencies. Distribution of the draft environmental statement will provide the opportunity to review and comment on the proposed management for the Unit.

By this letter we are asking for your opinion as to the need for holding a future Volcanoville public meeting during the 60 day review period, after distribution of the draft environmental statement.

We would be pleased to receive your reply.

Sincerely,

JOSEPH A. [illegible]
Forest Supervisor

8200-11 (1/69)

STATE OF CALIFORNIA—THE RESOURCES AGENCY EDMUND G. BROWN JR., Gov.

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 2390
SACRAMENTO, CALIFORNIA 95811

(916) 445-8006

March 16, 1976

Mr. Samuel D. Hall
Assistant Forest Supervisor, Planning
U.S. Forest Service
Eldorado National Forest
100 Forni Road
Placerville, California 95667

Dear Mr. Hall:

I have received your letter of March 5, 1976 regarding the proposed Land Use Plan for the Volcanoville Planning Unit, located northeast of Georgetown, in the Eldorado National Forest, El Dorado County.

No California State Historical Landmarks, State Points of Historical Interest, or sites on the National Register of Historic Places are currently located within the project area. However, this does not preclude the possibility of significant cultural resources existing in the planning unit. The communities of Georgetown and Foresthill are California State Historical Landmarks located immediately outside the boundaries of the study area.

El Dorado County Archeological Site Nos. 66, 113, 114, and 115 are located within the boundaries of the planning unit. As additional archeological values may exist in the study area, an archeological survey must be initiated. Identified sites must also be assessed for significance and possible inclusion in the National Register of Historic Places.

In accordance with the Advisory Council Procedures, the U.S. Forest Service must comply with Executive Order 11593 for assessing all properties possessing historical, architectural, archeological or cultural values located within the area of the undertaking's potential environmental impact. Consultation with the State Historic Preservation Officer is requested. For additional information regarding the identification and preservation of cultural resources, you should consult with Mr. Donald Miller, Regional Archeologist, U.S. Forest Service.

Please do not hesitate to contact this office should you require further assistance regarding this matter.

Sincerely,

William E Padgett for

Dr. Knox Mellon
Historic Preservation Coordinator

A-5a/8

cc: Mr. Donald Miller, Regional Archeologist

STATE OF CALIFORNIA—RESOURCES AGENCY

Edmund G. Brown Jr.
Governor

DEPARTMENT OF FISH AND GAME
Region 2
1001 Jedsmith Drive
Sacramento, California 95819
(916) 445-0370

July 22, 1975

Mr. Joseph Harn
Forest Supervisor
Eldorado National Forest
100 Forni Road
Placerville, California 95667

Dear Joe:

Personnel of this office of the Department of Fish and Game have reviewed the preliminary Alternative Plans for the Volcanoville Planning Unit. The information contained in the announcement folder appears too general to enable recommendations in favor of any of the suggested plans. With the exception of Plan A, the U.S. Forest Service analysis of the Alternative Plans seems to assume high or higher deer benefits for increased levels of wood fibre production. We would not necessarily make the same assumption. The level of benefits to deer would, of course, depend upon the methods of harvest and subsequent management.

The wildlife benefits for any of the alternatives depend on the development of other plans including those for timber management, recreation, ORV, and compartments. Unless this Unit Plan includes enough specific recommendations for the action plans, there could be little assurance of benefits for complex forestwide wildlife resources.

As the alternative plans become more specific, we would appreciate your consideration of various interests of this Department. Our specific comments and recommendations for fish and wildlife habitat protection are as follows:

1. The Volcanoville Unit fronts on a short portion of the Rubicon River. Although we realize that the Hellhole-Foresthill Unit Plan will include means to protect the river, the protection afforded by the Volcanoville Unit Plan could determine the direction for USFS management of the entire watershed.

   The Rubicon River is one of 15 California streams classified by the Department of Fish and Game as "blue ribbon trout streams." It has been designated by the California Fish and Game Commission as a "Wild Trout Stream" and is managed for its value for wild trout production and associated esthetic enjoyment.

Under the wild trout program, management of wild trout stock and natural reproduction is given emphasis in contrast to the practice of planting other streams with domestic strains of hatchery trout. The maintenance of trout habitat and the scenic beauty of streams in the wild trout program are very important elements in the overall management plan.

Special angling regulations would be considered if wild stocks were threatened by an overharvest. The Rubicon River is still a comparatively undisturbed stream where the fishing experience for pan-sized trout is the prime attraction: Some trophy-sized trout are occasionally caught in the more remote areas.

To perpetuate the Rubicon River as a prime wild trout fishing stream, we recommend that the Rubicon River Canyon be maintained in a roadless condition. We concur with the watershed protection designation suggested in your alternative land use plans, and we recommend inclusion of mainstream canyon slopes of over 35 percent within this designation.

To further discourage incompatible development in the Rubicon River Canyon, we favor National Forest acquisition of private inholdings (particularly Yuba River Lumber Company parcels).

2. The slopes of the Middle Fork American River Canyon should be protected against mechanical disturbance. Road access in the canyon should be held to an absolute minimum to reduce the possibilities of erosion and accidental fire. The water quality and shoreline condition of the proposed Auburn Reservoir and values for wildlife could be adversely affected by incompatible development activities in the canyon.

3. We believe that Otter Creek also deserves special protection. Otter Creek contains a good population of rainbow and brown trout and is considered one of the best trout fishing streams in El Dorado County. We favor inclusion of the steeper portions of the drainage (slopes over 35 percent) within the watershed protection component (as suggested in Alternative Plans A and B) and exclusion of ORVs from Otter Creek.

   The Missouri Creek drainage (tributary to Otter Creek) should be similarly protected in the reach from Kentucky Flat to Otter Creek.

4. Section 23 (R13N, T10E) should be acquired to protect Otter Creek and the other fish and wildlife values in that area from incompatible private development. We believe that any timber harvesting in the watershed protection areas for the Rubicon River, Middle Fork American River, Otter Creek, and Missouri Creek should be confined to selective

GDPUD

GEORGETOWN DIVIDE
Public Utility District
P. O. BOX 338 PHONE 333-4356
GEORGETOWN, CALIFORNIA 95634

January 8, 1975

U. S. Department of Agriculture
Eldorado National Forest
100 Forni Road
Placerville, CA 95667

Gentlemen:

The following information is submitted for your use in your current planning of the Volcanoville unit, Eldorado National Forest.

The Georgetown Divide Public Utility District is investigating, currently, the feasibility of constructing a dam on either North Otter Creek or South Otter Creek as a secondary storage for the Public Utility District's water transmission system.

The North Otter Creek reservoir would have a planned height of 100 to 125 ft. with an approximate embankment volume of 609,000 to 650,000 cu. yds. with a usable storage of approximately 1,700 to 1,750 acre ft. The construction would involve the rehabilitation of approximately 5,000 ft. of the Otter Creek Ditch to carry water from our main existing ditch to the reservoir, and the construction of approximately 11,200 ft. of either pipeline or open canal to convey the water back to our main canal for use downstream.

The South Otter Creek dam would have a height of approximately 110 ft. with an embankment of approximately 626,000 cu. yds. and a usable storage of 1,120 acre ft. This would require approximately 1,000 ft. of rehabilitation of the Otter Creek Ditch and 13,200 ft. of new ditch or pipeline to connect back to the existing ditch.

The enclosed overlay of the 7.5 minute series, Tunnel Hill quadrangle map shows the North Otter Creek site to be located in the south half of Section 23, T 13 N, R 11 E.

The South Otter Creek site lies in the northwest one-quarter of Section 26, T 13 N, R 11 E.

The District currently is working with the Bureau of Reclamation for funds on this project and it is estimated that construction date would be, at the earliest, 1977.

If the reservoir is constructed, it would haye limited recreational use as it would be considered a terminal reservoir for domestic and irrigation use, subject to State Department of Public Health. It would be proposed that fishing would be allowed.

We will keep your planning department advised as to progress on this development.

If we can be of any further assistance, please let us know.

Very truly yours,

GEORGETOWN DIVIDE
PUBLIC UTILITY DISTRICT

Charles F. Gierau
General Manager

CFG/mc
Enclosure

aerial yarding or other special methods. We recommend USFS management of these streams and their immediate watersheds for low density undeveloped recreation. The recreational importance of the natural esthetic qualities of the areas should be stressed in the development of management directions.

5. ORV Planning

   Winter use of ORVs in identified deer winter range should be minimized by closures and special use restrictions. The ORV management direction should allow for expeditious closure or special restrictions on any roads where significant conflicts between ORVs and wildlife are identified.

6. Timber harvesting, road location and design, and recreation development plans should be coordinated with the Department of Fish and Game to insure that conflicts with fish and wildlife are minimized. Wood fibre harvesting plans and techniques should be sufficiently constrained so as to obtain optimum benefits for fish, wildlife, and associated recreation while realizing reasonable economic values. A timber harvest plan should incorporate consideration of the preservation of existing prime habitat and creation of new habitat for nongame and small game animals as well as big game and rare or endangered species. Particular attention should be directed to maintenance of mixed stands and growths of deciduous oaks.

7. The public lands in the Volcanoville Unit are critically important for wintering deer. The need for productive winter deer habitat in the Volcanoville area will increase significantly after Auburn Reservoir is completed, because the reservoir is expected to isolate or cover extensive areas of winter range. The Department of Fish and Game would like to explore the possibility of accomplishing habitat improvement work within the Eldorado National Forest boundary for Auburn Project mitigation purposes.

We have been pleased with the cooperation extended by your planning staff, and we will continue coordination with that team through completion of the plan. Thank you for the opportunity to comment on this unit.

Sincerely,

Robert W. Lassen
Regional Manager
Region 2

STATE OF CALIFORNIA—RESOURCES AGENCY

Edmund G. Brown Jr. Governor

DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 2390
SACRAMENTO 95811

January 28, 1975

Mr. Joseph H. Harn, Forest Supervisor
Eldorado National Forest
100 Forni Road
Placerville, California 95667

Dear Mr. Harn:

I am writing in connection with your proposals for the management of the Volcanoville Planning Unit within Eldorado National Forest; this Department has a direct interest in the management of these lands because of its involvement in the development, management and operation of the Auburn Reservoir recreational facilities. It is my understanding that the Volcanoville Planning Unit has a common boundary with the lands of Auburn Reservoir for approximately 10 miles of the Southside-Middle Fork area of the Volcanoville Planning Unit.

We urge that all lands within the Volcanoville unit which lie in the watershed of the Middle Fork American River be managed for maximum watershed protection. We are concerned that waters flowing from these lands into the reservoir be of highest quality, and that erosion on these lands be held to a minimum. We are also concerned that the scenic quality of the lands facing the reservoir be maintained at the highest possible level.

Of the four alternatives presented in your public releases regarding the Volcanoville Planning Unit, we have found alternative A to be the most desirable from our standpoint.

Sincerely,

William Penn Mott, Jr.
Director

F-1/2

SUPERVISOR
SECRETARY
AIS PROGRAMS
CO
BOF
Res
Eng

2/3/75

ARC

AMERICAN RIVER COLLEGE
4700 COLLEGE OAK DR., SACRAMENTO, CALIF. 95841

KENNETH D. BOETTCHER, *President*
ROBERT E. ALLERTON, *Dean of Student Personnel*
C. MAX McDONALD, *Dean of Administration*
OWEN S. STEWART, *Acting Dean of Instruction*

June 29, 1974

Mr. Gerald L. Anderson
Soil Scientist
ElDorado National Forest
100 Forni Road
Placerville, California 95667

Ref: Volcanoville Study Area
Botanical Reconnaissance, June 24, 1974

Dear Jerry:

Thank you for the opportunity to participate in the botanical survey of the Volcanoville Study Area. I feel the major portion of the area has vegetation very typical of the transition life zone of the central Sierra. However, there are some unique areas that should be considered.

1. The serpentine area traversing through the national forest lands does not have vegetation typical of the transition life zone. The digger pine (Pinus sabiniana), leather oak (Quercus durata), redberry (Rhamnus crocea) and other species are typical plants of the upper Sonoran life zone (foothill plant belt). Finding these plants within the transition life zone makes this area unique. Although there is a large amount of upper Sonoran vegetation in the foothills and the vegetation itself is not rare, the location within the pineforest makes it a unique ecological island worthy of preserving.

Also, I feel that further study of the serpentine area may reveal some unique plants because throughout California where there is serpentine, unusual flora is frequently noted. Often the vegetation in private holdings is destroyed because most people do not realize the botanical significance of such soil types and normally put very low value on the scruby type of vegetation found on serpentine.

