LAKE CASITAS

Draft Resource Management Plan / Environmental Impact Statement

June 2008

United States Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
South-Central California Office

RECLAMATION
Managing Water in the West

MISSION STATEMENTS

DEPARTMENT OF THE INTERIOR

The Mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

BUREAU OF RECLAMATION

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

CONSULTANT:

URS CORPORATION
1333 Broadway, Suite 800
Oakland, CA 94612-1924

CONTRACT NUMBER: 01CS20210H

LAKE CASITAS

Draft
Resource Management Plan / Environmental Impact Statement

June 2008

Prepared by

United States Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South Central California Office

LAKE CASITAS

Draft
Resource Management Plan /
Environmental Impact Statement

Prepared by

United States Department of the Interior
Bureau of Reclamation
Mid Pacific Region
Sacramento, California

South-Central California Area Office
1243 “N” Street
Fresno, California 93721-1813
(559) 487-5116

June 2008

The Bureau of Reclamation (Reclamation) in cooperation with the Casitas Municipal Water District (CMWD) developed the Lake Casitas Resource Management Plan (RMP) to establish management objectives, guidelines, and actions for the Lake Casitas Recreation Area (Park) and the 3,500 acres of Open Space Lands north of the Park, which together comprise the Plan Area.

The RMP is a long-term plan that will guide future actions in the Plan Area and is based on a comprehensive inventory of environmental resources and facilities and input from local, state, and federal agencies, the CMWD, and the general public. The primary emphasis of the RMP is to protect water quality, water supply, and natural resources, while enhancing recreational uses at the Park. The recreational uses must be compatible with the primary obligation to operate the reservoir for storage and delivery of high-quality water. The development of the RMP is based upon authorities provided by Congress through the Reclamation Act, Federal Water Project Recreation Act, Reclamation Recreation Management Act, and applicable federal agency and United States Department of the Interior policies.

The purpose of the RMP is to provide a program and set of policy guidelines necessary to encourage orderly use, development, and management of the surrounding lands. The RMP will provide outdoor recreational opportunities, enhanced by Lake Casitas and its shoreline, compatible with the surrounding scenic, environmental, and cultural resources.

The planning process for the Lake Casitas RMP involves the integration of issues, opportunities and constraints; management actions; and management zones. It follows the guidance of federal planning mandates and proposed actions that balance recreation opportunities with natural and cultural resource stewardship. The following are the basic elements of the planning process:

- Define the overall goals and objectives
- Describe the resource categories that group the issues
- Identify the issues, opportunities, and constraints
- Determine management actions to address the issues
- Define the management zones for Lake Casitas.

The environmental impacts of the RMP are assessed in a programmatic Environmental Impact Statement (EIS) that has been included as part of this joint RMP/EIS document. The environmental review focuses on the potential for management actions to cause adverse or beneficial environmental impacts to natural and cultural resources such as water quality, endangered species, and historic resources.

Three planning alternatives were formulated to address the issues, opportunities, and constraints in the Plan Area. The No Action and two action alternatives are as follows:

- No Action (Alternative 1)—This alternative manages land and activities with the continuation of current management practice.
- Enhancement (Alternative 2)—This alternative balances natural resource protection and recreation opportunities.
- Recreation Expansion (Alternative 3)—This alternative emphasizes expanded recreation opportunities.

Under the No Action Alternative, current resource and recreation management direction and practices at Lake Casitas would continue unchanged. However, some infrastructure improvements would be implemented that are common to all the alternatives. The No Action Alternative provides the benchmark for making comparisons in the EIS between possible future changes under Alternatives 2 and 3.

The objective of Alternative 2 is to enhance current recreational uses and public access at the Park in order to attract more visitors and increase recreational opportunities, while protecting natural resources with new or modified land and recreation management practices. These activities propose upgrades and improvements for many of the Park's existing facilities and utilities. Examples include building connectors to the Los Padres National Forest and Ojai Conservancy trail heads in the Open Space Lands and expanding boating support by increasing the marina and boat ramp capacity. Other infrastructure improvements include expanding the water park, building an amphitheater, and modifying some campsites to be compatible with multiple uses. Park infrastructure improvements are also included in Alternative 2. These include road repairs, relocating and screening the storage area, and improving the Park entrance.

Alternative 3 would expand recreational uses and public access by implementing new or modified land and recreation management practices. This alternative is included to demonstrate a scenario in which recreational uses at the Park are substantially expanded while meeting the RMP goals for protection of natural resources to the extent feasible. Alternative 3 includes all of the management actions in Alternative 2 with a key addition that would allow body contact water sports including water-skiing and swim beaches. In addition, the majority of campsites would be modified for multiple uses, day use would be allowed on the Main Island, and equestrian use would be permitted in the Open Space Lands.

Section 3, Existing Conditions, describes features that could be affected by the alternatives. Other topics such as climate and air quality are addressed to provide context, but less detail is provided because impacts to these resources would be less noticeable.

Much of the data collected for the description of the existing environment is included in GIS format. Many figures include information showing areas with sensitive resources (i.e., biology and land use) as well as other areas characterized by hazard potential (i.e., erosion and geological hazards). These figures and the impact analyses provided in Section 4 would be the basis of constraint analysis that would guide any plans for future development within the planning horizon.

Section 4, Environmental Consequences, describes the impact of implementing each of the action alternatives as well as the No Action Alternative. Future actions that might result in site-specific impacts will be addressed in project-specific plans and environmental documentation as they arise. Where possible, avoidance, minimization, and mitigation measures are provided to reduce the severity of each impact.

Before presentation of the impacts, impact thresholds are identified and, where applicable, impact methodology is also discussed. Thresholds are expressed as beneficial impact, no impact, minor adverse impact, or major adverse impact.

- **Beneficial Impact:** This impact category would occur when an activity could result in the elimination, reduction, or resolution of a conflict.

- **No Impact:** This impact category would occur if an activity would result in no change over the existing condition.
- **Minor Adverse Impact:** This impact category would occur if an activity would result in deterioration or in a conflict.
- **Major Adverse Impact:** This impact category would occur if an activity would result in a dramatic deterioration or a severe conflict.

Then, the impacts of actions common to all alternatives are discussed, followed by impacts unique to each alternative and then an impact summary and mitigation measures if applicable. Cumulative impacts are discussed at the end of each resource topic where applicable.

The impacts of each alternative to each resource topic are summarized in Table S-1. In some cases, a range of impact thresholds is indicated. The Lake Casitas RMP is a program document and, therefore, not site-specific. Additionally, some impacts may vary depending on season. One example is for visitor access, where the effects of increased visitation on circulation depend on the season and time of travel to and from the park, resulting in a range of impacts. All mitigation measures reduce impact thresholds to between minor adverse impact and no impact, with the exception of body contact water sports under Alternative 3.

Table S-1
Impacts Summary

	Alternative 1	Alternative 2		Alternative 3	
Impacts to Resources	**Impact Magnitude**	**Impact Magnitude**	**Impact After Mitigation**	**Impact Magnitude**	**Impact After Mitigation**
WATER RESOURCES					
WQ-1: Motorized boat emissions	Minor	Minor	Minor	Minor	Minor
WQ-2: Construction, maintenance and use of facilities	Minor	Minor	Minor	Minor	Minor
WQ-3: Portable, floating and vault toilet clearing and cleaning	Minor	Minor	Minor	Minor	Minor
WQ-4: Human body water contact	No Impact	No Impact	No Impact	Major	Minor
WQ-5: Removal of private residences from Open Space Lands	Beneficial	Beneficial	NA	Beneficial	NA
AIR QUALITY					
AQ-1: Site maintenance and facilities construction	Minor	Minor	No Impact	Minor	No Impact
AQ-2: Fires (prescribed or accidental)	Minor	Minor	Minor	Minor	Minor
SOILS AND GEOLOGY					
SG-1: Construction and Maintenance activities	Minor – Major	Minor – Major	Minor – No Impact	Minor – Major	Minor – No Impact

Table S-1
Impacts Summary

Impacts to Resources	Alternative 1	Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mitigation	Impact Magnitude	Impact After Mitigation
SG-2: Prescribed burning	Minor – Major	Major	Minor – No Impact	Major	Minor – No Impact
SG-3: Trail use and construction	No Impact	Minor – Major	Minor – No Impact	Minor – Major	Minor
BIOLOGY					
BI-1: Expansion of recreation activities and increased visitor use	Minor	Minor – Major	Minor – No Impact	Major	Minor – No Impact
BI-2: Relocation of radio-controlled airplane strip	No Impact	Minor	Minor	Minor	Minor
BI-3: Expansion of trail system	No Impact	Minor	Minor - No Impact	Minor	Minor - No Impact
BI-4: Increased boat use and access	Minor	Minor	No Impact	Major	No Impact
BI-5: Increase in fishing and/or disturbance to spawning areas	No Impact	No Impact	No Impact	Minor - Major	Minor - No Impact
BI-6: Increased runoff due to increased visitor camping activity	Minor	Major – Minor	Minor	Major - Minor	Minor
CULTURAL RESOURCES					
CU-1: Construction of proposed facilities and trails	Major	Major	Minor	Major	Minor
CU-2: Increased visitor activity	No Impact	Major	Minor	Major	Minor
CU-3: Prescribed burns/pest management	Minor	Minor	Minor	Minor	Minor
HAZARDOUS MATERIALS					
NA	No Impacts	No Impacts		No Impacts	
VISUAL RESOURCES					
VR-1: Construction of trails and structures (Amphitheater)	No Impact	Minor	Minor – No Impact	Major	Minor – No Impact
VR-2: Smoke from prescribed burns	Minor	Minor	Minor	Minor	Minor
VR-3: Increased boat densities	No Impact	Minor	Minor	Minor	Minor
VR-4: Relocation of the storage area	No Impact	Beneficial	NA	Beneficial	NA
VR-5: Loss of oak trees due to facilities construction	No Impact	Minor	Minor – No Impact	Minor	Minor – No Impact
LAND USE					
LU-1: Prescribed burning	Minor	Minor	Minor	Minor	Minor

Table S-1
Impacts Summary

Impacts to Resources	Alternative 1	Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mitigation	Impact Magnitude	Impact After Mitigation
LU-2: Use of trail system: equestrian and cyclists	Minor	Minor	No Impact	Minor	No Impact
RECREATION					
R-1: Body contact water sports	No Impact	No Impact	No Impact	Major	Major - Minor
R-2: Expansion of camping and park infrastructure	No Impact	Minor	Minor	Minor	Minor
R-3: Day use and camping on the Main Island	No Impact	Minor	Minor	Minor	Minor
R-4: Addition and expansion of management plans	No Impact	Beneficial	NA	Beneficial	NA
R-5: Noise pollution from radio-controlled airplanes, construction equipment, and ski boats	Minor	Major	Minor	Major	Minor
VISITOR ACCESS AND CIRCULATION					
TR-1: Construction and maintenance activities	Minor	Major – Minor	Minor	Major - Minor	Minor
TR-2: Visitor access and circulation	Minor	Major – Minor	Minor	Major - Minor	Minor

TABLE OF CONTENTS

Executive Summary ES-1

Section 1 Introduction 1-1

1.1 Background 1-1
1.2 Overview of the RMP 1-2
1.3 Purpose and Need 1-3
1.4 Management Objectives 1-3

Section 2 Resource Management Plan and Alternatives 2-1

2.1 Section Organization 2-1
2.2 Planning Process 2-1
2.2.1 Primary Issue Areas 2-2
2.2.2 Planning Principles 2-3
2.2.3 Opportunities and Constraints 2-3
2.2.4 Public Input 2-5
2.2.5 Management Zones and Planning Units 2-6
2.3 Goals 2-7
2.4 Formulation of Alternatives 2-8
2.4.1 Introduction 2-8
2.4.2 Roles and Responsibilities of Reclamation and Managing Partner(s) 2-8
2.4.3 Implementation Approach 2-9
2.5 Common Infrastructure, Operational Improvements and Management Actions for All Alternatives 2-10
2.5.1 Open Space Lands 2-10
2.5.2 Lake Recreation 2-10
2.5.3 Infrastructure, Services/Facility Upgrades 2-11
2.5.4 Natural and Cultural Resource Management and Protection 2-12
2.5.5 Health and Safety 2-12
2.5.6 Visitor Services 2-12
2.6 Management Actions for Alternative 1: No Action 2-12
2.6.1 Objectives 2-12
2.6.2 Open Space Lands 2-13
2.6.3 Lake Recreation 2-13
2.6.4 Infrastructure, Services/Facility Upgrades 2-13
2.7 Unique Management Actions for Alternative 2: Enhancement 2-13
2.7.1 Objectives 2-13
2.7.2 Open Space Lands 2-13
2.7.3 Lake Recreation 2-14
2.7.4 Infrastructure, Services/Facility Upgrades 2-14
2.7.5 Natural and Cultural Resource Management and Protection 2-15
2.7.6 Health and Safety 2-15
2.7.7 Visitor Services 2-15

2.8 Unique Management Actions for Alternative 3: Recreation Expansion 2-15
2.8.1 Objectives 2-15
2.8.2 Open Space Lands 2-16
2.8.3 Lake Recreation 2-16
2.8.4 Infrastructure, Service/Facility Upgrades 2-16

Section 3 Existing Conditions 3-1

3.1 Water Resources 3-1
3.1.1 Regional Setting 3-1
3.1.2 Plan Area Existing Conditions 3-2
3.2 Air Quality 3-10
3.2.1 Regional Setting 3-10
3.2.2 Plan Area Existing Conditions 3-13
3.2.3 Regulatory Setting 3-13
3.3 Soils and Geology 3-18
3.3.1 Regional Setting 3-18
3.3.2 Existing Conditions 3-19
3.3.3 Regulatory Setting 3-23
3.4 Biological Resources 3-24
3.4.1 Regional Setting 3-24
3.4.2 Plan Area Setting 3-24
3.4.3 Vegetation 3-24
3.4.4 Aquatic Resources 3-30
3.4.5 Wildlife 3-34
3.4.6 Special-Status Species 3-42
3.5 Cultural Resources 3-49
3.5.1 Regional Setting 3-50
3.5.2 Plan Area Existing Conditions 3-52
3.5.3 Regulatory Setting 3-53
3.6 Hazardous Materials 3-57
3.6.1 Regional Setting 3-57
3.6.2 Plan Area Existing Conditions 3-57
3.6.3 Recognized Environmental Conditions 3-59
3.7 Visual and Scenic Resources 3-59
3.7.1 Regional Setting 3-59
3.7.2 Plan Area Existing Conditions 3-59
3.8 Land Use 3-60
3.8.1 Regional Setting 3-60
3.8.2 Plan Area Existing Conditions 3-60
3.8.3 Demographics 3-61
3.8.4 Regulatory Setting 3-64
3.9 Recreation 3-64
3.9.1 Regional Setting 3-64
3.9.2 Park Existing Conditions 3-70
3.9.3 Local Recreational and User Group Interests 3-74

3.9.4 Visitation 3-76
3.9.5 Recreation Situation 3-76
3.9.6 Water Recreation Opportunity Spectrum Planning Tool 3-78
3.10 Visitor Access and Circulation 3-80
3.10.1 Regional Setting 3-80
3.10.2 Plan Area Existing Conditions 3-81

Section 4 Environmental Consequences 4-1

4.1 Water Resources 4-1
4.1.1 Introduction 4-1
4.1.2 Impact Thresholds 4-1
4.1.3 Impacts Common to All Alternatives 4-2
4.1.4 Impacts Specific to Alternative 1 4-3
4.1.5 Impacts Specific to Alternative 2 4-3
4.1.6 Impacts Specific to Alternative 3 4-4
4.1.7 Impacts Summary 4-6
4.2 Air Quality 4-7
4.2.1 Introduction 4-7
4.2.2 Impact Thresholds 4-8
4.2.3 Impacts Common to All Alternatives 4-8
4.2.4 Impacts Specific to Alternative 1 4-9
4.2.5 Impacts Specific to Alternative 2 4-9
4.2.6 Impacts Specific to Alternative 3 4-9
4.2.7 Impacts Summary 4-9
4.2.8 Cumulative Impacts 4-11
4.3 Soils and Geology 4-11
4.3.1 Introduction 4-11
4.3.2 Impact Thresholds 4-11
4.3.3 Impacts Common to All Alternatives 4-12
4.3.4 Impacts Specific to Alternative 1 4-13
4.3.5 Impacts Specific to Alternative 2 4-13
4.3.6 Impacts Specific to Alternative 3 4-14
4.3.7 Impacts Summary 4-15
4.3.8 Cumulative Impacts 4-17
4.4 Biological Resources 4-17
4.4.1 Introduction 4-17
4.4.2 Impact Thresholds 4-17
4.4.3 Impacts Common to All Alternatives 4-18
4.4.4 Impacts Specific to Alternative 1 4-20
4.4.5 Impacts Specific to Alternative 2 4-22
4.4.6 Impacts Specific to Alternative 3 4-26
4.4.7 Impacts Summary 4-30
4.4.8 Cumulative Impacts 4-34
4.5 Cultural Resources 4-34
4.5.1 Introduction 4-34
4.5.2 Impact Thresholds 4-35

4.5.3 Impacts Common to All Alternatives 4-36
4.5.4 Impacts Specific to Alternative 1 4-37
4.5.5 Impacts Specific to Alternative 2 4-37
4.5.6 Impacts Specific to Alternative 3 4-39
4.5.7 Impacts Summary 4-40
4.6 Hazardous Materials 4-43
4.6.1 Introduction 4-43
4.6.2 Impact Thresholds 4-43
4.6.3 Impacts Common to All Alternatives 4-44
4.6.4 Impacts Summary 4-45
4.7 Visual Resources 4-45
4.7.1 Introduction 4-45
4.7.2 Impact Thresholds 4-45
4.7.3 Impacts Common to All Alternatives 4-46
4.7.4 Impacts Specific to Alternative 1 4-46
4.7.5 Impacts Specific to Alternative 2 4-46
4.7.6 Impacts Specific to Alternative 3 4-47
4.7.7 Impacts Summary 4-47
4.8 Land Use 4-49
4.8.1 Introduction 4-49
4.8.2 Impact Thresholds 4-49
4.8.3 Impacts Common to All Alternatives 4-49
4.8.4 Impacts Specific to Alternative 1 4-50
4.8.5 Impacts Specific to Alternative 2 4-50
4.8.6 Impacts Specific to Alternative 3 4-50
4.8.7 Impacts Summary 4-51
4.9 Recreation 4-51
4.9.1 Introduction 4-51
4.9.2 Impact Thresholds 4-52
4.9.3 Impacts Common to All Alternatives 4-53
4.9.4 Impacts Specific to Alternative 1 4-55
4.9.5 Impacts Specific to Alternative 2 4-56
4.9.6 Impacts Specific to Alternative 3 4-59
4.9.7 Impacts Summary 4-61
4.10 Visitor Access and Circulation 4-64
4.10.1 Introduction 4-64
4.10.2 Impact Thresholds 4-65
4.10.3 Impacts Common to All Alternatives 4-65
4.10.4 Impacts Specific to Alternative 1 4-66
4.10.5 Impacts Specific to Alternative 2 4-66
4.10.6 Impacts Specific to Alternative 3 4-66
4.10.7 Impacts Summary 4-67
4.11 Summary of Impacts of Each Alternative 4-68
4.12 Significant Irreversible Environmental Changes 4-70

Section 5 References 5-1

TABLE OF CONTENTS

Section 6 List of Preparers 6-1

Tables

2-1 Opportunities and Constraints, Lake Casitas RMP

2-2 Proposed Common and Unique Management Elements for Alternatives for Lake Casitas RMP

3.1-1 Phase II Inorganic Compounds

3.1-2 Phase II Organic Chemicals

3.1-3 Phase V Organic Chemicals

3.1-4 Phase V Inorganic Compounds

3.1-5 THM Monitoring Results

3.2-1 Ambient Air Quality Standards

3.2-2 National Ambient Air Quality Standards and Status South Central Coast Air Basin

3.2-3 California Ambient Air Quality Standards and Status South Central Coast Air Basin

3.3-1 Soil Associations and Characteristics in the Vicinity of Lake Casitas

3.3-2 Soil Summary for Lake Casitas Region

3.4-1 Acreage of Habitats in the Lake Casitas Plan Area

3.4-2 Summary of Major Creeks in the Plan Area

3.5-1 Previously Recorded Cultural Resources

3.9-1 Regional Recreation Opportunities

3.9-2 Special Events/Educational Opportunities

3.9-3 Lake Casitas Campsites Profile

3.9-4 Recreation Supply

3.9-5 State and County Population Projections

3.10-1 Number of Visitors, Vehicles, and Boats to the Lake Casitas Recreation Area from 1997-2006

3.10-2 2005 Visitors to Lake Casitas Recreation Area by County and Use

4.9-1 Reasonable Boating Capacity Coefficients

4.11-1 Impacts Summary

TABLE OF CONTENTS

Figures

1-1	Plan Area Vicinity Map
1-2	Lake Casitas Plan Area
2-1	Existing and No Action (Alternative 1) WROS Management Zones
2-2	Planning Units
2-3	Alternative 2 WROS Management Zones
2-4	Alternative 3 WROS Management Zones
3.3-1	Slope Inclination
3.3-2a	Geologic Formations (Dibblee)
3.3-2b	Key for Geologic Map
3.3-3	Ground Shaking Potential
3.3-4	Earthquake-Induced Landslide Susceptibility
3.3-5	Major Known Faults
3.3-6	Soils
3.4-1	Plan Area Vegetation (North)
3.4-2	Plan Area Vegetation (South)
3.4-3	Sensitive Plants and Upland Habitats
3.4-4	Wetlands, Creeks, and Ponds
3.4-5	Invasive Species Locations
3.4-6	Important Bird Use Areas
3.7-1a	Casitas Dam and Spillway
3.7-1b	Overview of Casitas Dam Area
3.7-2	View of the Open Space Lands
3.7-3	Overview
3.7-4	Coyote Creek, Looking Southwest
3.7-5	View of the Open Space Lands from the Fire Road
3.7-6	View from Dead Horse Canyon, Looking Southwest
3.7-7	Coyote Creek, Looking West Toward Lookout Point on SR 150
3.7-8	Santa Ana Boat Ramp
3.7-9	Coyote Creek, Looking North Toward Coyote Boat Ramp
3.7-10	Coyote Creek, Looking Northwest Toward Mallard Camp
3.7-11a	A Special Events Area

3.7-11b Special Events Area (Potential Amphitheater Site)
3.7-12 Boat and Trailer Storage Area
3.8-1 Plan Area Fire History
3.8-2 Plan Area Fuel Rank
3.9-1 Park Recreation Features

Appendices

A Species and Natural Communities in the Plan Area
B Summary of 2004–2006 Bird Survey Results
C Fisheries Management Plan
D California Red-Legged Frog Survey Report

Acronyms and Abbreviations

$\mu g/m^3$	microgram(s) per cubic meter
ADA	Americans with Disabilities Act
AQMP	Air Quality Management Plan
AUM	animal unit month
BAOT	boats on the lake at any one time
Basin	South Central Coast Air Basin
BMP	Best Management Practice
CAA	Clean Air Act
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFG	California Department of Fish and Game
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMWD	Casitas Municipal Water District
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
Conservancy	Ojai Valley Land Conservancy

CRHR	California Register of Historical Resources
D/DBP	Disinfectants/Disinfection By-Products
DWR	California Department of Water Resources
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
Forest Service	United States Department of Agriculture Forest Service
GIS	Geographic Information System
gpm/sf	gallons per minute per square foot
HAA5	haloacetic acid compounds
IDSE	Initial Distribution System Evaluation
LOS	Level of Service
LPNF	Los Padres National Forest
LT2ESWTR	Long Term 2 Enhanced Surface Water Treatment Rule
M	magnitude
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MFL	million fibers per liter
mg/L	milligram(s) per liter
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NO_x	nitrogen oxides
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Units
O_3	ozone
Park	Lake Casitas Recreation Area
PM_{10}	particulate matter of 10 microns or less in diameter
$PM_{2.5}$	particulate matter of 2.5 microns or less in diameter
ppm	part(s) per million by volume
RD	Rural Developed
Reclamation	Bureau of Reclamation
RMP	Resource Management Plan

RN	Rural Natural
ROC	reactive organic compound
RV	recreational vehicle
SCCIC	South Central Coastal Information Center
SO_2	sulfur dioxide
SO_4	sulfates
SO_x	sulfur oxide
SR	State Route
SWTR	Surface Water Treatment Rule
THM	trihalomethane
US 101	United States Highway 101
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VCAPCD	Ventura County Air Pollution Control District
VOC	volatile organic compound
WROS	Water Recreation Opportunity Spectrum

1.1 BACKGROUND

The Bureau of Reclamation (Reclamation) completed construction of Casitas Dam in November 1958, forming Lake Casitas (Figure 1-1). Lake Casitas is located approximately 78 miles northwest of the City of Los Angeles and 13 miles north of the City of Ventura, near the intersection of State Route (SR) 33 and SR 150. Casitas Dam was built on Coyote Creek 2 miles above the junction of Coyote Creek and the Ventura River near the City of Ojai as part of the 1956 Ventura River Project.