2. The site along Otter Creek where the twin flower (Linnaea borealis) is located should be incorporated within an area that is not disturbed because this site represents a range extension. According to Munz, p. 1048, L. borealis is not recorded in Eldorado County. It would be a shame to destroy the southern most site for this plant.

3. The area on the north facing slope leading to the Rubicon River which is outside of the national forest should be considered being incorporated into the study area. The uniqueness of the two species nutmeg (Torreya californica) and madrone (Arbutus menziesii) justify this addition. Personally, I have never seen a site that has such large mature madrones forming the main canopy of the forest. These trees appear to be very old and in fine health and should be protected from the woodsman's ax or logging disturbance. The site also has a very high density of the nutmegs, displaying old mature trees and many young saplings. Normally, in the Sierra an occasional tree is found, but seldom, if ever, is such a large population noted in one area.

4. The ridge top that has a large population of knobcone pines (Pinus attenuata) should be set aside as undisturbed sites because this species is not very abundant in California. Small groves are found scattered throughout the state.

5. The south facing slope with the dense stand of Eldorado manzanita (Arctostaphylos nissenana) should be preserved because this species is endemic to Eldorado County and is known to be found in only about five sites within the county. I have visited two of the other sites of Arctostaphylos nissenana at Garden Valley and Diamond Springs. Neither site is as large or contains as large of a population as the site in the Volcanoville area.

I hope these comments are of value to you. Please let me know if I can be of further help to you.

Sincerely,

Joseph Aparicio

cc: Don Smith

United States Department of the Interior

BUREAU OF RECLAMATION

MID-PACIFIC REGIONAL OFFICE
2800 COTTAGE WAY
SACRAMENTO, CALIFORNIA 95825

IN REPLY REFER TO: MP-450
715.

JAN 15 1975

Mr. Joseph H. Horn
Forest Supervisor
Eldorado National Forest
100 Forni Road
Placerville, CA 95667

Dear Mr. Horn:

Thank you for the opportunity to participate in the development of your comprehensive Land Use Planning Program by reviewing and commenting on the Volcanoville Planning Unit. We have reviewed the plan and offer the following comments:

The Volcanoville Planning Unit is located adjacent to the upper 10 miles of the Auburn Reservoir Area, on the southside of the Middle Fork American River. The Middle Fork Canyon in this area is about 2,000 feet deep and includes some of the steepest terrain to be found in our Auburn Reservoir project area.

Since we are concerned with the activities on the slopes above the reservoir and throughout the reservoir area, an environmental-management takeline has been established to provide some of the needed control. However, within the boundaries of the National Forest, only a minimum takeline was established on the premise that the Forest Service would provide necessary controls on the upper canyon slopes adjacent to the reservoir. We therefore, strongly recommend that your Service adopt a watershed protection plan for the steep slopes above the reservoir similar to that proposed under Alternative Plan A. In addition to providing maximum watershed protection, the adoption of this plan should also assure aesthetic quality, prevent erosion, maintain water quality, and minimize the danger of triggering landslides.

We would object to mining, drilling for oil or gas, construction of new roads, leasing cabin sites, or similar development on the steep slopes. We believe that timber harvest should be permitted only for salvage purposes and by specialized removable methods to minimize soil disturbance.

1/16/75

We have no objections to dispersed recreation activities, nor would we object to the continued use of the jeep road below Volcanoville, provided such use is controlled. Elsewhere, above our reservoir, we would encourage off-road vehicle use restrictions to coincide with the Bureau's regulations, which states that all Reclamation lands are closed to ORV use.

In our discussion of the proposed plan with Mr. Sam Hall of your staff on December 12, 1974, we stated our desire to work closely with your planning team in development of this plan. As we progress on the Auburn Reservoir General Recreation Development and Management Plans with the California Parks and Recreation Department, there will be a need for close coordination between our agencies.

In the meantime, if we can be of further assistance, please feel free to contact Mr. John H. Turner at 484-4330.

Sincerely yours,

H. E. Horton

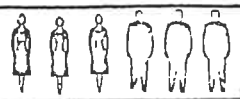
H. E. Horton
Acting Regional Director

Copy to: Mr. William Penn Mott, Jr.
Director
Department of Parks & Recreation
P. O. Box 2390
Sacramento, CA 95814

APPENDIX C

Recreation Experience Levels

RECREATION EXPERIENCE LEVELS

LEVEL	DESCRIPTION 
PRIMITIVE	Recreation opportunities to satisfy basic-needs to the maximum degree. A maximum degree of outdoor skills required. Unmodified natural environment and an absence of man-made developments and comfort or convenience facilities dominates. Feelings of adventure, challenge, and physical achievement, in the absence of obvious controls, important to the user.
1	Recreation opportunities to satisfy basic-needs to a near maximum degree. High degree of outdoor skills involved. Little modified natural environment is dominant consideration. Modifications for comfort and convenience are minimal. Feeling of physical achievement at reaching opportunities without mechanized access is important to the user. Adventure and challenge afforded through minimum controls.
2	Recreation opportunities to satisfy basic-needs to near maximum degree except as tempered by motorized access. Little modified natural environment is dominate consideration. Modifications for comfort and convenience are few. Some feeling of achievement for reaching the opportunity through challenging motorized access is important. Minimum controls evident to the user.
3	Recreation opportunities to satisfy basic-needs to an intermediate degree. Moderate degrees of outdoor skills are involved. Natural environment dominates but some modifications for comfort and convenience are also important to the user. Controls and regimentation afford sense of security although some taste of adventure is still important to the user.
4	Recreation opportunities to satisfy basic-needs to only a moderate degree. Moderate degree of activity skills suffice. Natural environment important but modifications for comfort and convenience are more important. Sense of security afforded the user. Regimentation and fairly obvious controls important to the user.
5	Recreation opportunities to satisfy basic-needs to a modest degree. Skills required for outdoor activities are minimal. Natural environment is important but dominated by man-made modifications. Feeling of security is very important to the user. Learning or beginning skills suffice when supplemented by administrative controls.

1/ Degrees of outdoor recreation activities satisfying basic-needs of people including needs: to find isolation; to socialize; to achieve self-fulfillment; for identity; for compensating experiences; for agression outlets and others.

APPENDIX D

Visual Quality Objectives

VISUAL QUALITY OBJECTIVES

PRESERVATION

This visual quality objective allows ecological changes only. Management activities, except for very low visual-impact recreation facilities, are prohibited.

This objective applies to Wilderness areas, primitive areas, other special classified areas, areas awaiting classification and some unique management units which do not justify special classification.

RETENTION

This visual quality objective provides for management activities which are not visually evident.

Under Retention activities may only repeat form, line, color and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc., should not be evident.

Retention should be accomplished either during or immediately after any operations.

PARTIAL RETENTION

Management activities remain visually subordinate to the characteristic landscape when managed according to the partial retention visual quality objective.

Activities may repeat form, line, color, or texture common to the characteristic landscape but changes in their qualities of size, amount, intensity, direction, pattern, etc., remain visually subordinate to the characteristic landscape.

Activities may also introduce form, line, color, or texture which are found infrequently or not at all in the characteristic landscape, but they should remain subordinate to the visual strength of the characteristic landscape.

Visual impact must be reduced as soon as possible after project completion or at a minimum within the first year.

MODIFICATION

Under the modification visual quality objective management activities may visually dominate the original characteristic landscape. However, activities of vegetative and land form alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type. Additional parts of these activities such as structures, roads, slash, root wads, etc., must remain visually subordinate to the proposed composition.

Activities which are predominately introduction of facilities such as buildings, signs, roads, etc., should borrow naturally established form, line, color and texture so completely and at such scale that its visual characteristics are compatible with the natural surroundings.

Reduction of visual impact should be accomplished in the first year or at a minimum within five years.

MODIFICATION MAXIMUM

Management activities of vegetative and landform alterations may dominate the characteristic landscape. However, when viewed as background, the visual characteristics must be those of natural occurrences within the surrounding area or character type. When viewed a foreground or middle ground, they may not appear to completely borrow from naturally established form, line, color, or texture. Alterations may also be out of scale or contain detail which is incongruent with natural occurrences as seen in foreground or middle ground.

Introduction of additional parts of these activities such as structures, roads, slash, and root wads must remain visually subordinate to the proposed composition as viewed in background.

Reduction of contrast should be accomplished within five years.

UNACCEPTABLE MODIFICATION

This section sets examples of excessive modification or what not to do to any landscape regardless of the distance from which the management activity may be observed.

One or more of these characteristics are indicative of unacceptable modification:

- Size of activities is excessive or poorly related to scale of landform and vegetative patterns in characteristic landscape.
- Overall extent of management activities is excessive.
- Activities or facilities that contrast in form, line, color, or texture are excessive. All dominance elements in the management activity are visually unrelated to those in the characteristic landscape.

Source: "National Forest Landscape Management Volume 2, USDA, Forest Service Agriculture Handbook 462, April 1974

APPENDIX E

Socio-Economic Data

Source: Special 1975
El Dorado County Census

TABLE 1-E

1975 SPECIAL CENSUS SUMMARY
GEORGETOWN AREA

DWELLING TYPE	UNIT TOTAL	# VACANT	# PERSONS
Single	313/88%	92/29%	575
Duplex	2	0	6
Triplex	0	0	0
Fourplex	0	0	0
Five or more	5	0	5
Mobilehome	29/12%	0	62
Miscellaneous	5	0	5
Total	354	92	653

TOTAL POPULATION		653
In Households	653	
In group quarters	0	
Total Households		262
Median Household Income		$8,679

TABLE 2-E

GEORGETOWN PLANNING AREA
SUMMARY OF CENSUS QUESTIONS
July, 1975

1. What is the occupation of the principal wage earner?

107	16.4	A.	No response
55	8.4	B.	Professional, technical, and kindred workers
104	15.9	C.	Managers, Officials, proprietors, including farmers (owner and tenants) and farm managers
19	2.9	D.	Clerical and kindred workers
18	2.8	E.	Sales workers
74	11.3	F.	Craftsman, foreman, and kindred workers
43	6.6	G.	Operatives and kindred workers
56	8.6	H.	Service workers, including private households
10	1.5	I.	Laborers, including farm laborers
167	25.6	J.	Retired
		K.	Student or other non-worker
653			

2. In what industry is the principal wage earner employed?

273	41.8	A.	No response
13	2.0	B.	Agriculture, gaming, mining
7	1.1	C.	Manufacturing
55	8.4	D.	Timber industry and forestry
89	13.6	E.	Construction
31	4.8	F.	Transportation, communication, and utilities
44	6.7	G.	Wholesale and retail trade
14	2.1	H.	Finance, insurance and real estate
77	11.8	I.	Government
50	7.7	J.	Professional services (medical, personal, etc.)
		K.	Retired, student or other non-worker
653			

3. In what geographical area does the principal wage earner work?

260	39.8	A.	No response
269	41.2	B.	El Dorado County outside of basin
46	7.0	C.	El Dorado County inside of basin
7	1.1	D.	South Lake Tahoe City
0	0	E.	Douglas County, Nevada
0	0	F.	Out of State, other than Douglas County, Nevada
8	1.2	G.	Placerville City
15	2.3	H.	Sacramento County
9	1.4	I.	Placer County
39	6.0	J.	Other
		K.	Retired, student or other non-worker
653			

4. How many pieces of motorized equipment are owned by the household? (not landowners,etc

#	%		
124	19.0	A.	No response
137	21.0	B.	One vehicle
220	33.7	C.	Two vehicles
91	13.9	D.	Three vehicles
67	10.2	E.	Four vehicles
7	1.1	F.	Five vehicles
0	0	G.	Six vehicles
0	0	H.	Seven vehicles
0	0	I.	Eight vehicles
7	1.1	J.	Nine or more vehicles
		K.	No vehicle
653			

5. What was the highest level of education completed by the heae of household?

117	17.9	A.	No response
21	3.2	B.	Less than 8th grade
109	16.7	C.	8th grade or more
163	25.0	D.	High School Diploma
25	3.8	E.	High School and Vocational training
104	15.9	F.	Some college, no degree
14	2.2	G.	Junior College Degree (A.A.)
7	1.1	H.	Three years college, no degree
68	10.4	I.	College or University Degree (B.A.)
25	3.8	J.	Graduate work, masters degree or more (M.A., PH.D)
653			

6. Length of residence in this area of County?

97	14.8	A.	No response
56	8.6	B.	Less than on (1) year
49	7.5	C.	One year- Two years
99	15.2	D.	Two-Four years
125	19.1	E.	Four-Ten years
227	34.8	F.	More than ten years
653			

7. Utilities available?

96	14.7	A.	No response
10	1.5	B.	Public water and sewer
383	58.7	C.	Public water and private septic
154	23.6	D.	Private water and private septic
1	.2	E.	Private water and public sewer
0	0	F.	Private water and no sewer system
644	98.7		

8. Primary sources of energy for household use?

#	%		
95	14.6	A.	No response
0	0	B.	Natural gas
0	0	C.	Natural gas and electricity
211	32.3	D.	Propane and electricity
0	0	E.	Wood, natural gas and electricity
89	13.6	F.	Wood and electricity
10	1.5	G.	Oil and electricity
82	12.6	H.	Electricity
166	25.4	I.	Wood, propane and electricity
0	0	J.	Oil, wood and electricity
653			

9. What is the total monthly mortgage payment (including property taxes and insurance), or monthly rental payment for this housing unit?