The main features of the Ventura River Project are Casitas Dam and Lake Casitas; the Robles Diversion Dam, which lies on the Ventura River about 1.5 miles downstream from the river's formation, diverting much of its flow to Coyote Creek; the 5.4-mile Robles-Casitas Canal, which conveys the diverted flow of the Ventura River into Coyote Creek and then Lake Casitas; and the main conveyance system, which includes 34 miles of pipeline, five pumping stations, and six balancing reservoirs located throughout the project area—all of which contribute to the eventual delivery of project water to area subscribers.

Lake Casitas has a capacity of 254,000 acre-feet and stores water for irrigation, municipal and industrial use within the Casitas Municipal Water District (CMWD). The lake supplies water to 60,000 to 70,000 people in Western Ventura County and hundreds of farms. Although Reclamation owns Casitas Dam, CMWD owns and operates the water rights and water stored in Lake Casitas and operates the dam. In the 1984 Olympics in Los Angeles, Lake Casitas was host to Olympic rowing events.

CMWD boundaries encompass the City of Ojai, Upper Ojai, the Ventura River Valley area, the City of Ventura to Mills Road, and the Rincon and beach area to the ocean and the Santa Barbara County line. Annual water deliveries can vary considerably. This is because CMWD has a large number of agricultural customers whose water needs can change significantly due to variations in weather and rainfall. Water deliveries can range from less than 15,000 acre-feet per year to more than 23,000 acre-feet in a given year.

The Lake Casitas Recreation Area (Park) lies along the north shore of the lake bordering Wadleigh Arm on the east and the Deep Cat log boom across Coyote Creek on the west. The Park includes the undeveloped Main Island in the center of the lake. The Park entrance is off SR 150 (Baldwin Road) at Santa Ana Road. There are two boat ramps, one at Santa Ana Creek and another to the west near Coyote Creek. Improved hiking and biking trails surround Santa Ana Creek and extend east to the Park boundary. Camping and picnicking areas surround Santa Ana Creek and the western area of the Park. The Park has a store on the west side of Santa Ana Creek and a special events area at the western Park boundary. Facilities include recreational vehicle (RV) and tent campsites; coin-operated showers; a cafe; boat, trailer and bicycle rentals; a storage yard; Casitas Water Adventure, a water park; and the Park ranger station.

Title IV of the Reclamation Development Act of 1974 authorized the purchase of approximately 3,500 acres of land north of the Park, called the Casitas Open Space, created to "provide for water quality in Lake Casitas, along with the preservation and enhancement of public outdoor recreation, fish and wildlife, and the environment." Title IV mandated that the "land will be kept in its natural state as permanent open space." Between 1976 and 1980, Reclamation acquired the privately owned properties in the Casitas Open Space (referred to as Open Space Lands). The majority of this land is north of Lake Casitas; however, a limited amount of additional Open

Space Land lies on the west side of the lake between the shoreline and SR 150. Landowners were offered either a 25-year or lifetime lease/buyouts for their land. All but three properties accepted 25-year leases. Two lifetime leases remain active at this time. Reclamation is in the process of removing residences and improvements such as roads, guesthouses, detached garages, barns, stables, corrals, fences, landscaping, and storage sheds. The Open Space Lands are not open to the general public except for limited day use on improved roads.

The Plan Area for this resource management plan (Plan Area; Figure 1-2) includes the Park with 35 miles of shoreline, approximately 2,700 acres of water surface area, 1,200 acres of Park land around the lake, and 3,500 acres of Open Space Lands, for a total of approximately 7,400 acres.

CMWD currently manages the Plan Area pursuant to the 1956 agreement for the Ventura River Project, which did not consider the current level of recreation activity the Plan Area now serves. Under new long-term management agreement(s), the managing partner for the Open Space Lands may be different than the managing partner for the Park.

This Lake Casitas Resource Management Plan (RMP) addresses resource management alternatives for the Park and adjacent Open Space Lands as appropriate for water quality, recreation, and natural resource management opportunities. All recreational uses and improvements at the lake must be consistent with the original purpose of the Reclamation project and must not interfere with lake operations, which are focused on providing for Ventura River Project water storage, and delivery of a reliable annual yield of high-quality water primarily for agricultural, municipal and industrial use.

1.2 OVERVIEW OF THE RMP

The Lake Casitas RMP is a long-term plan that will guide future actions in the Plan Area. The RMP has been developed based on a comprehensive inventory of environmental resources and facilities, and input from other federal agencies (such as the U.S. Fish and Wildlife Service [USFWS] and the U.S. Department of Agriculture Forest Service [Forest Service]), the CMWD, and the general public. The primary emphasis of the RMP is to protect water quality, water supply and natural resources, while enhancing recreational uses at the lake.

The objective of an RMP is to establish management objectives, guidelines, and actions to be implemented by Reclamation directly, or through its recreation contract, that will:

- Protect the water supply and water quality functions of Lake Casitas
- Protect and enhance natural and cultural resources in the Plan Area, consistent with federal law and Reclamation policies
- Provide recreational opportunities and facilities consistent with the original Lake Casitas project purposes, Reclamation policies, and state water policies

The development of the RMP is based upon authorities provided by the U.S. Congress through the Reclamation Act, Federal Water Project Recreation Act, Reclamation Recreation Management Act, and applicable federal agency and U.S. Department of the Interior policies.

The environmental impacts of the RMP are assessed in a programmatic Environmental Impact Statement (EIS) that is included in this document. The environmental review focuses on the potential for management actions to cause adverse environmental impacts to natural and cultural

resources such as water quality, endangered species, and historic resources. Any future actions that would result in new facilities, ground disturbances, or environmental impacts beyond the programmatic analysis provided would be subject to subsequent environmental review. This joint RMP/EIS also considers and compares alternative management actions.

The RMP will have a planning horizon of 25 years. The planning horizon will begin at the time a new management agreement is reached between Reclamation and its managing partner(s).

1.3 PURPOSE AND NEED

As required under the National Environmental Policy Act (NEPA), a proposed action such as the RMP requires a statement of the action's purpose and need.

The RMP will address the following needs:

- Ensure safe storage and timely delivery of high-quality water to users while enhancing natural resources and recreational opportunities.
- Protect natural resources while educating the public about the value of the resources and good stewardship.
- Provide recreational opportunities to meet the demands of a growing, diverse population.
- Ensure recreational diversity and the quality of the recreational experience.
- Provide the framework for establishing new management agreement(s) with the managing partner(s).

The purpose of the RMP is to provide a program and set of policy guidelines necessary to encourage orderly use, development, and management of the lake and the surrounding lands. The RMP will provide outdoor recreational opportunities, enhanced by Lake Casitas and its shoreline, compatible with the surrounding scenic, environmental, and cultural resources. In addition, this RMP will propose uses that will be compatible with the obligation to operate the lake for storage and delivery of high-quality water.

1.4 MANAGEMENT OBJECTIVES

The following management objectives fulfill the purpose of the RMP**:**

- Protect the continued storage and delivery of high-quality water to meet the demands of the CMWD service area.
- Identify the current and most appropriate future uses of land and water resources within the Plan Area.
- Develop and implement a comprehensive land use strategy considering uses of the Plan Area and adjacent lands.
- Identify long-term resource programs and implementation policies to manage and develop recreational, natural, and cultural resources.
- Determine the opportunities for new or enhanced recreation facilities needed based on demand and carrying capacity limits.

- Ensure a balance between fish and wildlife resources and recreational opportunities.
- Identify opportunities and develop partnerships for managing recreational and natural resources.
- Develop strategies and approaches to protect and preserve the natural, recreational, aesthetic, and cultural resources.
- Establish policies for providing appropriate public access to Park resources.
- Develop comprehensive education and stewardship programs to inform the public of the recreational opportunities and natural/cultural resources available in the Park.
- Provide adequate public safety and security measures for protection of visitors and resources.

2.1 SECTION ORGANIZATION

This section first describes the planning process and planning influences that led to the formulation of alternatives for the Lake Casitas RMP. Then each of the two action alternatives and the No Action Alternative developed for this RMP are identified and described (Sections 2.6 through 2.8).

The planning process for the Lake Casitas RMP involves the integration of issues, opportunities and constraints; management actions; and management zones. As discussed in Section 1, the RMP follows the guidance of federal planning mandates and proposed actions that balance recreation opportunities with natural and cultural resource stewardship. These planning process elements are discussed in Section 2.2.

The goals identified in Section 2.3 will provide overall guidance for the RMP management direction and actions. The degree to which the various RMP alternatives meet these goals varies, as described in Sections 2.7 through 2.9.

A variety of planning influences should be considered in the planning process leading to alternative formulation. These include such items as systemwide planning, regional planning, demographics, and public concerns. These influences are addressed in Section 2.4. Infrastructure and operational improvements that are important to different stakeholders are identified in Section 2.5, and the common management actions are assessed in Section 2.6.

2.2 PLANNING PROCESS

The following are the basic elements of the planning process:

- Define the overall goals and objectives.
- Describe the resource categories that group the issues.
- Identify the issues, opportunities, and constraints.
- Determine management actions to address the issues.
- Define the management zones for Lake Casitas.

More specifically, the development of the RMP alternatives follows the planning process steps outlined in Reclamation's RMP Guidebook (Aukerman and Haas 2004). The steps in this process are described below.

- **Step 1: Identify Issues.** This step identified various resource and management issues at Lake Casitas. These issues involve resource problems that need to be corrected and resources that need special protection. Management issues also include unrealized opportunities, an unresolved conflict or problem, an effort to implement a new program due to new regulations, or a value being lost.
- **Step 2: Identify Opportunities and Constraints.** This step identified opportunities and constraints at Lake Casitas. Opportunities include resources, programs, and management frameworks that can facilitate the implementation of the RMP. Constraints include laws, regulations, budgets, staffing, and environmental limitations. Steps 1 and 3 were completed by conducting public scoping in which public comments, suggestions, and ideas were

provided to Reclamation through written comments and public scoping meetings in 1999, 2003, and 2006 (Public Scoping Report, Reclamation 2007).

- **Step 3: Develop RMP Goals.** RMP goals were developed based on the issues identified in Step 1 and in consideration of the purpose of an RMP. These goals represent broad statements that provide overall guidance to the management direction and actions in the RMP alternatives. The management direction embodies an overall approach or strategy for managing resources and recreation.
- **Step 4: Planning Principles.** This step involved developing planning principles, which are short and concise statements that establish the "sideboards" and parameters for the development of the RMP alternatives. They assisted in formulating and selecting land uses and management actions to be considered in the RMP alternatives.
- **Step 5: Gather and Analyze Resource Information.** Under this step, information was collected regarding the physical, biological, and cultural resources of the Plan Area. Information about the recreation and land use was also gathered. These data were compiled into a Geographic Information System (GIS) to facilitate display and analysis of multidisciplinary considerations. This step involved field studies, literature reviews, and interviews with the CMWD Park staff, Lake Casitas users, and other knowledgeable individuals.
- **Step 6: Formulate RMP Alternatives.** This step involved formulating several RMP alternatives. Two action alternatives were developed that provide varying degrees of resource protection and recreational opportunities. The action alternatives were designed to meet the overall RMP goals, although the extent to which they meet these goals varies.
- **Step 7: Conduct Environmental Impact Assessment.** Adoption of an RMP represents an action subject to the environmental review requirements of NEPA. Under this step, the environmental impacts of the RMP alternatives were evaluated in a comparative manner. The results provide the basis on which to identify tradeoffs among various environmental resources, and between recreation and environmental resources.
- **Step 8: Issue Draft RMP/EIS for Public Review.** Under this step, a joint Draft RMP/EIS is issued for public review. The public is provided an opportunity to review the RMP alternatives, including a comparison of how well they meet the RMP goals and of their environmental impacts.
- **Step 9: Prepare Final RMP/EIS.** After a review and consideration of public comments, a Final EIS on the RMP alternatives is prepared. A Record of Decision will be prepared based on the Final EIS to identify the preferred RMP alternative and explain the basis of the decision.
- **Step 10: Implement the RMP.** This step involves implementing the RMP actions in accordance with the guidance on priorities and schedules described in the RMP. The managing partner(s) will implement most actions identified in the RMP.

2.2.1 Primary Issue Areas

Reclamation conducted public scoping meetings in 1999, 2003, and 2006 to explain the scope and objectives of the Lake Casitas RMP and to elicit comments from the public. Based on verbal

comments at the meetings and written comments received after the meetings (Public Scoping Report, Reclamation 2007), Reclamation identified the following primary issue areas to be emphasized in the RMP:

- Water quality
- Body contact
- Management of Open Space Lands
- Facility management
- Recreation
- Natural resource management and protection
- Land use management
- Health, safety, and administration

2.2.2 Planning Principles

RMP planning principles are short statements that provide basic guidance on how the RMP land uses and management actions should be developed. The Lake Casitas RMP alternatives must be consistent with all of the following planning principles:

- Protect and maintain land and water for original Casitas Project purposes.
- Protect and enhance natural resources.
- Protect cultural resources.
- Recognize community concerns and values about Lake Casitas.
- Encourage an appropriate range of recreational uses.
- Ensure consistency with federal policies, laws, and regulations.
- Protect public health and safety.

2.2.3 Opportunities and Constraints

The primary opportunities at Lake Casitas are as follows:

- **Good Condition of Natural Resources.** The primary natural resources of the Plan Area include a pristine and beautiful lake with clear blue water; a diverse mixture of mostly undisturbed native habitats such as oak woodlands, scrub, and riparian forests; abundant and varied wildlife; and a scenic natural setting and wide expanses of undeveloped open space. These resources are in good condition due to the protection from development afforded on federal lands, and a history of responsible stewardship by Reclamation and the CMWD over the past 50 years. Lake Casitas provides a unique opportunity for a range of public access and enjoyment of the natural world in close proximity to urban areas.
- **Abundant and Varied Wildlife.** The combination of a water body and a large expanse of undeveloped land surrounding Lake Casitas provide the basis for abundant and varied

wildlife. The lake supports various water-associated birds that visit during migration periods. Lake Casitas provides a unique opportunity to see many birds that do not occur elsewhere in the region and to observe the diversity of wildlife that reside in the mixture of aquatic and terrestrial environments.

- **Lake and Park Reputation.** Lake Casitas has a long history of providing public recreation to local residents and to people throughout southern and central California. The lake has a reputation for a beautiful setting with accommodations for camping and fishing. It is well known for its trout and bass fishing. Lake Casitas is distinguished by the quiet lake experience; water skiing and jet skiing are not allowed. Hence, most of the visitors to the Park are seeking a quiet, more natural experience than at other lakes in the region where more active recreation is allowed. Lake Casitas' reputation provides an opportunity to increase awareness of natural resource protection and of recreational uses that support natural resource conservation.

The primary constraints at Lake Casitas are as follows.

- **Project Purposes and Operations.** Lake Casitas is a drinking water reservoir developed for the purpose of storing and delivering water for CMWD municipal and agricultural uses. The original Lake Casitas project purpose recognized that public recreation was an incidental benefit of the project. However, public uses of the lake must be consistent with protecting water supply and water quality, and must accommodate the necessary reservoir operations and management needs.
- **Fiscal Limitations.** Implementing the RMP management actions will be the primary responsibility of the managing partner(s). Operating recreation facilities at Lake Casitas is a revenue-generating program but has significant fiscal limitations due to ongoing operation costs, a backlog of deferred maintenance and capital improvement projects, and competition for users. As such, the RMP management actions are constrained by funding from the managing partner(s).
- **Federal Laws, Regulations, and Policies.** The RMP management actions must be consistent with various federal laws, regulations, and Executive Orders. Examples include, but may not be limited to, the Archeological Resources Protection Act; Endangered Species Act; Clean Water Act; Comprehensive Environmental Response, Compensation, and Liability Act; National Environmental Policy Act; National Historic Preservation Act; Migratory Bird Treaty; Resource Conservation and Recovery Act; Executive Order 11990 (Protection of Wetlands); Executive Order 12962 (Recreational Fisheries); and Executive Order 13186 (Protect Migratory Birds). The RMP must also be consistent with the Land Resource Management Policies, Directives, and Standards in the Reclamation Manual.
- **Physical Constraints.** Several physical constraints limit management actions, particularly related to expanding public access and recreation. Access to the Casitas Dam, many of the coves, and the main island is either poor or not permitted due to the steep and rugged terrain, the lack of facilities, security concerns, or the need to protect water quality. Additionally, some areas of the lake serve as roost sites for raptors including the bald eagle and peregrine falcon, critical nesting sites for waterfowl including Clark's and western grebes, and habitat for the California red-legged frog. In the established development areas, increased traffic congestion warrants the upgrade of roadways and other facilities needing improvement. East of Santa Ana Creek is a wetland and native grassland restoration area.

2.2.4 Public Input

Public input has been a critical element in identifying Lake Casitas' opportunities and constraints and in developing the RMP alternatives. The Notice of Intent (NOI) to prepare a draft environmental impact statement (EIS) was published in the Federal Register on July 25, 2003. Reclamation has received public input through the public scoping process for the RMP. The public scoping process and comments are detailed in a Public Scoping Report (Reclamation 2007). A summary of this process is provided below. The issues raised are summarized in Section 3.9.3. Reclamation will be receiving and considering comments on the Draft RMP/ EIS and the RMP alternatives addressed in this document as part of the public participation process. In 1999, Reclamation conducted a public scoping meeting to collect public opinion regarding the use of the Open Space Lands. Additional meetings were held in 2003 and 2006 that addressed the Open Space Lands and Park lands as well as planning management zones. Meetings were conducted as follows:

- May 18, 1999—Oak View
- September 24, 2003—Ojai
- September 25, 2003—Ventura
- June 29, 2006—Oak View

The 2003 and 2006 scoping meetings were an "Open House" format where various stations were set up at which the public could review each alternative and discuss their comments with Reclamation and the consultant team. Members of the public attended these meetings and provided both verbal and written comments. A summary of the comments on the preliminary alternatives is provided in the Public Scoping Report (Reclamation 2007).

The 2003 and 2006 meetings began with introductory remarks describing the purpose and process of the meeting by Reclamation staff, followed by a slide presentation by Reclamation's RMP technical consultant. The presentations provided descriptions of the Lake Casitas project, current recreation at Lake Casitas, and the process to develop an RMP. The presentations were followed by public comments.

The four public scoping meetings were well attended, and many attendees provided verbal comments. In addition, Reclamation received 116 written comments as letters and e-mails from agencies, organizations, and the general public. Comments were received from the following public agencies:

- California Department of Transportation (Caltrans)
- U.S. Environmental Protection Agency (USEPA)
- County of Ventura—Public Works Agency, Transportation
- CMWD

Comments were received from the following nongovernmental organizations or their representatives:

- Ventura Audubon Society, Inc.
- Environmental Defense Center

- Fixing Stream Habitats Technical Assistance Program
- Southern California Marine Association, Inc.
- Center for Earth Concerns
- Lake Casitas Marine, Inc.
- Outward Bound Adventures
- Ventura College
- Friends of the Ventura River
- Ojai Valley Whale Society
- Environmental Coalition

Comments came from three general categories: general public, state and local agencies, and environmental advocacy groups. General public and environmental advocacy comments represented approximately 70 percent of the comments, while state and local agencies represented approximately 30 percent of the total comments.

The public meeting held in 1999 resulted in written and verbal comments that widely supported maintaining the Open Space Lands in their natural state to protect the watershed with an emphasis on wildlife and wetlands preservation, fire management, and pollution and sediment control. Moreover, the comments showed support for access to restricted low-impact recreation activities such as hiking.

Comments received from the 2003 meetings were focused on management issues including wildlife, vegetation, and fire. Concern was also expressed regarding the role of the managing partner(s), how improvements would be paid for, and how enforcement and oversight would be managed. The 2003 comments regarding Open Space Lands mirrored those from 1999 with an emphasis on natural environment preservation, conservation education, and restricted and limited passive or low-impact recreation access. Water quality issues were also raised as a matter of concern in conflict with lake recreation uses.

The June 2006 meeting focused on the three conceptual alternatives presented. The issues most addressed by public comments were water sports body contact, connecting designated trails to Forest Service trails, equestrian use, and mountain biking. Concern for water quality as well as preservation of the natural environment was also expressed.

Subsequently, Reclamation prepared a public scoping report, which provided a summary of public comments and the issues that were raised. The report includes a summary of written and verbal comments by agencies, organizations, and individuals, as well as copies of written comments (Public Scoping Report, Reclamation 2007).

2.2.5 Management Zones and Planning Units

The Water Recreation Opportunity Spectrum (WROS) management tool was used to identify management zones associated with waterbodies and is discussed more fully in Section 3. The WROS zones are used to assist planners in developing management actions appropriate for different recreational activities associated with water.

Distinct management zones based on the WROS system have been identified for various portions of Lake Casitas. Future classifications may vary depending on the alternative selected and the management actions taken. These zones, and the actions associated with them, are not intended to provide all activities for all users. Rather, Lake Casitas, when viewed with other lakes and reservoirs in the vicinity, can provide an opportunity for unique management actions. In the discussion of the alternatives, the management actions identified vary depending on the current WROS zone or on the intended future WROS zone. The two management zones that are used to describe existing conditions at Lake Casitas are Rural Natural (RN) and Rural Developed (RD) (see Figure 2-1).

The lake is largely classified as RD. The RD zone is an area where the opportunity to experience brief periods of solitude and change from everyday sights and sounds is important. It is less developed and more tranquil than an urban/suburban setting but more developed than the RN area in the southwestern portion of the Park, which includes Willow Creek, Chismahoo Creek, Grindstone Canyon, Indian Mesa, and Ayers Creek as well as Dead Horse Canyon on the southeastern side. The RN zone is characterized by prevalent opportunities to see, hear, or smell the natural resources due to only occasional or periodic levels of development, human activity, and natural resource modification.

For the Lake Casitas RMP, land-based geographic areas called planning units have also been identified. Under each RMP alternative, planning units help to specify the types of uses allowed in these land-based units and the natural resource management emphasis. Planning Units are shown on Figure 2-2. There are 13 Planning Units in the Plan Area. They are divided among the following major geographic areas:

- Open Space Land Units—3
- North End Units—5
- West Shore Units—3
- Casitas Dam Unit—1
- Main Island Unit—1

Opportunities and constraints in each planning unit are summarized in Table 2-1, which is included at the end of Section 2.

2.3 GOALS

The primary goals of the Lake Casitas RMP, as determined by Reclamation, the managing partner(s), and the public input process, are listed below. These goals will provide overall guidance for the RMP management direction and actions. The degree to which the various RMP alternatives meet these goals varies, as described in Sections 2.7 through 2.9.

1. Protect and maintain water quality.
2. Promote responsible stewardship of federal land and water resources for the public benefit.
3. Protect and enhance the natural resources at Lake Casitas.
4. Maintain the unique ambience of Lake Casitas as a quiet lake with a beautiful natural setting.
5. Protect and maintain existing recreational uses and educational opportunities.