187	28.7	A.	No response
93	14.2	B.	Own less than $150
80	12.3	C.	Own $151 - $250
17	2.6	D.	Own $251 - $350
0	0	E.	Own $351 - or more
74	11.3	F.	Rent less than $150
15	2.3	G.	Rent $151 - $250
2	.3	H.	Rent $251 - $350
0	0	I.	Rent $351 - or more
185	28.3	J.	Unit is paid for
653			

10. The total gross annual income for the household would be in what category?

267	40.9	A.	No response
29	4.4	B.	Less than $2,000 ($ 0 - $166/month)
48	7.3	C.	$2,000 - $3,999 ($167 - $333/month)
16	2.5	D.	$4,000 - $5,999 ($335 - $499/month)
36	5.5	E.	$6,000 - $7,999 ($500 - $666/month)
69	10.6	F.	$8,000 - $9,999 ($667 - $833/month)
70	10.7	G.	$10,000 - $14,999 ($834 - $1,249/month)
73	11.2	H.	$15,000 - $19,999 ($1,250 - $1,666/month)
37	5.7	I.	$20,000 - $24,999 ($1,667 - $2,083/month)
8	1.2	J.	$25,000 - or more (2,084 or more/month)
653			

VOLCANOVILLE PLANNING AREA
SPECIAL CENSUS DATA SUMMARY
July 1975

TABLE 3-E

CENSUS BLOCK #	HOUSING UNITS	VACANT UNITS	PERCENT	HOUSEHOLDS	HOUSEHOLD POPULATION	POPULATION/ HOUSEHOLD	GROUP QUARTERS	TOTAL POPULATION
210	6.0	1.0	16.67	5.0	13.0	2.6	0	13.0
211	6.0	4.0	66.67	2.0	4.0	2.0	0	4.0
215	25.0	21.0	84.0	4.0	6.0	1.5	0	6.0
217	2.0	2.0	100.0	0	0	0	0	0
218	1.0	1.0	100.0	0	0	0	0	0
219	0	0	0	0	0	0	0	0
212	17.0	5.0	29.41	12.0	36.0	3.0	0	36.0
TOTALS	57.0	34.0	216.75	23.0	59.0	9.1	0	59.0

TABLE 4-E

HOUSING TYPE	HOUSING UNITS	VACANT UNITS	PERCENT	HOUSEHOLDS	HOUSEHOLD POPULATION	POPULATION/ HOUSEHOLD	GROUP QUARTERS	TOTAL POPULATION
1	57.0	34.0	59.65	23.0	59.0	2.57	-	-
2 - 4	0	0	0	0	0	0	-	-
5 +	0	0	0	0	0	0	-	-
TOTALS	57.0	34.0	59.65	23.0	59.0	2.57	-	59.0

TRAILERS AND MISC. 0 ALL COLUMNS

TABLE 5-E

AGE	MALE	FEMALE	SEX UNKNOWN	TOTAL
0-4	2	0	0	2
5-9	2	5	0	7
10-14	4	3	0	7
15-19	2	0	0	2
20-24	0	2	0	2
25-29	2	1	0	3
30-34	0	1	0	1
35-39	2	1	0	3
40-44	1	4	0	5
45-49	4	1	0	5
50-54	4	2	0	6
55-59	1	3	0	4
60-64	4	1	0	5
65-69	1	1	0	2
70-74	0	2	0	2
75-79	2	1	0	3
80-84	0	0	0	0
80 +	0	0	0	0
TOTALS	31	28	0	59

VOLCANOVILLE PLANNING AREA

July, 1975

SUMMARY OF CENSUS QUESTIONS
(TOTAL NUMBER OF HOUSEHOLDS = 23)

TABLE 6-E

#	%	
		1. What is the occupation of the principal wage earner?
0	0	1. No response
2	8.7	2. Professional, technical, and kindred workers
0	0	3. Managers; Officials, proprietors, including farmers (owners and tenants) and farm managers
0	0	4. Clerical and kindred workers
0	0	5. Sales workers
7	30.43	6. Craftsman, foreman, and kindred workers
0	0	7. Operatives and kindred workers
0	0	8. Service workers, including private households
3	13.04	9. Laborers, including farm laborers
8	34.78	10. Retired
3	13.04	11. Student or other non-worker
		2. In what industry is the principal wage earner employed?
0	0	1. No response
0	0	2. Agriculture, gaming, mining
0	0	3. Manufacturing
5	21.74	4. Timber industry and forestry
2	8.70	5. Construction
2	8.70	6. Transportation, communication, and utilities
0	0	7. Wholesale and retail trade
1	4.35	8. Finance, insurance and real estate
0	0	9. Government
2	8.70	10. Professional services (medical, personal, etc.)
11	47.83	11. Retired, student or other non-worker
		3. In what geographical area does the principal wage earner work?
0	0	1. No response
12	52.17	2. El Dorado County outside of basin
2	8.70	3. El Dorado County inside of basin
0	0	4. South Lake Tahoe City
0	0	5. Douglas County, Nevada
0	0	6. Out of State, other than Douglas County, Nevada
0	0	7. Placerville City
1	4.35	8. Sacramento County
0	0	9. Placer County
0	0	10. Other
8	34.78	11. Retired, student, or other non-worker
		4. How many pieces of motorized equipment are owned by the household? Do not include lawnmowers, etc.
3	13.04	1. No response
3	13.04	2. One vehicle
5	21.74	3. Two vehicles
6	26.09	4. Three vehicles
3	13.04	5. Four vehicles
2	8.70	6. Five vehicles
0	0	7. Six vehicles
0	0	8. Seven vehicles
0	0	9. Eight vehicles
0	0	10. Nine or more vehicles
1	4.35	11. No vehicle

#	%	
		5. What was the highest level of education completed by the head of household?
2	8.70	1. No response
0	0	2. Less than 8th grade
1	4.35	3. 8th grade or more
10	43.48	4. High school diploma
1	4.35	5. High school & vocational training
4	17.39	6. Some college, no degree
0	0	7. Junior college degree (A. A.)
3	13.04	8. 3 years college, no degree
2	8.70	9. College or university degree (B.A.)
0	0	10. Graduate work, masters degree or more (M.A., Ph.D.)
		6. Length of residence in this area of County?
2	8.70	1. No response
0	0	2. Less than one (1) year
6	26.09	3. 1 year - 2 years
2	8.70	4. 2 - 4 years
3	13.04	5. 4 - 10 years
10	43.48	6. More than 10 years
		7. Utilities available?
2	8.70	1. No response
0	0	2. Public water and sewer
7	30.43	3. Public water and private septic
14	60.87	4. Private water and private septic
0	0	5. Private water and public sewer
0	0	6. Private water and no sewer system
		8. Primary sources of energy for household use?
2	8.70	1. No response
0	0	2. Natural gas
0	0	3. Natural gas and electricity
3	13.04	4. Propane and electricity
0	0	5. Wood, natural gas and electricity
5	21.74	6. Wood and electricity
0	0	7. Oil and electricity
6	26.09	8. Electricity
6	26.09	9. Wood, propane and electricity
0	0	10. Oil, wood, and electricity
		9. What is the total monthly mortgage payment (including property taxes & insurance) or monthly rental payment for this unit?
3	13.04	1. No response
1	4.35	2. Own less than $150
2	8.70	3. Own $151 - $250
1	4.35	4. Own $251 - $350
0	0	5. Own $351 or more
4	17.39	6. Rent less than $150
0	0	7. Rent $151 - $250
0	0	8. Rent $251 - $350
0	0	9. Rent $351 or more
12	52.17	10. Unit is paid for
		10. The total gross annual income for the household would be in what category?
6	26.09	1. No response
1	4.35	2. Less than $2,000 ($0 - $166 mo.)
4	17.39	3. $2,001 - $3,999 ($167 - $333/mo.)
0	0	4. $4,000 - $5,999 ($334 - $499/mo.)
0	0	5. $6,000 - $7,999 ($500 - $666/mo.)
2	8.70	6. $8,000 - $9,999 ($667 - $833/mo.)
4	17.39	7. $10,000 - $14,999 ($834 - $1,249/mo.)
3	13.04	8. $15,000 - $19,999 ($1,250 - $1,666/mo.)
2	8.70	9. $20,000 - $24,999 ($1,667 - $2,083/mo.)
1	4.35	10. $25,000 - or more ($2,084 or more/mo.)

APPENDIX F

Watershed Protection Measures and Soil Erosion Hazard Rating System

2521 - WATERSHED PROTECTION

Stream Protection Measures. The objectives of stream protection are to insure favorable conditions of water flows and to protect the natural environment commonly associated with streamcourses. Land management activities can influence water quality and impact the in-stream and downstream beneficial uses of water. Therefore, all land management activities in Region 5 which involve streams will employ protection measures sufficient to meet stream management objectives.

Classification of streams (R-5 Supplement to FSM 2536.1) provides the land manager with a means of recognizing the relative values of streams, and is prerequisite to prescribing stream protection measures. Stream protection measures must be commensurate with the values attached to the water and the associated stream environment. Stream values and stream protection measures will be described in project plans, environmental analyses reports and environmental statements. Where applicable, such protective measures or standards will be required in special use permits, timber sale, and other contracts. The need for stream protection will be recognized in land use planning, with the stream classification system used and applied during unit and project planning.

The use of buffer strips is recognized as providing effective protection to streams and streamside areas during land management activities. Therefore, buffer strips of width sufficient to provide such protection will be used in Region 5 during all land management activities which involve streams. Resource management practices will be permitted but modified within the buffer strips so as to safeguard the stream and its natural environment from adverse impacts resulting from such activities.

1. Buffer Strip Design. Buffer strips will be carefully designed to provide the level of protection needed to meet management objectives. Class I and Class II streams will generally receive a higher level of protection than Class III or Class IV streams. However, when the latter empty directly into Class I and II streams, and there is danger of the associated land management activity adversely impacting the receiving streams, the higher level of protection will be extended to the Class III and Class IV streams.

The magnitude of the impact from the proposed activity shall be carefully considered. Buffer strips may then be established on both sides of the stream channel as needed to protect the stream environment.

Channel stability and side slope stability for each stream within project areas should be considered. Definitive criteria must be used when determining buffer strip widths, as channel stability by itself is not always an indicator of resistance to disturbance. A channel may appear stable only because it has not been recently subjected to forces capable of disturbance.

Stable channels are characterized by few seasonal changes in the stream profile or cross-sectional area and show little or no evidence of channel movement or active erosion by scouring or down-cutting. Stable channels are composed of cohesive, durable, or resistant materials. Solid rock, stone, or boulder-lined streambeds and banks are examples of stable channels. Deposition, if present, is usually limited to a high proportion of coarse materials.

Unstable channels are characterized by many seasonal changes in profile or cross-sectional area and show evidence of channel movement, or active erosion by scouring or down-cutting. They are composed of friable loose, or easily detachable, unconsolidated materials. The streambed is usually in a state of flux during periods of high streamflow. Deposition of fine materials in and near the streamcourse is common.

Stable side slopes are often characterized by the following conditions: low to moderate side slopes (usually less than 30%); extensive vegetative cover; erect trees, not leaning or displaying pistol-butts; no evidence of landslide topography such as hummocks, swales, depressions, scars, transverse ridges, surface cracks, and fresh scars; good internal soil and rock drainage; not undercut by the streamcourse.