6. Provide for enhanced or new recreational uses and facilities that are compatible with other RMP goals.

2.4 FORMULATION OF ALTERNATIVES

2.4.1 Introduction

This section describes RMP alternatives for the Plan Area. The alternatives are designed to address the issues, opportunities, and constraints at the Plan Area. A broad range of management actions was developed to address alternatives that would represent the varied interests pertaining to Lake Casitas. The following alternatives were developed:

- No Action (Alternative 1)—This alternative manages land and activities with the continuation of current management practice.
- Enhancement (Alternative 2)—This alternative balances natural resource protection and recreation opportunities.
- Recreation Expansion (Alternative 3)—This alternative emphasizes expanded recreation opportunities.

Section 2.5 describes the common management actions that would take place under all of the alternatives. Unique management actions for each of the alternatives are detailed in Sections 2.6 through 2.8. Table 2-2, which is included at the end of Section 2, summarizes the common and unique management actions for the alternatives.

2.4.2 Roles and Responsibilities of Reclamation and Managing Partner(s)

Reclamation will negotiate a long-term agreement with the managing partner(s) for the Plan Area. The managing partner(s) may consist of one or more entities. The managing partner(s) will have overall responsibility for managing public access, recreation, infrastructure and public services, and natural resources in the Plan Area. The RMP will provide the overall resource and recreation management direction and framework for the Plan Area. Hence, it will be a guidance document for the managing partner(s) for its day-to-day operations and long-range planning.

Reclamation will have overall responsibility for ensuring that all actions in the Plan Area by Reclamation and the managing partner(s) are consistent with the RMP. The managing partner(s) must ensure that its actions in managing the Plan Area and associated land, recreation facilities, and infrastructure are consistent with the RMP. The managing partner(s) will have a greater role in implementing the RMP management actions and observing the RMP goals and objectives than Reclamation.

The agreement(s) with a managing partner(s) will require that the managing partner(s) will use the RMP as the primary land use, natural resource, and recreation management guidance document to be followed during the management of the Plan Area.

2.4.3 Implementation Approach

The RMP will be implemented through two types of management approaches: (1) specification of allowable land uses, and (2) recommendations for specific management actions and improvement projects. These are described below.

2.4.3.1 Allowable Land Uses

The RMP will provide management guidance through a set of allowable uses designated in WROS zones and the geographic land-based areas called "planning units." For each RMP alternative, planning units will have a specific land use designation, similar to a zoning designation, specifying the types of recreational uses allowed in the unit and the natural resource management emphasis. Specifying the allowable uses create both restrictions and opportunities for recreation and natural resource management. Using this geographically based land use and recreation plan, the managing partner(s) will conduct its day-to-day operations and long-range planning within a comprehensive and predictable planning framework. Allowable uses in the WROS zones and planning units around the lake are presented in Table 2-2, which is included at the end of Section 2.

Note that the designation of allowable recreational uses in different planning units of the Plan Area will not require the managing partner(s) to implement the designated uses. The RMP only indicates what lands are suitable for different recreation activities; it does not require the managing partner(s) to implement, facilitate, or encourage those activities. The managing partner(s) has the option of pursuing these new or modified recreational uses based on considerations of the following factors: (1) sufficient public demand; (2) sufficient staffing and funding to manage the new or modified uses in accordance with the RMP; and (3) potential for increased public benefits and use.

New recreational uses or activities allowed under the RMP may also be discontinued in the future at the discretion of the managing partner(s) if demand decreases, the activity is not economically viable, new security or safety considerations arise, and/or unforeseen significant environmental impacts occur that cannot be mitigated.

2.4.3.2 Management Actions and Projects

The RMP includes recommendations for various resource management actions and facility improvement projects. These are specific actions that are to be implemented at the Plan Area to meet the RMP goals. These management actions and projects are defined at a conceptual or programmatic level in the RMP. More detailed descriptions of the actions and project would be developed during the planning horizon of the RMP.

Note that the managing partner(s) will be required to conduct an environmental impact assessment for most of the new or expanded recreational activities identified in the RMP such as new day use or camping facilities. The environmental documentation would be prepared to meet NEPA requirements because the projects would occur on federal land, and may need to satisfy CEQA requirements if the projects are partially funded or managed by a non-federal managing partner. Some of the new recreational uses and most of the natural resource management actions identified in the RMP may not require additional environmental review because: (1) the environmental analyses of these actions are adequately addressed in this EIS; or (2) such actions are exempt from environmental review.

2.4.3.3 Amendments to the RMP

Reclamation can amend the RMP at any time if the need arises. Conditions that may require an amendment could include, among others: (1) changed environmental conditions; (2) unforeseen events; (3) changes in policies and land use plans that have been determined to be infeasible, impractical, or have undesirable consequences; and (4) change in applicable laws and regulations. Reclamation would initiate the amendment process, which would include appropriate NEPA environmental review tiered from this document.

The RMP can be updated to reflect any changed environmental or institutional circumstances; new laws, regulations, or policies; and changes in the Casitas Project Operations. Reclamation will conduct public meetings and an environmental review when updating the RMP.

2.5 COMMON INFRASTRUCTURE, OPERATIONAL IMPROVEMENTS AND MANAGEMENT ACTIONS FOR ALL ALTERNATIVES

Each of the alternatives has different components and management actions that would attain the direction of that alternative. However, several components and management actions are common to the No Action and action alternatives. These common actions are discussed in this section. Other unique management elements specific to Alternatives 2 and 3 are discussed in Sections 2.7 and 2.8. Managerial actions that describe the existing and projected conditions for the No Action Alternative are described in Section 2.6. Table 2-2 summarizes common and other specific management actions for each alternative.

2.5.1 Open Space Lands

Protection of the Lake Casitas Watershed will be a core component common under all alternatives. Potential problems such as sedimentation were mitigated in the late 1970s and early 1980s by an interagency (Forest Service, Bureau of Land Management, CMWD, and Reclamation) coordinated effort to protect the watershed and preserve its open space by withdrawing 69,000 acres of Los Padres National Forest (LPNF) lands from potential development. The arrangement manages the area as open space under watershed protection guidelines expressly for the purpose of ensuring Lake Casitas water quality. Additionally, Title IV of the Reclamation Development Act of 1974 authorized the purchase of 3,500 acres of privately owned properties north of the lake called the Open Space Lands, as discussed in Section 1.1.

2.5.2 Lake Recreation

Under all alternatives, boating and fishing will only be allowed in accordance with local and state laws. Casitas nature boat cruises will be allowed. Kayaks, canoes, and motorized boats that are a minimum length of 6 feet (with special use permit) and a maximum length of 35 feet will be permitted. Boat speed limits will be consistent with the California Boating Law and will remain 5 miles per hour (mph) at Santa Ana Marina and within 200 feet of docks and boarding areas. Regulated night boating will be allowed. No personal watercraft use will be permitted. Ayers Creek access will be closed to boaters.

In March 2008, the CMWD Board of Directors adopted a resolution to impose a one-year restriction on the entry of boats—including canoes, kayaks, and float tubes—that were not already stored at the Park to prevent the introduction of invasive quagga or zebra mussels. The mussels have been found in

several lakes in Southern California, and no safe remedy is available for eliminating them from a waterbody once it is infested. Invasive mussels can multiply quickly and clog waterways and pipelines, affect lake ecosystems, and create costly maintenance issues. The Board of Directors may periodically review the boat entry restrictions. Section 3.9.2.2 provides additional information.

On the north end of the lake (Santa Ana Boat Ramp area), day use will be permitted under all of the alternatives, including full public access for hiking and bicycling on primitive and/or well-developed trails. Picnicking, bird watching, group events, shoreline access, and shoreline fishing will also be permitted. In the Lakeside Group Camp area, full day and camping uses, including for RVs, will continue under all of the alternatives. In addition, the Park store, bathrooms, the marina, shoreline fishing, paved trails for bikes, and special events will also continue to be available.

At the southwest end of Lake Casitas, Ayers Creek access will remain off limits to boaters under all of the alternatives. Lake coves including Indian Mesa, Grindstone Canyon, and Station Canyon will also remain closed during the bass spawning season; however, these closures would be subject to change. A buffered area from about 2000 feet from the Casitas Dam will remain off limits to boaters.

Off-highway motor vehicles will remain prohibited. Pedestrian access will be limited in restricted areas.

2.5.3 Infrastructure, Services/Facility Upgrades

All RMP alternatives include infrastructure, facility, and operational improvements. These improvements are organized by the following goals.

- Provide appropriate improvements to Park infrastructure to accommodate future growth; ensure public safety; and comply with laws and regulatory requirements including but not limited to the Americans with Disabilities Act (ADA), emergency response, security measures, and law enforcement.
- Implement Capital Improvement Plan, depending on funding, including but not limited to Park road improvement, restroom remodeling, and RV storage relocation.
- Repair existing damaged access throughout developed areas and install traffic safety controls where unsafe conditions may exist.
- Improve the entrance structure and widen the entrance/exit road at Santa Ana Road.
- Relocate the maintenance building and make improvements to the administrative building.
- Provide ADA-compliant improvements and upgrades to Park facilities designed to not diminish visual resources and to increase the quality of enjoyment and service to Park users.
- Upgrade marina docks, boat launch, and nearby signage.
- Relocate or expand the Park store.
- Install interpretive signs.
- Provide updated visitor maps describing recreation activities at different parts of the lake.

Under all of the alternatives, the physical facilities will be improved to comply with laws and regulatory requirements such as ADA, security measures, and law enforcement. The Park's Capital Improvement Plan will be implemented, dependent on funding, under all of the alternatives, including Park road improvement, restroom remodeling, and RV storage relocation.

2.5.4 Natural and Cultural Resource Management and Protection

Under all of the alternatives, adherence to federal and state regulations for natural and cultural resources protection will continue. This includes regulations that apply to watershed, riparian areas where not affected by annual lake level fluctuation, and to endangered or sensitive species at the lake. Moreover, a Fisheries Management Plan will continue to be maintained. Mitigation lands may be needed if new facilities are built. Prescribed burns will be evaluated annually to address the feasibility of reducing vegetative fuel for fire. The public will be educated about the lake's natural resources through interpretive programs and interpretive signage that will be installed in the Park.

Water quality will continue to remain a high priority for lake operations under all of the alternatives, and water quality testing will continue.

2.5.5 Health and Safety

Under all of the alternatives, activities and building management in flood-prone areas will be restricted according to Federal Emergency Management Agency (FEMA) guidelines or other federal regulations. FEMA floodplain maps and designations will be used in the management of facilities.

Under all of the alternatives, adherence to current federal and state regulations for handling, transporting, and storing hazardous materials will continue.

Special events will be allowed by special permit only, with set fees and restrictions. The new Reclamation guidelines for concessionaires on federal land will be implemented in all of the alternatives.

2.5.6 Visitor Services

Under all of the alternatives, the Park will provide updated visitor information maps describing recreation activities at different parts of the lake, and educational displays will be set up around the Park. Public education will be improved to emphasize water quality and other components of the natural resource environment. The maintenance building may be relocated, and improvements will be made to the administrative building. The Teague Memorial Watershed encompasses 3,500 acres of land, most of which is adjacent to the Park in the Open Space Lands. This watershed will continue to be protected under all of the alternatives.

2.6 MANAGEMENT ACTIONS FOR ALTERNATIVE 1: NO ACTION

2.6.1 Objectives

Under this alternative, the current resource and recreation management direction and practices at Lake Casitas would continue unchanged. However, the managing partner(s) would implement the infrastructure improvements listed in Section 2.5. This alternative is analyzed in the EIS to address certain public comments that the status quo should be maintained at Lake Casitas. Alternative 1, No Action, provides the benchmark for making comparisons in the EIS among possible future changes under Alternatives 2 and 3.

2.6.2 Open Space Lands

In addition to protection of the Lake Casitas Watershed, continued limited day-use hiking on existing improved roads would be allowed. Fire protection is also a core concern. The largest wildfire of 1985 (Wheeler Gorge Fire) in the State of California occurred high in the Ventura River watershed on mostly LPNF lands. Under this alternative, the existing helipad locations and locations for fire hand-crew training and incident command activities would remain the same.

2.6.3 Lake Recreation

Boats must be of standard design and a minimum length of 6 feet with a special permit, and a maximum length of 35 feet. The boating speed limit will be 40 mph in the main lake and 15 mph in Chismahoo Creek, Dead Horse, and Station Canyons and Wadleigh, Indian Mesa, and Willow Creek Coves. The Main Island will be preserved as a watershed area with limited boat-in access. Activity on the island will be limited to vegetative/fuel management only. A radio-controlled airplane strip currently located at the north end of the lake may be moved.