Unstable side slopes may be characterized by any of the following conditions: moderately steep to steep side slopes (usually greater than 30%); erosion hazard rating of 8-12; active and inactive landslides (surficial or deep seated); slopes at or greater than the natural angle of repose (70-75%); poorly consolidated or loose material such as soil, colluvium, talus, decomposed granite, or deeply weathered rock; rock structural features such as bedding planes, foliation planes, faults, joints, and fractures that dip at an angle which adversely affects the side slope; slopes underlain by inherently weak materials such as plastic clays, clay shales, graphite schists, and altered serpentine; slopes with an unstable landscape condition described as P, S, Z, or U in the supplemental rating for unstable areas used in the Erosion Hazard Rating System.

2. General Management Guidelines

a. Riparian habitat is one of the most productive areas for flora and fauna diversity in the forest environment. In order to retain the riparian habitat, minimum disturbance from management activities is essential.

b. Direct solar radiation is the prime cause of elevated stream temperature; therefore, water-surface shade canopy shall be maintained on streams where the maintenance of proper water temperatures is essential for the perpetuation of fish and aquatic habitat. Shade canopy can be maintained by retaining those trees or shrubs that will directly contribute shade to the water surface. Within timber sale areas, if hardwoods are not present in sufficient numbers along stream channels, existing conifers shall be retained as needed within the buffer strip to provide adequate shading of streams.

c. Adequate protection to the buffer strip must include protection of the soil, litter, and vegetative cover, as well as the streamcourse itself. This may require adjustments in normal operating procedures including appropriate modifications of road locations, silvicultural prescriptions, and uses of heavy equipment.

d. Eligible trees within buffer strips may be harvested provided their removal will not adversely impact the stream channel or the buffer strip. Trees must be individually marked.

e. Roads, roadfills, and sidecasting shall not encroach upon the buffer strip, except at designated crossings, and for specifically planned and authorized activities.

f. Heavy equipment shall not be permitted within the buffer strips except at designated crossings or for specifically planned and authorized activities.

Forest Supervisors shall provide specific management guidelines for streamcourse protection which are appropriate for their administrative units, and will prescribe the method to be used for determining the widths of the buffer strips needed to provide stream protection commensurate with the planned land management activities.

3. Guidelines for Maximum Soil Protection Against Water Erosion. One of the primary considerations in preparing project plans for activities that may result in soil or vegetation disturbance is for the protection of soil and water quality. To provide this, the rating for sheet, rill and gully erosion should be predicted for all areas of potential disturbance early in the project planning stage. The following soil protection guidelines are based on and must be used with the Erosion Hazard Rating System (R-5 Supplement to FSM 2550). The first step is to determine the Erosion Hazard Rating (EHR). This rating is then used to determine which of the guidelines are applicable.

a. Surface Erosion Hazards - Erosion prevention measures may include revegetation, mulch, rip-rap, cross-drainage, and/or designed structures. The specific erosion prevention measures for any given activity are particular to site and activity conditions; so, only general guidelines can be offered here.

(1) Areas of Low or Moderate EHR (4-8) - Normally, installation of cross-drainage as recommended in Exhibit 1 will be sufficient. Except that, if the EHR is 8, and any two factors have ratings of 3, the disturbed soil areas should be seeded to grass in addition to the installation of cross-drainage.

(2) Areas with High EHR (9-10) - If at all possible, the use of soil disturbing equipment (e.g., tractors) should be avoided (except for designed road construction) unless the slope rating is 1 or the soil rating is 1 and there is over 70% by volume of coarse fragments in the soil. If there is soil disturbance, or the surface duff or litter layer is removed, then the disturbed area should be mulched and grass seeded in addition to the installation of cross-drainage (see Exhibit 1). In burned over areas, where there is no soil disturbance, grass seeding alone is recommended, with possibly some designed structures in drainageways.

(3) Areas with Very High EHR (11-13) - Any activity that would result in an EHR of 11 to 13 should be avoided. If the method for accomplishment of any activity were to result in an EHR of 11 or greater, then that activity would result in soil loss sufficient to grossly affect soil productivity and/or water quality.

TITLE 2500 - WATERSHED MANAGEMENT

EXHIBIT 1

CROSS-DRAINAGE STANDARDS

Cross-drainage (also referred to as water bars, water breaks or dips) should be constructed on unsurfaced roads, tractor roads, skid trails, riding and hiking trails, fire lines, and on manicured or constructed ski runs. On permanent, keep open roads, the cross drainage should be included as part of the road design.

Spacing of cross drainage should be based on the following table.

RECOMMENDED SPACING FOR CROSS DRAINAGE 1/

	Erosion Hazard Rating for Area 2/			
Road or Trail Gradient (%)	4-5 (Low)	6-8 (Medium)	9-10 (High)	11-13 (V. High)
	Feet	Feet	Feet	Feet
4 - 6	400	350	300	250
7 - 9	300	250	200	150
10 - 14	200	175	150	125
15 - 20	150	120	90	60
21 - 40	90	70	50	30
41 - 60	50	40	25	15

1/ Above spacings are to be measured on the slope.
2/ EHR's based on general area below road or trail, not on the bared area itself. For ski runs, the EHR is based on the cleared area of the run.

This table should be considered as a guide only. Judgment must be used in locating cross drainage. In addition to proper spacing, based on the above table, cross-drains, where possible, should discharge into undisturbed areas, preferably rocky ground or areas well protected with slash and vegetative cover. They should also be located so as to promptly intercept run-off from lateral skid trails or other features that may result in water concentration.

Local experience may indicate that the spacing of cross drainage should vary from the spacing given in the table. For example, the soil may contain considerable coarse rock, and the spacing shown in the table may be safely increased. On the other extreme, decomposed granite or volcanic ash soils which are shallow, or which have clayey subsoils, may need the cross drainage placed closer to hold erosion to an acceptable level. Ordinarily, the spacing should not be changed more than one step up or down in the applicable EHR column.

TITLE 2500 - WATERSHED MANAGEMENT

2536.1 - Classification of Streams. The potential for adverse impact of National Forest land management activities upon streams and the streamside environment is of sufficient magnitude to warrant specific management direction to ensure protection to such areas. Stream classification is a means of identifying resource values and beneficial uses associated with streams. Once values and uses are recognized, stream protection guidelines (R-5 Supplement to FSM 2521) can be established for use in the planning and management of these lands.

Forest Supervisors and the Lake Tahoe Basin Administrator are responsible for stream classification on their units, and for providing protection to streams and their associated aquatic environment.

1. Stream Classification System. Guidelines for establishing a stream classification system are found in FSM 2536.1. Classification is based upon an evaluation of the following mimimum factors: (1) Flow characteristics; (2) present and foreseeable instream and downstream values associated with waters of the stream; (3) characteristics of the stream environment.

Flow characteristics need further definition for such evaluation determines whether streams are perennial, intermittent, or ephemeral. Perennial streams normally flow yearlong, have well-defined channels, and often show signs of washing and scouring. Riparian or water-associated vegetation is usually present. Intermittent streams generally flow most of the year, but during the dry season may cease to flow because of evapotranspiration and percolation losses. They may or may not support riparian vegetation. Litter is normally not present in the channels except during the fall of the year, indicating sufficient flow to move debris during the wet season. Ephemeral streams flow only in direct response to prolonged precipitation or melting snow. They are depressions in the ground surface and normally do not develop sufficient water to wash or scour; therefore, forest litter, vegetation, or both is usually present in the channel.

The stream classification system described below has been developed for Region-wide use. Each class establishes the relative importance or significance of a stream or segment thereof, based on resource values and beneficial uses. To use this classification, (1) compare a similar criteria described in each class, then (2) choose the one you consider most closely fits the local situation. This system is only a step in the process to get to the ultimate objective, i.e., a detailed description of the ultimate protection measures needed.

Class I, Highly Significant. These are either perennial or intermittent streams, or segments thereof, which meet one or more of the following criteria:

a. Are habitat for large numbers of resident and/or migratory fish for spawning, rearing, or migration.

b. Furnish water locally for domestic or municipal supplies.

c. Have flows large enough to materially influence downstream water quality.

d. Are characterized by major fishing or other water-oriented recreational uses.

e. Have special classification or designation, such as wild, scenic, or recreation rivers.

f. Have special visual or distinctive landscape features and are classified as variety class A as defined in "National Forest Landscape Management Volume 2" (Agr. Handbook 462).

g. Are habitat for threatened or endangered animal species, or contain plants which are potential or viable candidates for threatened or endangered classification.

h. Exhibit ethnological, historical, or archeological evidence that makes them eligible for or are included in the "National Register of Historical Places" (FSM 2361).

Class II, Significant. These are either perennial or intermittent streams or segments thereof, which meet one or more of the following criteria:

a. Are used by moderate numbers of fish for spawning, rearing, or migration.

b. Furnish water locally for industrial or agricultural use.

c. Have enough water flow to exert a moderate influence on downstream quality.

d. Are used moderately for fishing and other recreation purposes.

e. Are of moderate visual quality and meet variety class B as defined in "National Forest Landscape Management Volume 2" (Agr. Handbook 462).

Class III, Moderately Significant. These include perennial or intermittent streams, or segments thereof, which meet one or more of the following criteria:

a. Are habitat for few fish for spawning, rearing, or migration.

b. Are rarely used for fishing or other recreational purposes.

c. Have enough water flow to exert minimum influence on downstream water quality.

d. Are of relatively low visual quality in the landscape and classified as variety class B as defined in "National Forest Landscape Management Volume 2"(Agr. Handbook 462).

Class IV, Minor Significance. These are intermittent or ephemeral streams, or segments thereof, not previously classified.

2. Implementation of Stream Classification. Within land use planning units, those streams or segments thereof which meet the criteria for Class I and II must be shown on land use planning maps (FSM 8223.1); classes III and IV can be shown as appropriate. Within project areas all streams and segments thereof must be classified. Management direction and protection measures for the stream zone are found in the R-5 supplement to FSM 2521.

TITLE 2500 - WATERSHED MANAGEMENT

CHAPTER 2550 - SOIL SURVEY INTERPRETATIONS AND MANAGEMENT

Soil Erosion Hazard Rating System - This supplement replaces text in FSH 2509.14 Soil Survey Procedures Handbook, 55.26 - Soil Erodibility Evaluation Procedure, and 55.26a through 55.26g, pending correction by the Chief.

Many land uses that occur on National Forests, and the various activities associated with them, have the potential to create soil erosion that would greatly exceed natural rates. Examples of such activities are: timber harvesting and forest establishment, brushland management, rangeland enhancement, grazing, mining, and recreation and special use developments, such as ski areas. The Erosion Hazard Rating (EHR) System provides the land manager with a procedure to predict the possible accelerated soil erosion hazard for a given landscape so that proper erosion control measures can be initiated in the original planning design. (See R-5 Supplement to FSM 2521 and FSH 2509.11 Land Treatment Measures Handbook.)

The EHR System provides the manager with a numerical value that is indicative of the potential soil erosion hazard for a given landscape after a particular management practice has been applied, or after a wildfire has burned over an area. The system may also be used to determine erosion hazard under existing conditions. This erosion hazard rating system is a highly developed checklist and not a mathematically exact equation. It is designed to appraise sheet and rill erosion with a supplemental rating for gully erosion. The system does not rate dry creep, wind erosion, or mass wasting.

Erosion Hazard Ratings for projects should be made during the early stages of planning. EHRs should be made by project or planning personnel who are qualified or experienced. Soil scientists should be called upon for advice in difficult or questionable situations.

A rating should be computed first for what appears to be a representative, homogeneous unit within the project boundary. The climatic factor will probably be constant over a given area, but variations could occur in the other three factors: soil, topography, and cover. Where changes are noted, a new rating should be computed.

While significant changes are to be mapped to a minimum size of five acres, some areas as large as 200 to 600 acres or more may be quite uniform, and only two or three rating computations will be needed to establish this fact. Slope and cover changes can be detected by study of aerial photos and ground checking. Changes in soils will be more difficult to detect, but can be anticipated by changes in

geology and by changes in aspect, topography, cover type, site, amount of rock outcrop, etc.

The following instructions are designed to facilitate determinations of the soil erosion hazard on form R5-2500-14. Inasmuch as this is not an exact science, these guidelines should be used in conjunction with local experience and knowledge.

The Erosion Hazard Rating for an area is determined in five steps outlined below. Values are recorded in the appropriate blocks on form R5-2500-14 (Exhibit 1).

Step 1. Assign weighted values to individual characteristics of each factor: soil, topography, climate, and cover. The range in values shown under each characteristic permits weighting for intermediate conditions.

Step 2. Total the assigned values.

Step 3. Using the range of assigned values for each factor, determine the rating for each factor.

Step 4. Add the four factor ratings to compute the erosion hazard rating.

Step 5. Add supplemental ratings for gully erosion hazard, if appropriate.

The following numbers, letters, and titles are the same as those on form R5-2500-14.

1. SOIL. Soil erodibility is one of the four factors used in appraising erosion hazard. It is rated by evaluating soil detachability, infiltration, permeability, and depth.

1a. Soil Detachability is an estimate of the relative stability of the surface soil aggregates (natural soil structure) and their resistance to detachment or dispersion and transport by water. The resistance to detachment and dispersion is determined by lifting an uncrushed block (about one inch square, or larger) from the top inch of undisturbed surface soil. Place this in your hand and slowly moisten it with water. As the soil moistens, observe the size of aggregates and whether or not they become detached or dispersed. After moistening, dedetermine the stability of the aggregates when the block is washed repeatedly with a fine stream of water from a plastic wash bottle. To determine sizes of aggregates in blocks of

soil which are resistant to breaking apart or are held together by fine rootlets, the block may be prodded gently with the point of a knife blade and then repeat the washing. Care must be used not to crush the natural aggregates.

Since the disturbing activity could expose the soil from depths greater than the surface inch, the soil at the predicted disturbance depth should also be checked for its resistance to detachability, dispersion, and transport.

The following key (Exhibit 2) should be used to determine the detachability values (numbers in parentheses correspond to those shown in parentheses on form R5-2500-14).

1b. Infiltration of the Surface Horizon. Infiltration is an estimate of the rate at which water moves into the soil. Generally related to texture and porosity, but may be reduced by compaction or puddling. Use the following soil textures as guides.

Rapid. Sands, loamy sands and sandy loams; generally very open and porous. (1, 2 or 3)

Moderate. Gravelly loams, loams and silt loams generally somewhat open and porous. Also includes the more open and porous soils of finer textures, and the less porous soils of coarser textures. (4, 5 or 6)

Slow. Clay loams and clays; generally with few large pores and openings (e.g., soils compacted by grazing). (7, 8 or 9)

1c. Permeability of the Lower Horizon. Permeability is an estimate of the rate at which water moves down through the soil. Lower horizon is any horizon below the surface horizon. The objective is to determine if the permeability of the lower horizon is the same as or different from the infiltration of the surface horizon. Use the following soil textures as guides.

Rapid. Sands, loamy sands, and sandy loams; generally very open and porous. (1 or 2)

Moderate. Gravelly loams, loams, and silt loams; generally somewhat open and porous. Also includes the more open and porous soils of coarser textures. (3 or 4)

Slow. Clay loams and clays; generally with few large pores and openings. (5 or 6)

1d. Depth at Which Appreciable Permeability Reduction Begins in the Lower Horizon. Measure depth from soil surface to any restricting layer which might occur within three feet. This could be unweathered or weathered bedrock, a hardpan, or (more commonly) a horizon of clay accumulation which is at least one textural class finer than the surface horizon; (e.g., a change from sandy loam to loam or clay loam).

2. TOPOGRAPHY. This factor includes physiographic characteristics of the area being classified.

2a. Slope of Area Being Classified. Determine gradient of slope in percent. In broken topography, use the average or more dominant slope, whichever will give the most representative figure.

2b. Uniformity of Slope Being Classified. In broken topography, runoff water tends to spread out and lose velocity and carrying capacity. Flat or mounded breaks in slope up to one-half acre in size should be considered.

2c. Water Concentration Potential. If slopes above the area considered are likely to contribute surface flow, or if the planned disturbing activity may concentrate water (such as road or skid trail drainage), then these factors add to the erosion hazard.

3. CLIMATE. The evaluation of climatic characteristics of an area is often complicated by the lack of basic data and the large variability in conditions which affect the amount and rate of water, overland flows and associated soil movement. Differences in soil moisture conditions and soil and air temperatures immediately preceding and during a storm, total storm precipitation, type of precipitation (rain or snow), rainfall intensities, and duration of rainfall can produce vastly different effects. The following guidelines will give an index of erosion hazard for some of the major climatic characteristics. The range in weighted values is intended to permit adjustments based on knowledge of local conditions in the area being classified.

3a. Distribution of Annual Precipitation

Well distributed. Precipitation can be expected in varying amounts throughout most of the year. No more than 20 percent of total annual precipitation falls in any one month.

Average annual precipitation less than 30".....(1)
Average annual precipitation 30" or more.....(2)

Some irregularity. Precipitation normally occurs within a 6 to 8-month period, principally in the late fall, winter, and early spring, with a few occasional summer showers. Precipitation in any one month does not exceed 40 percent of total annual precipitation.

Average annual precipitation less than 30".....(3)
Average annual precipitation 30" or more.....(4)

Irregularly distributed. Precipitation is usually confined to one season of the year, with 40 percent or more of the total annual precipitation often falling in any one month.

Average annual precipitation less than 30".....(5)
Average annual precipitation 30" or more.....(6)

3b. Rainfall Intensities. Soil moisture conditions usually prevalent before storms should be used as a guide to assigning weighted values within each intensity class. The drier the soil before storms, the lower the value. For example, if high intensity storms usually occur during the summer months when the soils are dry, a rating of (8) would be used; however, if high intensity storms usually occur during the winter months when soils are at or near field capacity, the maximum rating of (10) would be used. For guides to intensities, see appended map (Exhibit 3).

Low. Rainfall intensities during average 5-year period do not exceed 0.55" per hour or 1.75" per 24 hours. (1, 2 or 3)

Moderate. Rainfall intensities during average 5-year period range between 0.55" and 0.85" per hour or 1.75" and 5.50" per 24 hours. (4, 5, 6 or 7)

High. Rainfall intensities during average 5-year period exceed 0.85" per hour or 5.50" per 24 hours. (8, 9 or 10)

3c. Snow. These ratings will have to be based on local experience.

None, or slow to melt. Snow may or may not occur but, if it does, it usually melts slowly. High temperatures and/or rains on snow occur less than once in 10 years. (1 or 2)

Melts at moderate rates. Snowfall usually melts at slow to moderate rates. High temperatures and/or warm rains on snow occur at least once every 5 to 10 years. (3 or 4)

Melts rapidly. Snowfall usually melts rapidly. High temperatures and/or warm rains on snow occur more than once in five years. (5 or 6)

3d. Soil Temperatures. These ratings will have to be based on local experience.

Seldom below freezing. Soils seldom freeze or, if they do, they are frozen during less than 10 percent of the time when rainfall or snowmelt runoff might occur. (1 or 2)

Often below freezing. Soils are often frozen for at least part of the time when rainfall or snowmelt runoff might occur. (3 or 4)

Usually below freezing. Soils are often frozen for 80 percent or more of the time when rainfall or snowmelt runoff might occur. (5 or 6)

4. COVER. EHRs are based on estimated vegetation and ground cover conditions after the disturbing activity. In rating the four factors for cover, consider various alternative methods for accomplishing the activity objective (e.g., hand clearing vs. tractor clearing). Alternative methods could result in different amounts of vegetation or duff being removed, which would indicate different EHRs. The system may also be worked somewhat in reverse. Given the soil, slope and climate factors, what kinds of vegetation and ground cover conditions are necessary to stay within some desired EHR limits?

4a. Density of Living Vegetation After Disturbance. Refers to all living herbaceous and woody vegetation (overstory or understory), expressed as percent of ground covered, as seen from the overhead view. Multi-storied vegetation is considered as only one story (i.e., maximum cover percentage is 100%). Deciduous species are evaluated with normal summer leaf cover on the assumption that leaf fall will provide similar ground cover protection during the dormant season. If applicable, anticipate growth of new vegetation, especially the type to be seeded.

4b. Ground Cover Density. Refers to normal litter or duff, slash, bulldozed brush, down logs, dead standing woody vegetation, and all residue following fire, clearing, logging, or

other disturbing activity (such as root crowns, exposed roots, stubble, leaves, twigs). Also refers to any mulch (straw, slash) that might be added to the site or area.

5. SUPPLEMENTAL RATINGS.

Soils Susceptible to Gully Erosion. The Erosion Hazard Rating System is designed to appraise the hazards of sheet and rill erosion by water. However, some soils have inherent characteristics that make them highly susceptible to severe gully erosion. The normal method of determining Erosion Hazard Rating does not take into account the additional hazard found in such soils; so the following supplemental rating must be used.

Symbol	Soil Characteristics
G	Soils, with sandy or loamy surface horizons, derived from granitic rocks, volcanic ash, or recent alluvium and any other soils where present conditions indicate the soils are extremely susceptible to deep gullying by concentrated flows of water. (Deep gullying = 2 feet to many feet deep.)

When areas susceptible to gully erosion as described above are encountered, the letter "G" is added to the determined numerical EHR (for example, 8G). For soil protection purposes, whenever the supplemental "G" is used, it should be assumed that the EHR is two numbers higher than that calculated. For instance, if the calculated EHR were 6, and a "G" added, the EHR should then be considered to be 8. The 6 would be recorded as rating total, "G" recorded as supplemental rating and the net erosion hazard would be recorded as 8 (moderate).

Exhibit 2

SOIL DETACHABILITY KEY

I. Surface soil is a sand, with little or no aggregation. It exists as a single grains of mineral sands less than 2 mm. in size in an already detached state. It starts flowing immediately when wetted. (Non-resistant).....(12)

II. More or less aggregation of soil particles apparent, with some degree of resistance to flowing when wetted.

A. Surface soil aggregates collapse when first moistened.

(Weakly resistant)

1. When washed with a fine stream of water, the flow is mostly muddy water composed of very small particles much less than 1 mm in size.....(11)

2. When washed, flow is muddy water, but with many sand (mineral) particles, or tiny aggregates of soil material which do not melt (disperse) on wetting, and are generally less than 1 mm in size....(10)

B. Surface soil aggregates do not collapse when first moistened.

1. When washed only a few times with a fine stream of water, many of the aggregates melt or become detached and wash away as muddy water. (Moderately resistant)

a. Dispersion of aggregates is essentially complete. Mostly muddy water composed of very small particles much less than 1 mm in size.....(8)

b. Dispersion incomplete. Some resistant aggregates remain after washing.

Flow is muddy water with many sand particles or tiny aggregates of soil material which do not melt on wetting, and are generally less than 1 mm in size.....(7)

Same as above but sand grains or aggregates are generally 1-2 mm in size.....(6)

2. Surface soil aggregates not only do not collapse when first moistened, but require repeated washing to cause collapse or any appreciable muddying of the wash water. (Strongly resistant)

a. Resistant soil aggregates are dominantly less than 2 mm in size.

Aggregates eventually melt with repeated washing.....(4)

Aggregates do not melt, even with repeated washing.....(3)

b. Resistant soil aggregates are dominantly larger than 2 mm in size.

Aggregates eventually melt with repeated washing.....(2)

Aggregates do not melt, even with repeated washing.....(1)

Soil detachability is modified by any coarse rock fragments (1/2 inch in diameter and larger) on the surface. These reduce both the detaching force of raindrop impacts and the velocity of surface flows of water.

Procedure:

1. Record assigned detachability value on the form in the space following (A).

2. Make an ocular estimate of the percentage of coarse fragments which will be on the soil surface after disturbance (gravels and stones larger than 1/2 inch in diameter), and insert in the space following (B).

3. Using the simple formula provided, compute the adjusted detachability value. Example: (A) = 8, (B) = 10%, A-(AxB) = 8 - (8 x 0.1) = 8 - 0.8 = 7.2. Round this off to a detachability value of 7 and enter this figure in the column "Assigned Value".

TITLE 2500 - WATERSHED MANAGEMENT

2521 - WATERSHED PROTECTION

In accordance with FSM 2521, R-5 Supplement No. 17, the following Eldorado National Forest Supplement is promulgated.

Buffer Strips and Required Protection Measures. Proper management of streamside areas is the most effective and economical means of maintaining high water quality and a healthy aquatic environment.

1. Within project areas all streams and segments thereof will be classified in accordance with the guidelines set forth in FSM 2536.1, R-5 Supplement No. 15.

After streams have been classified, and prior to project action, their channels will be designated either stable or unstable. A stable channel is one that shows no sign of bank erosion, aggradation, degradation, or active meandering. Bedrock or boulder lined channels are examples of good stability. Unstable channels, on the other hand, exhibit seasonal and yearly changes in their cross-sectional profile.