2.6.4 Infrastructure, Services/Facility Upgrades

The WROS and Planning Unit designations for the No Action Alternative remain the same as for current existing conditions. Under current operations, recreational uses are restricted to the Park and the surface of the lake where boating is allowed.

As stated previously, limited day use hiking on existing improved roads will be permitted. This includes 2 miles of the Lake Shore Trail where both hiking and nonmotorized vehicle use will be allowed. Fire management is important to maintaining public safety. Under the No Action Alternative, helipads and the area for fire hand-crew training and incident command activities would remain in existing locations. Within the Park, the total number of campsites will remain at 413. Consistent with existing park plans, under the No Action Alternative, the water park will be upgraded.

2.7 UNIQUE MANAGEMENT ACTIONS FOR ALTERNATIVE 2: ENHANCEMENT

2.7.1 Objectives

The objective of Alternative 2 is to expand current recreational uses and public access at Lake Casitas to attract more visitors and increase recreational opportunities, while protecting natural resources with new or modified land and recreation management practices. These activities propose upgrades and improvements to many of the Park's existing facilities and utilities.

2.7.2 Open Space Lands

As mandated by Title IV of the Reclamation Development Act of 1974, the preservation and enhancement of public outdoor recreation, fish and wildlife, and the environment is part of the condition under which Reclamation purchased the Open Space Lands. Habitat restoration programs will be evaluated under this alternative. The trail system in the Open Space Lands would be expanded by building new connector trails to existing adjacent trailheads (LPNF and Ojai Valley Land Conservancy trails) and allowing limited day use hiking and biking only on

new designated joint use trails. Guided day hikes would also be permitted with organized groups from the Park as part of an education/interpretation program. Low-impact, recreational use (limited tent camping, parking) in portions of the Open Space Lands south of SR 150 would also be permitted. A nature interpretive center is proposed for Alternative 2 that may include options for a raptor center, outdoor education, or wildlife rehabilitation center. Watershed protection would include measures to control runoff and ensure that potential contaminants resulting from this increased activity would not negatively impact lake water quality.

A direct response to fire safety would be addressed under Alternative 2. A Fire Management Plan would be prepared. Additionally, the fire hand-crew training and incident command activities location would be relocated to reduce congestion and the potential for accidental lake contamination. The Forest Service fire station and helipads would be relocated under this alternative.

An integrated pest management/invasive species management program would be implemented to include expanded annual weed eradication efforts (mowing and weed whacking) and selective use of herbicides consistent with applicable regulations and Best Management Practices (BMPs).

2.7.3 Lake Recreation

The WROS zone designations for Alternative 2 are shown on Figure 2-3. These designations indicate suitable uses if the managing partner seeks to enhance recreational opportunities at Lake Casitas.

Under Alternative 2, boating activity would be guided by a boating management plan that would include monitoring of speed limits, traffic patterns, access areas, and launch areas; visitor use and satisfaction; and conflicts. Both open- and closed-hull kayaks and canoes would be allowed on the lake under this alternative. No swimming from kayaks or canoes would be allowed. Operators of kayaks and canoes would be subject to the normal boating restrictions regarding boomed areas and the prohibition on landing along the shoreline. The managing partner would enforce the seasonal closure of some coves during the bird breeding and fish spawning season.

Limited day use on the Main Island would be allowed under Alternative 2, including access to hiking and biking on primitive trails with a permit and in accordance with restrictions. An outdoor environmental education facility on the Main Island would also be allowed. All hiking and biking would be restricted to daylight hours.

In response to visitor demands and recreation outdoor trends, Alternative 2 would increase the variety of camping opportunities, potentially by converting tent campsites to RV sites with associated road improvements. Under Alternative 2, the radio-controlled airplane strip would be relocated.

2.7.4 Infrastructure, Services/Facility Upgrades

Under this alternative, the following facility enhancements and/or projects would be included in the Park. Prior to implementation of facility upgrades or additions, any necessary sewage treatment options would be evaluated. The precise number, layout, and timing of the new facilities would be determined by the managing partner through a separate planning, design, and permitting process.

- Provide marina and boating support by expanding marina and boat ramp capacity as well as expanding the interpretive boat program with additional natural, cultural and/or historic resource themes.
- Expand the water park; relocate the storage area; build a new amphitheater and parking area within or near the existing special event area; add landscape screening of parking and storage areas; and modify some campsites to be compatible with multiple uses (e.g., RVs, yurts, tents). In addition, upgrades would be made to some campsites, such as installing concrete pads and providing septic system/water service and hookups for electricity and Internet.
- Develop a Park trail system management plan to monitor usage. Improve the bike path within the Park and realign it to expand the path south from the Santa Ana Boat Ramp area to connect to the Lake Shore Trail.
- Expand the floating restroom facilities on the lake.

2.7.5 Natural and Cultural Resource Management and Protection

The existing habitat restoration program for the Park would be evaluated under this alternative, including the development of a vegetative management plan. A Nature Center is also provided for under Alternative 2.

Protecting the water supply and water quality of Lake Casitas is of paramount concern. A storm water management plan for the Park would be developed with an emphasis on controlling runoff from pavement and parking areas.

2.7.6 Health and Safety

The Park entrance access would be improved to enhance recreational experiences and improve operations. Implementation of a new design and relocation plan would be completed under this alternative.

2.7.7 Visitor Services

Alternative 2 would improve public education by setting up educational displays around the Park to emphasize water quality and other components of the natural resource environment.

2.8 UNIQUE MANAGEMENT ACTIONS FOR ALTERNATIVE 3: RECREATION EXPANSION

2.8.1 Objectives

The objective of Alternative 3 is to expand recreational uses and public access to meet potential increases in market demand, while protecting natural resources with new or modified land and recreation management practices. This alternative is included to demonstrate a scenario in which recreational uses at Lake Casitas are substantially expanded while meeting the RMP goals related to protection of natural resources to the extent feasible.

2.8.2 Open Space Lands

The provisions under Alternative 3 are similar to Alternative 2 except that day use will be allowed on a new trail system consisting of separate trails for hikers, cyclists, and equestrians. The additional activity, with equestrian presence, raises the potential for increased lake contamination from trail runoff. Watershed protection measures would include provisions to address this potential impact.

2.8.3 Lake Recreation

The WROS zone designations for Alternative 3 are shown on Figure 2-4. These designations indicate suitable uses if the managing partner seeks to expand recreational opportunities at Lake Casitas.

The allowed uses and management activities discussed for Alternative 2 would be included under Alternative 3. Additional uses or management activities included under Alternative 3 are discussed below.

Under Alternative 3, body-contact water sports would be allowed. This would include waterskiing with possible seasonal, time of day, location, or other restrictions. No personal watercraft would be allowed. Due to the fact that Lake Casitas is a drinking water reservoir, swimming would be a strictly managed recreational activity to maintain state and federal water quality standards (see Section 3.1). Therefore, swim beaches would be designated at specific areas on the north shore where the managing partner staff could closely monitor and maintain the activity.

Full day use and group tent camping on the Main Island would be allowed, including public access for hiking and bicycling on primitive and/or well-developed trails, picnicking, bird watching, group events, shoreline access, and shoreline and dock fishing. The borrow area (Borrow Area), located in the uplands of Long Valley between Ayers and Chismahoo creeks, may be developed for camping. (A borrow area is an area where soil, rock and/or gravel material has been excavated—borrowed—and taken to another area for use.) In this case, the Borrow Area provided fill material used in the Casitas Dam Modernization Project.

The managing partner, through a planning, design, and permitting process, would develop the location, layout, and intensity of development to support these uses. The extent of the new facilities would be dictated by the demand for such opportunities.

Some members of the general public have demonstrated their desire and support for swimming and other body-contact water sports at the lake. As discussed in Section 3.9.1.2, several other lakes in the region allow body-contact sports such as swimming. The lakes that are managed as drinking water reservoirs similar to Lake Casitas, however, also have restrictions on body-contact sports or have intensely managed and/or treated swim beaches.

2.8.4 Infrastructure, Service/Facility Upgrades

Under Alternative 3, the majority of all Park campsites would be modified or improved to be compatible with multiple uses such as RVs, yurts, and tents. The 2-mile Lake Shore Trail would also be extended to surround the perimeter of the lake. The precise number, layout, and timing of

these new facilities would be determined by the managing partner through a separate planning, design, and permitting process.

Table 2-1
Opportunities and Constraints, Lake Casitas RMP

Land Use Zone	Geographic Name or Description	Primary Constraints	Opportunities
Open Space Lands			
OS-1	West of Santa Ana Creek/South of SR 150	Potential wildfire hazard.	Potential to expand camping and trail connections to lake recreation area.
OS-2	Poplin/Upper Santa Ana Creek	Ponds and wetland areas, more pristine natural resources; California red-legged frog habitat; significant cultural resource area.	Potential passive recreation and interpretation.
OS-3	East of Santa Ana Creek	Bisected by SR 150 and Robles Canal; Wetland and native grassland restoration area; California red-legged frog habitat; significant cultural area.	Natural resource education and interpretation; hiking trails
Main Lake			
RD5	North and northwest end of lake	Boat traffic potential conflicts; water levels	Wind for windsurfing; good fishing; wetlands on south side; island
RN8	South tip of lake	Boom around dam; security; oak woodland restoration.	Panoramic views; potential interpretation, dependent on security requirements.
RD6	Southeast side of lake	More disturbed; undeveloped access; waterfowl nesting sites and bald eagle perch toward southern end	More accessible; potential mitigation sites for future development
RN6/7	Southwest side of lake	Access	More pristine natural resources
North End			
X-1	Radio-controlled airplane strip	Access through campground areas	Moderately remote setting, but near campgrounds
X-2	Lakeside Group Camp	Poor roads and dusty conditions in campground	Scenic setting; existing facilities; remote, but easy access; oak and pine shade trees
X-3	Santa Ana boat ramp	Established developed area; traffic issues; infrastructure and facilities need improvement	Easy access; visitor amenities
X-4	Event/1984 Olympics Area	Visible from Santa Ana Road	Vistas; easy access; amenities for all users
X-5	Wadleigh Arm/Saddle Dike	Significant nesting for Clark's and western grebe, and heron rookery.	Vistas; easy access; hiking/biking

Table 2-1
Opportunities and Constraints, Lake Casitas RMP

Land Use Zone	Geographic Name or Description	Primary Constraints	Opportunities
West Shore			
W-1	Station Canyon	No access; steep, rugged terrain; significant nesting for Clark's and western grebe in marsh areas near northeast flats	Scenic setting; high quality habitat; potential radio-controlled air strip relocation site on northeast flats adjacent to lake
W-2	Chismahoo-Willow Creek	Steep, rugged terrain; poor access; remote	Scenic setting; high quality habitat; remote; wildlife viewing
W-3	Ayers Creek	Steep, rugged terrain; poor access; remote; bald eagle perch and waterfowl nesting sites	Scenic setting; high quality habitat; views of lake; remote; live creek
Casitas Dam			
D-1	Casitas Dam	No access	Potential interpretive facility (see L-2)
Main Island			
MI-1	Main Island	Access by boat only; steep, rugged terrain; no facilities	Scenic setting; quality habitat; remote; views

Table 2-2
Proposed Common and Unique Management Elements for Alternatives for Lake Casitas RMP

Element/WROS or Planning Unit Designation (If Applicable)	Alt 1 Baseline	Alt 2 Enhanced	Alt 3 Expanded
OPEN SPACE LANDS (Planning Units OS-1,2,3) Types of Use			
General			
Watershed protection	•	•	•
Evaluate habitat restoration programs		•	•
Recreation			
Continued limited day use hiking on existing improved roads	•		
Limited day use hiking and biking only on designated joint use new trails		•	
New connector trails to existing adjacent trail heads (LPNF and Ojai Valley Land Conservancy trails)		•	•
Low-impact, recreational use (limited tent camping, parking) in portions of the Open Space Lands south of SR 150		•	•
Day use on new trail system consisting of separate trails for hikers/bikers and equestrian users			•
Fire Management			
Existing location for fire hand-crew training and incident command activities	•		
Helipads in existing locations	•		
Relocate fire hand crew training and incident command activities to reduce congestion and potential for accidental lake contamination		•	•
Relocate Forest Service Fire Station		•	•
Relocate helipad from existing fire station		•	•
Fire Management Plan		•	•
Invasive Species/Pest Management			
Implement expanded annual weed eradication efforts (mowing and weed whacking) and pursue selective use of herbicides on invasive species consistent with applicable regulations and Best Management Practices		•	•
Implement Pest Management Program		•	•
Education/Interpretation			
Nature interpretive center (e.g., raptor center, outdoor education, wildlife rehab center)		•	•
Guided day hikes with organized groups from the Park		•	•
LAKE RECREATION Types of Use			
Main Lake (WROS RD5–RD6, Planning Unit M-1)			
Boating			
Boating and fishing	•	•	•
Regulated night boating	•	•	•

Table 2-2
Proposed Common and Unique Management Elements for Alternatives for Lake Casitas RMP

Element/WROS or Planning Unit Designation (If Applicable)	Alt 1 Baseline	Alt 2 Enhanced	Alt 3 Expanded
No personal watercraft	•	•	•
Kayak, canoe, and motorized boat use (with restrictions to prevent introduction of invasive species)	•	•	•
Boat size minimum of 6 feet with special use permit, and maximum of 35 feet	•	•	•
Boat speed 5 mph at Santa Ana marina and within 200 feet of docks and boarding areas	•	•	•
Boat speed 40 mph in main lake	•		
Boat speed limit 15 mph in Chismahoo, Dead Horse and Station Canyons, Wadleigh, Indian Mesa and Willow Creek coves	•		
Develop Boating Management Plan that would include monitoring of speed limits, boat traffic patterns, boat access areas, boat launch areas, visitor use, satisfaction, and conflicts.		•	•
Body contact water sports, including waterskiing with possible seasonal, time of day, location or other restrictions			•
Other Uses			
Casitas nature boat cruises	•	•	•
Existing total number of campsites at 413	•		
Preserve Main Island as a watershed area, with limited, boat-in access; fuel management only.	•		
Limited day use on Main Island, hiking, and biking on primitive trails with a permit, and in accordance with restrictions.		•	
Outdoor environmental education facility on Main Island		•	•
Seasonal closure of Indian Mesa, Ayers Creek, Grindstone Canyon and Station Canyon coves during bass spawning season	•	•	•
Full day use and group tent camping on Main Island, including public access for hiking/bicycling on primitive and/or well developed trails; picnicking; bird watching; group events; shoreline access; shoreline and dock fishing.			•
Swim beaches within designated areas along north shore of lake.			•
Southwest end of Lake (WROS RN6/RN7/RN8, Planning Units W-1, 2, 3)			
Boating			
Ayers Creek access closed	•	•	•
Other Uses			
Relocate/Expand park store	•	•	•
Group camping at the Borrow Area			•

Table 2-2
Proposed Common and Unique Management Elements for Alternatives for Lake Casitas RMP

Element/WROS or Planning Unit Designation (If Applicable)	Alt 1 Baseline	Alt 2 Enhanced	Alt 3 Expanded
NORTH END LAKE RECREATION			
Santa Ana Boat Ramp (WROS RD6, Planning Unit X-1)			
Day use; full public access for hiking/bicycling on primitive and/or well developed trails; picnicking; bird watching; group events; shoreline access; shoreline fishing.	•	•	•
Lakeside Group Camp (WROS RD6, Planning Unit X-4)			
Full day and camping uses; full range of camp sites; bathrooms; store; marina; shoreline fishing; paved trails for bikes; RVs; special events.	•	•	•
Convert tent campsites to RV site with associated road improvements		•	•
Radio-Controlled Airplane Strip (WROS RD6, Planning Unit X-5)			
Reconsider present location	•		
Relocate or remove		•	•
SERVICES/FACILITY UPGRADES			
Marina and Boating Support			
Upgrade marine docks, boat launch, and nearby signage.	•	•	•
Expand marina capacity		•	•
Expand the interpretive boat program with additional natural, cultural and/or historic resource themes		•	•
Expand boat ramp capacity		•	•
Other Service/Facility Upgrades			
Implement Capital Improvement Plan, dependent on funding, including but not limited to Park road improvement, restroom remodeling, RV storage relocation	•	•	•
Upgrade Water Park	•		
Expand Water Park		•	•
Relocate storage area		•	•
Landscape screening of parking and storage areas		•	•
Construct an Amphitheater and parking within or near existing special event area		•	•
Modify some campsites to be compatible with multiple uses (e.g., RVs, yurts, tents). Example upgrades: concrete pads, electricity, TV, septic system, water, computer hook-up		•	
Modify/improve the majority of campsites to be compatible with multiple uses (e.g., RVs, yurts, tents)			•
OVERALL TRAIL SYSTEM CASITAS PARK			
Continued prohibition of off-highway motor vehicles.	•	•	•
Hiking and nonmotorized vehicle use—2 miles of existing Lake Shore Trail.	•		

Table 2-2
Proposed Common and Unique Management Elements for Alternatives for Lake Casitas RMP

Element/WROS or Planning Unit Designation (If Applicable)	Alt 1 Baseline	Alt 2 Enhanced	Alt 3 Expanded
Improve and realign bike path within Park and expand bike trail south from Santa Ana boat ramp area to connect to Lake Shore Trail		•	•
Develop a trail system management plan to manage trail usage		•	•
Lake perimeter trail			•
UTILITIES			
Improve physical facilities to comply with laws and regulatory requirements including but not limited to ADA, security measures, and law enforcement.	•	•	•
Evaluate and if necessary implement sewage treatment options prior to implementation of facility upgrades or additions.		•	•
Expand floating restroom facilities on lake		•	•
VISUAL RESOURCES			
New facilities designed to not diminish visual resources.	•	•	•
NATURAL AND CULTURAL RESOURCE MANAGEMENT AND PROTECTION			
Habitat/Natural Resource Protection			
Evaluate prescribed burns annually to reduce vegetative fuel for fire.	•	•	•
Maintain Fisheries Management Plan	•	•	•
Evaluate Habitat Restoration Program		•	•
Develop a vegetation management plan		•	•
Threatened and Endangered Species			
Restrict access to areas with endangered or sensitive species. Educate public about species.	•	•	•
Native Vegetation			
Interpretive signs	•	•	•
Interpretive programs	•	•	•
Nature Center		•	•
Wetlands/Riparian Areas			
Protect riparian areas where not affected by annual lake level fluctuations.	•	•	•
Water Quantity and Quality			
Develop a storm water management plan for Park with emphasis on parking areas		•	•
HEALTH AND SAFETY			
Flood Management			
Restrict activities based on current federal regulations. Use FEMA floodplain maps and designations in management of facilities.	•	•	•

Table 2-2
Proposed Common and Unique Management Elements for Alternatives for Lake Casitas RMP

Element/WROS or Planning Unit Designation (If Applicable)	Alt 1 Baseline	Alt 2 Enhanced	Alt 3 Expanded
Special Events			
By special permit only—set fees and restrictions	•	•	•
Access			
Improve entrance structure. Widen entrance/exit road at Santa Ana Road.	•	•	•
Repair existing damaged access throughout developed areas; install traffic safety controls where unsafe conditions may exist.	•	•	•
Pedestrian access limited in restricted areas	•	•	•
Park Entrance Access			
Implement new design and relocation plan for the Park entrance.		•	•
Concessions			
Implement new Reclamation guidelines for concessionaires on federal land.	•	•	•
VISITOR SERVICES			
Brochures/ Informational Handouts			
Provide updated visitor information maps describing recreation activities at different parts of the lake.	•	•	•
Educational Opportunities			
Set up educational displays, interpretive signs and programs around Park. Improve public education to emphasize water quality and other components of the natural resource environment.		•	•
Maintenance/Administration			
Relocate maintenance building	•	•	•
Administrative building improvements	•	•	•

The level of detail presented in this section for description of the affected environment is commensurate with the programmatic/planning nature of this document. Therefore, resources are described at a regional and management zone level of detail. Project-level environmental documents will be required for any projects developed under the alternatives.

The emphasis in this section is on a description of features that could be impacted by the alternatives. Other topics such as climate and air quality are addressed to provide context, but less detail is provided because impacts to these resources would be less noticeable.

Much of the data collected for the description of the existing environment have been included in a GIS format. Many of these figures include information showing areas with sensitive resources (i.e., biology, land use) as well as other areas characterized by hazard potential (i.e., erosion, geological hazards). These figures and the impact analyses provided in Section 4 would be the basis of constraint analysis that would guide any plans for future development within the planning horizon.

In this section as others, "Plan Area" refers to the Lake Casitas Recreation Area (Park) concentrated along the north shore and occupied by major facilities such as campsites, RV campsites, marina, cafe, boat ramp, water park, ranger station, general store, and snack shop, as well as the 3,500 of Open Space Lands north of the Park extending beyond SR 150.

Appendices A through D support the biological resource information presented in Section 3.4. A technical report for Cultural Resources has been prepared to support the inventory information presented in Section 3.5. Confidential site location data are included in this report and is only available on a need-to-know basis. This report is incorporated by reference.

3.1 WATER RESOURCES

3.1.1 Regional Setting

3.1.1.1 Site/Location Description

Lake Casitas has 2,700 acres of surface area, 254,000 acre-feet of capacity, and approximately 35 miles of shoreline. Casitas Dam, located on Coyote Creek, formed the lake when the dam was completed in 1959. Santa Ana Creek, North Fork Coyote Creek, upstream Coyote Creek, the 105 square miles of the Lake Casitas Watershed, and water diverted from the Ventura River feed the lake. The Park currently offers a variety of recreational opportunities such as camping, boating, fishing and hiking, but does not allow body contact with the water.

3.1.1.2 Regulatory Background and Watershed Delineation

Several regulatory boards, ranging from federal to local, manage the lake's water quality. The USEPA works with state and local authorities to monitor and maintain the quality of waters in the Unites States. The Surface Water Treatment Rule (SWTR), enforced by the USEPA, requires all reservoirs used as potable water supply to conduct a sanitary survey of their watershed at least every five years and to comply with established quality requirements. A section of this rule, entitled Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), enacted in January 2006, established castes (called Bins) for microbial risk classification using *Escherichia coli*, turbidity, and *Cryptosporidium* monitoring data. Lake Casitas is also subject to the USEPA-

promulgated Stage 1 Disinfectant and Disinfectant Byproduct Rule, which sets maximum contaminant levels for several disinfectants and their by-products.

The California Department of Public Health (CDPH) assists at the state level to review watershed sanitary surveys, to inspect Park potable water and wastewater facilities, and to insure that the quality of drinking water supplied from the lake complies with USEPA standards.

The California Department of Water Resources (DWR) is responsible for statewide water planning, including managing water supply and demand by preparing and updating the California Water Plan. The DWR also provides dam safety and flood control services, assists local water districts in water management and conservation activities, promotes recreational opportunities, and plans for future statewide water needs.

Reclamation is the federal agency having oversight of administration, operation and maintenance, and development of Ventura River Project facilities, including Casitas Dam and Lake Casitas. Reclamation provides dam safety, land management, and other services.

Lake Casitas is located within the Ventura River Watershed. Casitas Dam discharges approximately 2 miles upstream of a confluence with the Ventura River, where flow continues south to the Pacific Ocean. The Ventura River Watershed is regulated by the Basin Plan for the Los Angeles Regional Water Quality Control Board, adopted June 1994. The Basin Plan lists existing and potential beneficial uses for area surface waters and groundwaters. Once the beneficial uses are designated, appropriate water quality objectives can be established to ensure protection of these beneficial uses.

Lake Casitas water storage and delivery is managed by the Casitas Municipal Water District (CMWD). The lake supplies drinking water to over 60,000 people as well as water for agricultural irrigation. Potable treatment occurs through an in-line pressure filtration plant, installed in 1996. Service areas include Ojai, Upper Ojai, the Ventura River Valley, and a portion of the City of Ventura. The CMWD has implemented an extensive monitoring program, including a proactive sampling agenda, to detect water quality problems before they become an issue for the treatment plant or in the distribution system.