Adjacent sideslopes will be classified either stable or unstable. A stable sideslope will have an Erosion Hazard Rating of 8 or less. Any unvegetated slope may be unstable. Slopes less than 30 percent and well-vegetated will normally be stable. Depending on soils geology and vegetative cover steeper slopes may also be stable.

Table 1 (2521--2) is a general guide for establishing buffer strip widths. The values in the table represent an average. For project work the buffer strip should be established on-the-ground using the table as a guide but fitting the buffer strip to the topography, using slope-breaks and changes in soil and geology. In certain cases, where a road is near the buffer strip boundary, it may be practical to use the road as the boundary.

2. The above guidelines will also apply when establishing buffer strips around lakes and ponds.

3. Since roads are usually the major source of stream sediment, special mitigating measures will be used on road segments within the streamside buffer strip.

All such road segments will have their running surfaces, drainage structures, and cut and fill slopes stabilized. Follow-up action will be required whenever stabilization measures fail. Maintenance will be performed in accordance with FSH 7709.15 Section 12.2.

Any road that is not used in accordance with the Eldorado National Forest Off-Road and Vehicle Travel Plan will be restabilized by the project using that road.

TITLE 2500 - WATERSHED MANAGEMENT

TABLE 1

GUIDELINES TO USE WHEN ESTABLISHING BUFFER STRIPS

	Stability		Slope Width in Feet		
Stream Class	Stream Channel	Sideslope	Perennial Stream	Intermittent Stream	Ephemeral Stream
I	Stable	Stable	200	100	--
		Unstable	250	150	--
	Unstable	Stable	200	100	--
		Unstable	300	200	--
II.	Stable	Stable	100	50	--
		Unstable	150	100	--
	Unstable	Stable	100	50	--
		Unstable	200	150	--
III	Stable	Stable	50	25	--
		Unstable	100	100	--
	Unstable	Stable	50	50	--
		Unstable	150	100	--
IV	Stable	Stable	--	25	25
		Unstable	--	50	50
	Unstable	Stable	--	50	25
		Unstable	--	50	50

INSTRUCTIONS:

(1) Slope widths to be measured from top of bank or extreme high watermark.
(2) On-the-ground conditions may dictate variations in width of buffer strip.
(3) See R-5 Supplement 2536.1 (Classification of streams) for explanation of buffer strips.

Road restabilization in advance of inclement weather will be required prior to closing a road that has been reopened for project work. Roads will not be opened for routine project work when weather or runoff conditions are such that use will cause sediment to enter the stream channel. If a road must be used during inclement weather or runoff conditions, then erosion control measures will be performed and/or checked daily.

4. Stream crossings can be the most critical factor affecting stream channel stability and water quality. They are the point where the integrity of the buffer strip is broken. Therefore, stream crossings must be planned to create the least possible impact on the total stream environment, both during construction and throughout the existence of the structure. Adequate guidance for handling stream crossing situations is contained in Forest Service Handbook 7709.11, Pages 70--3 through 71.33--10, and in Forest Service Handbook 2409.23, Section 51.5 R-5 Supplement. In addition, the Forest Service Manual R-5 Supplements contain stream protection guidance under Sections 2521--1 through 5, and 7705.15. These sections will not be repeated here but the following points are especially important to remember when considering the construction of stream crossings:

a. Location of the stream crossing is extremely important. Consider realigning the road to avoid high-risk crossing areas, or to take advantage of low-risk locations.

b. Drainage from the road surface at stream crossings is often a major source of silt. Whenever possible, drainage water should be discharged into an adequate filter area. When this is not possible (such as at stream crossings) and the runoff will discharge directly into the stream the road surface and drainage structures must be designed for maximum stability.

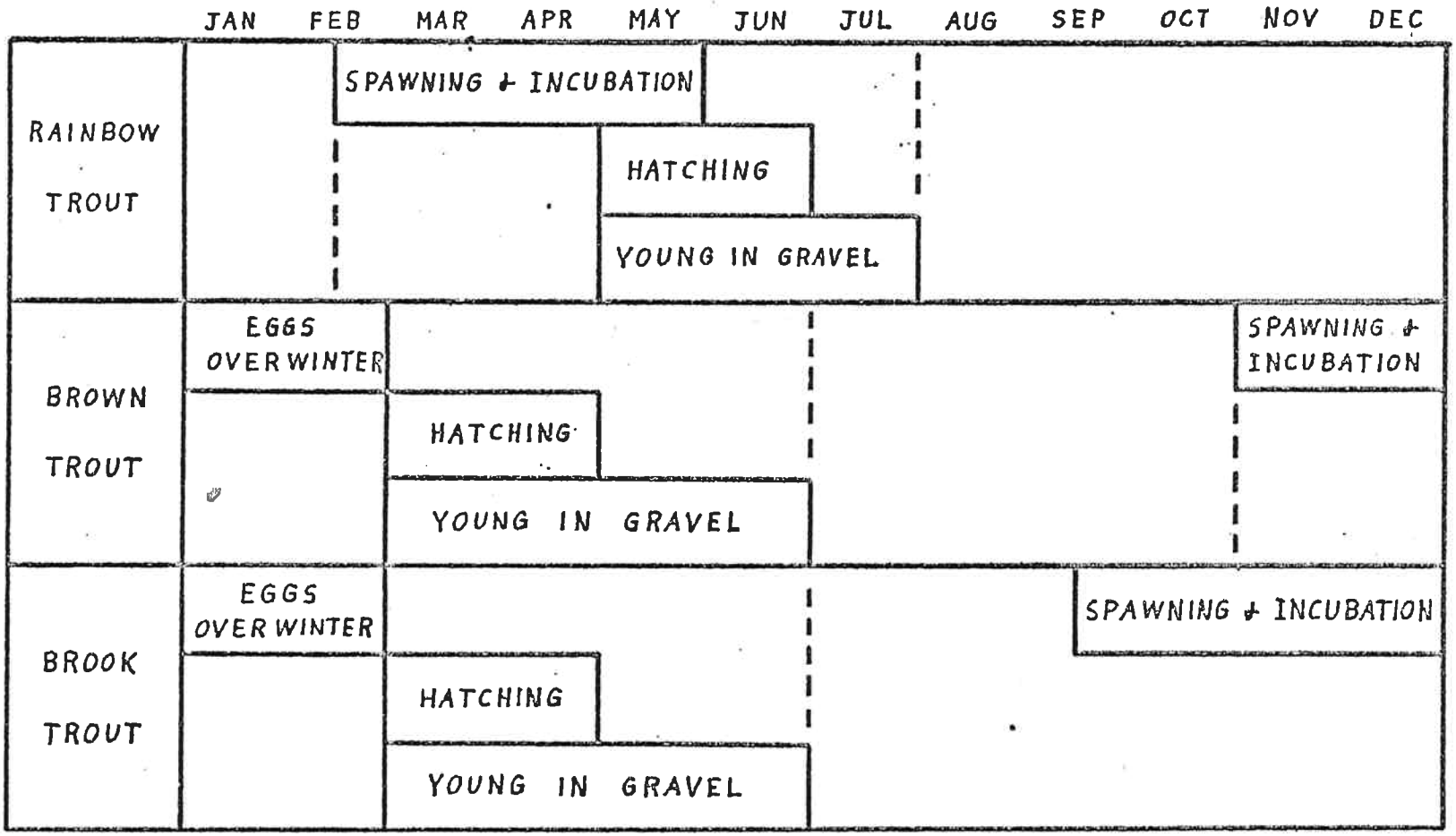


FIGURE 1

This shows the generalized picture for trout spawning and egg hatching for the three trout species found on the Eldorado.

(Data from: "Inland Fishes of California" by Peter B. Moyle; "Inland Fisheries Management" edited by Alex Calhoun.)

c. Timing of construction activities near streams can be critical to spawning trout. Generally, silt introduced into streams during the trouts' spawning period, hatching period, or egg sack/fry stage will have a detrimental impact on trout production. Construction activities should be timed to avoid these periods. The time of spawning in individual streams will vary considerably depending on such things as water temperature, time and volume of runoff, and other factors. Streams should be checked in advance to determine their particular use periods by spawning trout. Otherwise, after consulting the stream survey to determine which species are present, use the data in Figure 1 in arriving at the proper period for construction.

Heavy precipitation and flood flows can be expected after October 15. Therefore, all construction activities within streamside buffer strips will have to be carefully planned to allow for immediate winterization at any time after October 15.

d. Stream protection during construction activities is of utmost importance. If possible, a suitable method must be employed to bypass the streamflow. Excavated material should be placed above the high watermark expected during the construction period until disposed of or reused as fill. If the stream cannot be completely bypassed around the construction site, a temporary stream crossing must be prepared. This may consist of a temporarily buried pipe. However, if this is not possible, a stream ford may be acceptable if it will not result in siltation of the stream. If a ford-type crossing is used, construction should be planned to minimize equipment crossings.

Settling ponds, percolation pits, or other appropriate sediment traps will be used when de-watering construction sites.

APPENDIX G

Sediment Yield Predictions

SEDIMENT YIELD PREDICTIONS

On-the-ground observations of soil erosion and stream sedimentation resulting from past activities within the Volcanoville Unit indicate that the primary source of sedimentation is from sheet and rill erosion. In estimating sediment yields for the management alternatives, it was assumed that the primary source of sedimentation would continue to be from sheet and rill erosion. Gully erosion was not considered because the soils in this area are quite resistant to gully formation and there is little evidence of any having been formed due to past activities. Mass land movement was only considered for those activities that were proposed for steep canyonland landscape units. In these areas, sheet and rill sediment yields were increased by 20 percent if road construction were indicated.

The procedure used for sediment yield predictions is basically a factorial approach originally developed by Musgrave but modified by recent research data, field measurements and observations.(1) The factors included are basic erosion rates, slope, ground cover characteristics and precipitation. These four factors determine sheet and rill soil erosion. Soil erosion was estimated for each soil-geomorphic unit considering each applicable activity. The soil erosion estimates were then modified by sediment yield coefficients (amount of eroded material that reaches a stream course) to determine stream sedimentation.

The total yearly sediment yields were then determined, as the activities would occur through time (time streaming), for each management alternative through a fifty year span and then averaged over the fifty years. The same thing was done for an assumed natural condition for the Planning Unit to determine a baseline to which the alternatives could be compared.

The actual input values for the sediment yield predictions are on file at the Supervisor's Office, Eldorado National Forest.

APPENDIX H

Water Quality Objectives and Beneficial Uses

Source: Water Quality Control Plan
Report, Volume I
California Water Quality Control Board
1975

WATER QUALITY OBJECTIVES

The term "objective" (after U.S. Federal Water Pollution Control Administration, 1968) is synonymous with "standard".

The following water quality objectives supersede and replace those contained in Interim Water Quality Control Plans for Basins 5A, 5B and 5C; and Interstate Standards for the Sacramento-San Joaquin Delta and Goose Lake. Controllable water quality factors shall conform to the water quality objectives contained herein.

When other factors result in the degradation of water quality beyond the levels or limits established herein as water quality objectives, then controllable factors shall not cause further degradation of water quality. Controllable water quality factors are those actions, conditions, or circumstances resulting from man's activities that may influence the quality of the waters of the state, that are subject to the authority of the State Board, or the Regional Board, and that may be reasonably controlled.

In some instances water quality objectives were formulated to preserve historic conditions, but the data base is not sufficiently complete to determine the temporal and hydrologic variability that is an inherent aspect of historic water quality. When violations of such objectives occur, the Regional Board will use judgment to determine if the objectives could reasonably be achieved through the coordinated control of all factors affecting water quality in the area.

These water quality objectives are considered to be necessary to protect those present and probable future beneficial uses enumerated in Chapter 2 of this Plan and to protect existing high quality waters of the state. These objectives will be achieved primarily through the establishment of waste discharge requirements and through the implementation of this water quality control plan and ongoing planning modifications thereof.

The Regional Board, in setting waste discharge requirements will consider, among other things, the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives. The Regional Board will make a finding as to the beneficial uses to be protected within the area of influence of the discharge, and establish waste discharge requirements to protect those uses and to meet water quality objectives.

The objectives are intended to govern the levels of constituents and characteristics in the main water mass unless otherwise designated, and therefore do not apply at or in the immediate vicinity of effluent discharges. Where appropriate, zones of dilution or criteria for diffusion or dispersion will be defined in waste discharge requirements.

General Objectives for all Surface Waters and Estuaries

Water quality objectives contained in the following policies shall apply to all surface waters and estuaries in the basins:

Resolution No. 68-16 - Statement of Policy with Respect to Maintaining High Quality of Waters in California. Wherever the existing quality of water is better than the quality of water established herein as objectives, such existing quality shall be maintained unless otherwise provided by the provisions of the State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (Nondegradation Policy), including any revisions thereto. A copy of this policy is included verbatim in the "Special Appendix, Plans and Policies."

OBJECTIVES FOR INLAND SURFACE WATERS

This table includes water quality objectives that apply to all inland surface waters (excluding the Delta) of the basins, and objectives that apply only to specific surface water bodies. As part of the State's continuous planning process, data will be collected and more specific water quality objectives will be developed for those mineral and nutrient constituents where sufficient information is presently not available for the establishment of specific objectives.

Bacteria

In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.

Biostimulatory Substances

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

In most water bodies, water quality objectives for nitrogen will not be established until studies to determine the specific effects of nitrogen on algal growth in the Delta, the lower San Joaquin River, and San Francisco Bay are completed.

Chemical Constituents

Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. Water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in California Administrative Code, Title 17, Chapter 5, Subchapter 1, Group 1, Article 4, Section 7019, Tables 2, 3 and 4. The limits described therein will be reviewed on a case-by-case basis in order to assure protection of beneficial uses other than MUN, as appropriate. To the extent of any conflict with the above, the more stringent objective applies.

Total Dissolved Solids: Shall not exceed 125 mg/l (90 percentile)
Applicable water body - Middle Fork, American River, Source to Folsom Lake

Color

Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.

Dissolved Oxygen

The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass and the 95 percentile concentration shall not fall below 75 percent of saturation. The dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time:

Waters designated WARM	5.0 mg/l
Waters designated COLD	7.0 mg/l
Waters designated SPWN	7.0 mg/l

Floating Material

Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.

PRESENT AND POTENTIAL BENEFICIAL USES

BENEFICIAL USES

Beneficial uses are the cornerstone of water quality management in California. Protection and enhancement of beneficial uses are the primary objectives of this planning effort. Several significant points concerning the concept of beneficial uses are listed below.

Beneficial uses do not include all of the reasonable uses of water. For example, disposal of wastewaters is not included as a beneficial use; this is not to say that disposal of wastewaters is a prohibited use of waters of the state: it is merely a use which cannot be satisfied to the detriment of beneficial uses. Similarly, the use of water for the dilution of salts is not a beneficial use although it may, in some cases, be a reasonable and desirable use of water.

The protection and enhancement of beneficial uses require that certain quality and quantity objectives be met.

Fish and wildlife, as well as humans, use water beneficially.

All of the water quality problems in the state can be stated in terms of a failure to protect or enhance specified beneficial uses. It follows that a water problem consists of the failure to provide water of sufficient quantity or quality to protect or enhance beneficial uses.

Existing and potential beneficial uses of surface waters and groundwaters in the study area are presented in Table 1-H.

The determination of existing and potential beneficial uses was made as follows:

Surface waters and groundwaters in the study area were divided into segments or "water bodies."

Preliminary existing and potential uses were established by the Bay-Valley staff.

These preliminary beneficial uses were reviewed at public workshops and numerous comments were received.

The comments were considered and used in the preparation of the final listing of beneficial uses shown in Table 1-H.

DEFINITION OF STANDARD BENEFICIAL USES

The beneficial uses presented in Table 1-H are based on "standard beneficial uses" which are listed and defined on the following page.

Municipal and Domestic Supply - (MUN) includes usual uses in community or military water systems and domestic uses from individual water supply systems.

Agricultural Supply (AGR) includes crop, orchard, and pasture irrigation, stock watering, support of vegetation for range grazing, and all uses in support of farming and ranching operations.

Industrial Service Supply (IND) includes uses which do not depend primarily on water quality such as mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil-well repressurization.

Industrial Process Supply (PROC) includes process water supply and all uses related to the manufacturing of products.

Groundwater Recharge (GWR) includes natural or artificial recharge for future extraction for beneficial uses and to maintain salt balance or halt saltwater intrusion into freshwater aquifers.

Freshwater Replenishment (FRSH) provides a source of freshwater for replenishment of inland lakes and streams of varying salinities.

Navigation (NAV) includes commercial and naval shipping.

Hydroelectric Power Generation (POW) is that supply used for hydropower generation.

Water-Contact Recreation (REC 1) includes all recreational uses involving actual body contact with water, such as swimming, wading, waterskiing, skin-diving, surfing, sport fishing, uses in therapeutic spas, and other uses where ingestion of water is reasonably possible.

Nonwater-Contact Recreation (REC 2) covers recreational uses which involve the presence of water but do not require contact with water, such as picnicking, sunbathing, hiking, beachcombing, camping, pleasure boating, tidepool and marine life study, hunting, and aesthetic enjoyment in conjunction with the above activities as well as sightseeing.

Warm Freshwater Habitat (WARM) provides a warmwater habitat to sustain aquatic resources associated with a warmwater environment.

Cold Freshwater Habitat (COLD) provides a coldwater habitat to sustain aquatic resources associated with a coldwater environment.

Wildlife Habitat (WILD) provides a water supply and vegetative habitat for the maintenance of wildlife.

Preservation of Rare and Endangered Species (RARE) provides an aquatic habitat necessary, at least in part, for the survival of certain species established as being rare and endangered species.

Fish Migration (MIGR) provides a migration route and temporary aquatic environment for anadromous or other fish species.

Fish Spawning (SPWN) provides a high-quality aquatic habitat especially suitable for fish spawning.

Source: Water Quality Control Plan Report, Vol. 1

Oil and Grease

Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

pH

The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.

Pesticides

No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life that adversely affects beneficial uses. Pesticides are defined as any substance or mixture of substances used to control objectionable insects, weeds, rodents, fungi, or other forms of plant or animal life.

Total identifiable chlorinated hydrocarbon pesticides shall not be present at concentrations detectable within the accuracy of analytical methods prescribed in Standard Methods for the Examination of Water and Wastewater, latest edition, or other equivalent methods approved by the Executive Officer.

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the limiting concentrations set forth in California Administrative Code, Title 17, Chapter 5, Subchapter 1, Group 1, Article 4, Section 7019, Table 4.

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in California Administrative Code, Title 17, Chapter 5, Subchapter 1, Group 1, Article 4, Section 7019, Table 5.

Sediment

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Settleable Material

Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

Suspended Material

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Tastes and Odors

Waters shall not contain taste-or odor-producing substances in concentrations that impart undesireable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin - that cause nuisance, or otherwise adversely affect beneficial uses.

Temperature

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.

Temperature objectives for COLD interstate waters, WARM interstate waters, and Enclosed Bays and Estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions thereto. A copy of this plan is included verbatim in the "Special Appendix, Plans and Policies."

At no time or place shall the temperature of any COLD intrastate water be increased more than 5°F above natural receiving water temperature.

At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperature.

Toxicity

All waters shall be maintained free of toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration or other appropriate methods as specified by the Regional Board.

The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or, when necessary, for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, latest edition. As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed where appropriate; additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available; and source control of toxic substances will be encouraged.

Turbidity

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:

- Where natural turbidity is between 0 and 50 Jackson Turbidity Units (JTU), increases shall not exceed 20 percent.
- Where natural turbidity is between 50 to 100 JTU, increases shall not exceed 10 JTU.
- Where natural turbidity is greater than 100 JTU, increases shall not exceed 10 percent.

Exceptions to the above limits will be considered when a dredging operation can cause an increase in turbidity. In this case, an allowable zone of dilution within which turbidity in excess of limits can be tolerated will be defined for the operation and prescribed in a discharge permit.

SURFACE WATER BODIES[1]	MUN	AGRI-CULTURE		INDUSTRY			RECREATION			FRESHWATER HABITAT (3)		MIGRATION		SPAWNING			
		AGR		PROC	IND	POW	REC 1	REC 2		WARM	COLD	MIGR		SPWN		WILD	NAV
	Municipal & Domestic Supply	Irrigation	Stock Watering	Process	Service Supply	Power	Contact	Canoeing (2) and Rafting	Other Noncontact	Warm	Cold	Warm (4)	Cold (5)	Warm (4)	Cold (5)	Wildlife Habitat	Navigation
American River																	
Middle Fork source to Folsom Lake	●	●	●			●	●	●	●	O	●				●	●	
Auburn Reservoir (under construction)	O	O				O	O		O		O				O	O	

LEGEND - ● Existing Beneficial Uses
O Potential beneficial uses

NOTE: Surface waters with the beneficial uses of Groundwater Recharge (GWR), Freshwater Replenishment (FRSH), and Preservation of Rare and Endangered Species (RARE) have not been identified in this plan. Surface waters of Basins 5A, 5B and 5C falling within these beneficial use categories will be identified in the future as part of the continuous planning process to be conducted by the State Water Resource Control Board.

(1) Those streams not listed have the same beneficial uses as the streams, lakes, or reservoirs to which they are tributary.

(2) Shown for streams and rivers only, with the implication that certain flows are required for this beneficial use.

(3) Resident does not include anadromous. Any segments with both COLD and WARM beneficial use designations will be considered COLD water bodies for the application of water quality objectives.

Source: Water Quality Control Plan Report Vol. 1,
State of California Water Resources Control Board, 1975.

TABLE I-H

APPENDIX I

Criteria for the Determination of Land Suitability

Suitability Criteria - As the result of direction provided by the National Forest Management Act of 1976, a Land Management Plan must contain criteria used to determine land "suitability." The final Statement indicates the land "capability." The terms "suitability" and "capability" are often used interchangeably causing confusion. However, capability refers to evaluations based on a resources inherent or present condition abilities. Suitability refers to evaluations made that are based on assumptions about potential usability or productivity if specified management alternatives are made.

The following suitability criteria were developed and added on after the major evaluation using capability had been accomplished. Notwithstanding this "add-on", we feel that these suitability criteria adequately describe those elements that were major determinants in plan selection.

SUMMARY OF LAND SUITABILITY FOR VARIOUS ACTIVITIES

ACTIVITY	SUITABILITY CRITERIA	RATING AND ACRES
1. Dispersed Recreation (a) Hunting	Areas within 1 mile of road or mechanized trail access.	Suitable 12,700 acres
	Greater than 1 mile from road or mechanized trail access.	Unsuitable 0 acres
(b) Fishing	Access to fishing waters by: (a) Road (b) within 1 mile of road access, but access is by trail. (c) Greater than 1 mile from road or motorized trail access.	(a) Highly suitable - estimated 2 miles (b) Moderately suitable - estimated 13 miles (c) Low to unsuitable - 14 miles (Rating is in miles of fishing stream)
(c) Off-Road	Where slope is less than 30% area is considered open with specific roads and trails designated closed where problems exist.	Open - 4,170 acres
	Where slope is greater than 30% use is limited to designated roads and trails only.	Closed - 8,530 acres
(d) Camping and Picnicking	On areas with slopes 15% and experience level to be Level II with at least 40% crown cover on site.	High Suitability - 400 acres
	On areas where slopes are 15% and crown cover on site is less than 40%.	Unsuitable - 12,300 acres
2. Developed Recreation camping and picnicking	Access by 4-wheeled vehicle on or to areas 15% slopes and in conjunction with an appropriate attraction (i.e., water).	Suitable - 0 acres Unsuitable - 12,700 acres

ACTIVITY	SUITABILITY CRITERIA	RATING AND ACRES
3. Wilderness	1. Areas 5,000 acres or larger of essentially undeveloped land where the imprint of man's activities is not apparent.	Highly suitable - 0 acres Unsuitable - 12,700 acres
	2. Less than 5,000 acres, but due to physiography and/or vegetation, are manageable in their natural conditions.	
	3. Be a self-contained ecosystem.	
	4. Be at least 70% Federal land.	
4. Grazing	There is no suitability criteria. There is no grazing use at present and the Unit Plan is not proposing any management direction that would make grazing more suitable.	Low to Unsuitable - 12,700 acres
5. Timber Production	1. High sites that can be tractor logged and regenerated without unacceptable erosion.	High - 1,655 acres
	2. High sites that must be logged by other than tractor methods in order to meet acceptable erosion and regeneration standards.	Moderate to Low - 2,930 acres
	3. Any sites that cannot be logged by any method and still meet acceptable erosion standards. In addition, areas that are not capable of producing 20 cubic feet per acre/year.	Unsuitable - 8,115 acres

APPENDIX J

Glossary

GLOSSARY

"ACQUISITION" LANDS	-Private lands which the Forest Service desires to acquire through normal Forest Service land acquisition procedures for the purposes of watershed protection, timber production, recreation, etc.
AFFECTED AREA	-That geographic space, its resources and inhabitants which are affected by activities within the boundaries of the planning unit. The affected area is included in but not necessarily confined to, and is usually greater than, the planning unit area.
AVERAGE NET ANNUAL INCREMENT OF GROWTH	-Estimated growth minus mortality expressed in volume per acre per year based on a Forest-wide average
"AUBURN RESERVOIR AREA" LANDS	-Public and private lands within the Eldorado National Forest project area to be, or already acquired and withdrawn by the Bureau of Reclamation.
BOARD FOOT	-A unit of timber or lumber volume measurement represented by a rough board, one foot long, one foot wide and one inch thick - Abbreviated b.f.
CAPABILITY	-Resource evaluation based on inherent, intrinsic, natural and present ability to support a given type, intensity or quality of use on a sustained basis (i.e. without significant resource deterioration over the time span of renewing biogeochemical cycles.
CLEARCUTTING	-A method of harvest where all trees are removed from an area in one cutting. Also called "patch cutting".
COMMERCIAL FOREST LAND	-Forest land that is physically and biologically cabaple of producing crops of industrial wood in excess of 20 cubic feet per acre per year and is not withdrawn from timber use by statute or administrative regulation; includes both accessible and prospectively accessible areas and both operable and prospectively operable areas.
COMPARTMENT	-An organizational unit or small subdivision of forest area created for purposes of orientation, administration, and silvicultural operations and defined by permanent boundaries, either of natural features or atificially marked, which are not necessarily coincident with management or planning unit or stand boundaries.

CONVERSION PERIOD -Period required to develop an orderly series of size classes within the Standard Component for long-term sustained yield.

CORNER -A stake, tree, or other mark designating the point of intersection of two boundary lines for a piece of property or subdivison of land.

CROWN CLOSURE -The areal extent covered by tree crowns as determined from aerial photography using a minimum delineation unit of at least ten acres.

CUBIC FOOT -A geometric unit measure occupying a space 12 inches wide by 12 inches high by 12 inches deep. Abbreviated c.f. A cubic foot equals 12 board feet of sawed, rough lumber. When converting unsawed timber volume from board feet to cubic feet, the geometric equivalence cannot be used because of conventions inherent in the determination of log volume in board feet. Various conversion ratios have been computed for different log diameters using several scale rules. However, board foot-cubic foot ratios are subject to so many variables that generalizations are almost valueless. On the Eldorado National Forest a cubic foot equals about 6.5 board feet based on Scribner Decimal C Log Scale.

CUTTING CYCLE -The planned, recurring interval of time between successive major cutting operations in the same stand.

DBH -Diameter at breast height (d.b.h.). The diameter of a tree measured four feet six inches from the ground level. "Ground level" can follow two conventions; either the highest point of the ground touching the stem, or the mean of the highest and lowest points.

DEER DAYS -An index of deer use (occupancy). One deer's use of an area for one day equals one Deer Day.

DISPERSED RECREATION -Activities such as hiking, photography, nature study, gold panning, hunting, fishing, horseback riding, and general enjoyment of the forest environment which do not involve developed recreation sites.

EVEN-AGED MANAGEMENT -The actions that will result in and maintain a forest, crop, or stand composed of trees having no or relatively small differences in age (i.e., less than 20 years difference.

EVEN FLOW -The production of a relatively constant supply of timber from year-to-year during any ten-year period with no decline from one ten-year period to the next. A gradual increase in production as the result of more intensive management from one ten-year period to the next is not precluded by this policy.

FOREST LAND -Land at least ten percent stocked by forest trees of any size, or formerly having had such tree cover and not now developed for nonforest use; includes chaparral area and afforested areas. minimum qualifying unit size is ten acres and 120 feet wide.

FOREST RESERVE FUND -The total receipts generated by timber sales and all land use fees within a National Forest. Seventy-five percent of gross receipts goes to the Federal Treasury, and 25 percent is remitted to the counties in which the Forest holds lands. The counties' shares are split 50-50 between roads and schools by State law.

FOREST TYPE -A category of forest defined by its vegetation particularly its composition and/or environmental factors. On the Eldorado two types have been defined for management purposes: red fir and mixed conifer which includes all other conifer types.

GENERAL FOREST ZONE -Areas where conditions are most favorable for the growth of conifer forests and associated herbaceous and woody vegetation. Management direction is to produce sustained yields of commercial timber, high quality water, and livestock forage on permanent range types; maintain or improve habitat for wildlife and fish; recognize opportunities for low density recreation and the need for special management practices for the protection of aesthetic resources. Most of the Forest's commercial timber stands are located in this zone.

HIGH RISK -A term applied to a tree which is expected to die before the next cutting cycle (i.e., within 20 years for a 20-year cutting cycle).

INTERIM STANDARD -Temporary standards for the accuracy, clearing and signing of landlines which are less stringent than full federal standards and which are necessitated by the requirement to harvest a specified volume of timber under constraints on funding, personnel and time.

INTERMEDIATE HARVEST -The removal of trees from a stand between the time of origin and the time of regeneration cutting. Generally taken to include cleaning, thinning, liberation and improvement cuttings, increment fellings, and sometimes even salvage and sanitation cuttings.

INTERMITTENT USE ROAD -Developed for periodic use and closed or "put-ot-bed" for more than three years between periods of use.

LAND EXCHANGE -In the Forest Service, adjusting landownership within the Forest boundary by trading National Forest lands or timber for other lands of equal value.

LANDLINE -A boundary line between two corners of a piece of property or subdivision of land.

LAND MANAGEMENT -Forest Service usage for "Land Use".

LARGE-SIZED -Timber that is 21 inches or more d.b.h., greater than 180 years old, and with crown diameters mostly greater than or equal to 40 feet.

MANAGEMENT SYSTEM -The aggregation of activities planned to achieve stated objectives.

MARGINAL SPECIES -Species that at this time have doubtful economic product value or a limited market.

MAXIMUM-POOL ELEVATION -The elevation above sea level that is reached by the waterline of a reservoir filled to maximum capacity. Generally this is the elevation of the spillway at the dam.

MECHANICAL-RISK -A term applied to a tree which is rotten and subject to breakage at that point.

MEDIUM-SIZED -Timber that is 21 inches or more d.b.h., less than 180 years old, and with crown diameters mostly 24 to 40 feet.

MEMORANDUM OF UNDERSTANDING -A legal document between two or more government agencies specifying for each party, procedures, responsibilities, and actions permissible under various laws

and regulations. The agreement may generally be canceled by either party at any time with sufficient notice.

MIXED CONIFER -An aggregation of trees (i.e., ponderosa pine, sugar pine, incense cedar, and Douglas-fir) in which less than 80 percent are a single species.

MMBF -Million board feet (e.g. 3.5 MMBF = 3,500,000 board feet).

NON-DECLINING YIELD -A Forest Service policy which requires that timber harvest be set at a level when permits no reduction between successive decades.

NON-FOREST LAND -Land that has never supported forests and lands formerly forested but now developed for such non-forest uses as reservoirs, canals, roads, rights-of-way, crops, improved pastures, residential areas; includes streams and lakes.

OBLITERATE -To eliminate a temporary non-system road so that no evidence of its previous existence remains.

OVERSTORY -That portion of trees which forms the upper or uppermost layer in a forest with more than one roughly horizontal layer of foilage.

PLANNING AREA -The largest Forest Service land use planning subdivision; a specifically identified geographic area containing social and physical resources and land characteristics of a generally similar nature to which a Planning Area Guide applies.

POTENTIAL YIELD -The maximum harvest for the next ten years that could be planned to achieve the optimum perpetual sustained yield harvesting level attainable with intensive forestry on regulated areas considering the productivity of the land, administrative constraints, conventional logging technology, standard cultural treatments and interrelationships with other resource uses and the environment.

PROGRAMMED ALLOWABLE HARVEST -Comparable to present use of "Allowable Harvest". That part of the potential yield that is scheduled for sale in a specific year and any necessary unregulated harvest. Within the constraints of the Timber Management Plan, the Forest Supervisor schedules the volume to be sold each fiscal year based on current demand, funding, silvicultural practices and multiple use considerations.

PUT-TO-BED -The exclusion of traffic from an intermittent use road by physically preventing access and the protection of the road surface by various means which may include water barring and seeding.

REGENERATION -The renewal of a tree crop by planting or natural reseeding.

RESOURCE MANAGEMENT PLAN -Forest Service revised term for "Functional Plan".

ROTATION INTERVAL -The period of years required to establish and grow a timber crop to a condition of maximized mean annual increment of growth. On the Eldorado NF this has been determined to be from 50 to 170 years for mixed conifer stands.

SALVAGE CUTTING -Cutting primarily to utilize dead and downed material resulting from fire, wind, insect attack or disease and scattered, poor-risk trees that would not be merchantable if left until the next scheduled cut.

SANITATION CUTTING -Removal of dead, diseased, infested, damaged, or susceptible trees essentially to prevent the spread of pests or pathogens and promote forest hygiene.

SEDIMENT YIELD -The amount of eroded soil material that reaches a perennial body of water.

"SELECTED" LANDS -Public lands selected for disposal by the Forest Service to more effeciently implement management programs.

SELECTION CUTTING -Removal of timber, usually the oldest or largest trees, either as single scattered trees or small groups at relatively short intervals, commonly five to 20 years, repeated indefinitely, thereby encouraging the continuous establishment of natural reproduction and maintaining an uneven-age stand.

SHELTERWOOD CUTTING -Removal which leaves about 50 percent or more shade on the ground. In some places more trees than are needed to provide shade for reproduction must be left in order to prevent windthrow. Crop is removed in two or more cuttings; seed tree, removal, and final, which are the first, intervening, and last respectively.

SILVICULTURE -The theory and practice of controlling forest establishment, composition and growth.

SITE CLASS -A quantitative classification of an area in terms of potential for growing trees.

SITE TYPE -A qualitative classification of an area in terms of climate, soil, and vegetation.

SLASH -Any residue including tops, cull logs and other woods material derived from felling timber or occurring naturally and not removed during the logging operation.

SMALL-SIZED -Timber that is 11 to 21 inches d.b.h., and with crown diameters mostly 13 to 24 feet.

STABILIZED SURFACE -An erosion resistant road surface obtained by surfacing with crushed aggregate or as a result of mixing natural surface material with binding materials such as oil.

STAND -An area of trees that has sufficient uniformity in species, age and density to distinguish it from the forest or growth around it.

STRATUM -That grouping of homogeneous timber stands based on stand density, size and condition.

SUITABILITY -Resource evaluation based on a managed, potential ability if specified management activities or other type of alteration were to occur.

SUSTAINED YIELD -The achievement and maintenance in perpetuity of regular periodic output of the various renewable resources of the national forests at a given intensity of management without impairment of the productivity of the land.

TEMPORARY ROAD -A road which is not part of the transportation system and the construction of which by definition does not include cuts and fills or alteration of drainage patterns.

THINNING -Cutting made in an immature crop or stand in order primarily to accelerate the diameter increment (annual growth) of the residual trees but also, by suitable selection, to improve the average form of the trees that remain without (at least according to classical concepts) permanently breaking the canopy.

TIMBER MANAGEMENT PLAN -A functional (resource management) plan, revised every ten years, for the management of the timber resource. It considers timber growth rates, timber volumes, access to timber stands, land use zoning and many other resource constraints in providing for a pattern of timber harvesting to insure a regular flow of forest products.

TIMBER RAM -A methodology utilizing computer analysis and linear programming to develop long-range timber management plans. (Timber Resource Allocation Method).

TOLERANCE -The resistance of an organism to the excess or the deficiency of an element or a condition in its environment. The capacity of an organism or biological process to subsist under a given set of environmental conditions such as high levels of pollution.

TRAVEL INFLUENCE ZONE -Areas comprising existing or anticipated significant public outdoor recreational occupancy, use, and enjoyment along existing and planned overland routes of travel; areas in and around existing or planned developed recreation sites. These are areas in which the maintenance or enhancement of aesthetic qualities are important management considerations.

UNDERSTORY -That portion of the vegetation generally consisting of brush and small trees growing underneath the main or dominant body of trees in a forest stand.

UNEVEN-AGED MANAGEMENT -The courses of action involved in maintaining a forest or stand composed of intermingling trees that differ by more than 10 to 20 years in age.

VISITOR DAY -A measure of recreation use equivalent to 12 visitor hours which may be aggregated continuously, intermittently, or simutaneously by one or more persons.

APPENDIX K

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