3.1.2 Plan Area Existing Conditions

3.1.2.1 Current Lake Usage

The current draft of the Los Angeles Regional Water Quality Control Board Basin Plan lists several beneficial uses, both existing and potential, for Lake Casitas. The existing uses include municipal and domestic supply, agricultural supply, industrial process and service supply, noncontact recreation, warm and cold freshwater habitats, and terrestrial wildlife habitats. Lake Casitas is currently listed as having the potential beneficial uses of groundwater recharge, freshwater replenishment, and hydropower generation. The lake is also listed as a potential provider of body contact-related recreation, which is currently prohibited by the CMWD.

The Basin Plan specifies water quality objectives for surface waters and groundwaters of the Ventura River Watershed. Surface water quality objectives applicable to Lake Casitas address the following parameters: color, taste, odor, floating material, suspended material, settleable material, oil and grease, biostimulatory substances, sediment, turbidity, pH, dissolved oxygen, temperature, toxicity, pesticides, chemical constituents, other organics, and radioactivity.

Body Contact

The Basin Plan states that Lake Casitas does not allow any body contact with the water but notes that a potential for future allowance exists. In December 1996, the Board of the CMWD held a public hearing to discuss several possible degrees of permissive body contact in the lake. The multiple options reviewed were divided into 12 suboptions including maintaining the status quo, incidental contact, immersion, and waterskiing.

During the discussion, several items involving body contact were deliberated, including the following.

- The North Shore portion of the lake was suggested as the sole area to allow swimming. This approach would have the advantages of limiting the amount of exposure to the lake and restricting exposure to an area as far as possible from the treatment facility intake. The main disadvantage would be that this area is the primary area for "world class fishery."
- The capabilities of the current water filtration system to handle the additional burden of body contact were called into question. The system was shown to exceed current regulatory standards, and would "probably" be sufficient enough to mitigate body contact pollution as well.
- The question of treatment failure was posed, with the solution being the issuance of a boil water order while the plant was brought back online.
- *Cryptosporidium* and giardia levels were of concern to the board. The current treatment was demonstrated to be sufficient to remove viruses. The logic followed that viruses are smaller than either *Cryptosporidium* or giardia; therefore, they would be removed as well.
- During the open forum, regional residents and visitors expressed opinions on body contact ranging from concern about the declination of water quality and mistrust of the adaptability of the current treatment capabilities, to full endorsements for immersion and water sports.

The meeting resulted in the passing of a motion to allow some incidental contact (to later be defined by the Division of Health and Safety [CDPH]) and to investigate the possibility of immersion outside of the lake proper. Since then, Lake Casitas has remained a noncontact body of water, but the Park was expanded to include a water park area. The water park has a wastewater disposal and recycling system independent of Lake Casitas, offering nearby immersion without affecting the lake itself.

Boat Fuel Discharges

According to some studies, as much as 30 percent of the fuel used by carbureted two-stroke engines is discharged unburned into the water (California EPA 1999). As a result, the use of personal watercraft and other conventional two-stroke engines has resulted in measurable water quality degradation in some of the nation's lakes and reservoirs. These motors take in a mixture of air, gasoline, and oil into the combustion chamber while exhaust gases are expelled from the combustion chamber. Since the intake and exhaust processes occur at the same time, some of the unburned fuel mixture escapes with the exhaust. This expulsion of unburned fuel is the reason for the elevated levels of hydrocarbon emissions from carbureted two-stroke engines. Fuel components from these discharges to receiving waters typically include benzene, toluene, ethylbenzene, and xylenes.

Personal watercraft are currently not allowed on Lake Casitas and are not proposed to be allowed under any of the alternatives; therefore, there will be no fuel discharges from personal watercraft. The boats for rent at the marina all have four-stroke engines designed to meet 1998 California Air Resources Board (CARB) regulations designed to reduce emissions on marine engines by 90 percent in 2008. Currently, the only two-stroke engines on the lake are on older boats. As these engines wear out, they will have to be replaced with the cleaner-burning engines. Because of the CARB regulations, combined with similar federal regulations requiring the phase-out of these two-stroke engines by 2008, boat fuel discharges should not be a water quality issue.

3.1.2.2 Current Water Quality and Water Treatment

As stated previously, the USEPA requires that all systems subject to the SWTR shall conduct a sanitary survey of their watersheds at least every five years. Since 1994, the CMWD has conducted three surveys to evaluate the standard of water quality in the Lake Casitas Watershed. CDPH reviews the sanitary surveys and water sampling reports to ensure that USEPA standards are being met. The following sections outline the results of the surveys.

Volatile Organic Compounds (VOCs)

Yearly VOC sampling is required for surface water sources. Lake Casitas has been granted a waiver for annual monitoring and is required to sample for VOCs every 3 years. The VOC concentrations measured during analyses conducted throughout 2001 to 2005 have been nondetectable, except for methyl tertiary butyl ether from recreational boating on the lake. The levels found in the influent and finished water were below the detection limit of 3 milligrams per liter (mg/L) for reporting to the CDPH. Methyl tertiary-butyl ether was banned from California gasoline in 2004, and since then, all sample results have been nondetectable.

Cryptosporidium

As described above, the LT2ESWTR established Bins for microbial risk classification using *Escherichia coli*, turbidity, and *Cryptosporidium* monitoring data. There is a base requirement to monitor for *Cryptosporidium* for a period of 2 years. As source water quality decreases, *Cryptosporidium* log removal/inactivation requirements increase. Available mitigation options include watershed protection, pretreatment methods, and improved treatment processes to reach required levels of disinfection. Casitas is a protected watershed, and CMWD has conducted monthly *Cryptosporidium* and giardia monitoring with very low detects for results. CMWD is optimistic that Casitas will be assigned to a low-risk category, with minimal treatment processes required for *Cryptosporidium* log removal/inactivation.

Turbidity, Giardia, and Disinfection

Lake Casitas is a drinking water source, so the finished water is subject to all aspects of the SWTR. The major requirements of the SWTR are:

- Filtered water turbidity is to be less than 0.5 Nephelometric Turbidity Units (NTU) in 95 percent of the samples collected.
- Monitoring must be done on at least a 4-hour basis.
- The disinfectant concentration entering the distribution system must be at least 0.2 mg/L.

- The disinfectant residual within the distribution system must be detectable in at least 95 percent of the monthly monitoring samples.
- Removal and/or inactivation of giardia cysts must be at least 3.0 logs (99.9 percent), and the removal and/or inactivation of enteric viruses must be at least 4.0 logs (99.99 percent).

Lake Casitas water quality is required to meet certain performance goals set forth by the CDPH in addition to the SWTR, because high-rate in-line pressure filtration is considered to be an "alternative" filtration technology (the plant can be operated at 12 gallons per minute per square foot [gpm/sf]).

The CMWD operates Lake Casitas under the guidelines of Water Permit No. 04-06-96P.046, issued by the CDPH. The filtration facility has been granted a 2-log credit for giardia removal and a 1-log credit for virus removal. Thus the facility must achieve 1-log giardia inactivation and 3-log virus inactivation by disinfection. Finished water turbidity is monitored with continuous on-line turbidimeters at each filter and at the combined filter effluent. The requirements for the pressure filtration plant as outlined in the water permit and described in the 1998 Summary Report are:

- Performance turbidity standard of 0.2 NTU or less must be met in 95 percent of the measurements taken each month.
- The turbidity of the filtered water will not exceed 1.0 NTU at any time.
- The turbidity level of the filtered water will not exceed 0.5 NTU for more than 8 consecutive hours while the plant is in operation.
- The plant should be operated to achieve an optimum performance turbidity goal of 0.1 NTU or less.
- When any individual filter is placed back into service, the turbidity of the effluent from that filter will not exceed any of the following: (a) 1.0 NTU at any time, (b) 0.5 NTU in at least 90 percent of the interruption events during any consecutive 12-month period, and (c) 0.2 NTU after the filter has been in operation for 4 hours.
- Water delivered to the distribution system will contain a disinfectant residual of at least 0.2 mg/L based on the 4-hour or continuous readings but will be enough to constantly meet contact time requirements.
- The pressure filter's filtration rate will not exceed 12 gpm/sf, and the facility will use all available filters when any individual filter exceeds 6 gpm/sf.
- Optimum coagulation will be maintained at all times.

The Lake Casitas filtration system consistently met these requirements during 2001–2005. On occasion, turbidities became elevated as a result of power interruptions, chemical feed deviations, higher plant flow rates, or limited filters in service during repairs. These events did not cause a violation of the prescribed performance standards.

A dose of approximately 3.0 to 5.0 mg/L of chlorine is applied upstream of the pressure filters to meet the chlorine demand. This pre-filter addition also acts as a filter aid. An additional chlorine dose of approximately 1.0 to 3.0 mg/L is applied after filtration. The chlorine residual leaving the plant ranges from approximately 4.0 to 4.7 mg/L. In 2003, CMWD started adding ammonia (at

5:1 chlorine to ammonia ratio) to chloraminate the system. CMWD changed to chloramines to reduce the levels of disinfection by-products. To prevent nitrification, CMWD has installed mixers in the reservoirs and flushes the distribution system on a regular basis.

Contact time values are calculated daily and logged into a monthly monitoring report. Contact time ratios for the plant are typically well above 1.0, thus the plant is currently achieving more disinfection than is required by the current regulations for giardia and virus inactivation.

Lead and Copper

Water quality in Lake Casitas has periodically exceeded the action level of 1.3 mg/L for copper. Lead levels in the distribution system have been relatively low compared to the action level of 0.015 mg/L. A study on treatment alternatives for controlling copper corrosion was conducted during 2000. Options for copper control included altering the pH of the finished water and adding orthophosphate.

In June 2004, the CMWD began a corrosion control study using a 30 percent Ortho and 70 percent Poly Phosphate blend. The CMWD also began the monitoring recommended by CDPH during each phase of the corrosion control study. Phase 1 of the study is near completion, and the preliminary findings suggest an optimal phosphate dosage level in the 1.0 to 1.5 mg/L range for effective corrosion control.

Total Coliform

The Total Coliform Rule allows for up to 5 percent of the monthly water quality samples collected within the distribution system to test positive for coliform. A review of bacteria records for the past 5 years indicate that Lake Casitas has met the bacteriological water quality requirements. The CMWD is required to collect and analyze three total coliform samples per week. All compliance samples have been negative (absence of total and fecal coliform) in the last 5 years.

Synthetic Organic Chemicals and Inorganic Compounds

The Phase II Synthetic Organic Chemicals and Inorganic Compounds Rule resulted in the regulation of 27 different synthetic organic chemicals and seven inorganic contaminants. For reference, the inorganic chemicals included in the Phase II Rule are listed in Table 3.1-1, and the synthetic organic contaminants are listed in Table 3.1-2. A review of raw water monitoring data for Lake Casitas indicates that all of these contaminants either could not be detected or were present at extremely low concentrations.

Table 3.1-1
Phase II Inorganic Compounds

Contaminant	MCLG, mg/L	MCL, mg/L	Lake Casitas*
Asbestos (>10 m)	7 MFL	7 MFL	<0.2
Barium	2	1	.1
Cadmium	0.005	0.005	ND
Chromium (Total)	0.1	.05	.002
Mercury (Inorganic)	0.002	0.002	ND
Nitrate, as N	10	10	ND
Nitrite, as N	1	1	ND
Nitrite + Nitrate, as N	10	10	ND
Selenium	0.05	0.05	ND

* = Most current data
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
MFL = Million fibers per liter
ND = Not detected

Table 3.1-2
Phase II Organic Chemicals

Contaminant	MCLG, mg/L	MCL, mg/L	Lake Casitas*
Acrylamide	Zero	Treatment Technique	ND
Alachlor	Zero	0.002	ND
Atrazine	0.003	0.003	ND
Carbofuran	0.04	0.04	ND
Chlordane	Zero	0.002	ND
Chlorobenzene	0.1	0.1	ND
2,4-D	0.07	0.07	ND
o-Dichlorobenzene	0.6	0.6	ND
cis-1,2-Dichloroethylene	0.07	0.07	ND
trans-1,2-Dichloroethylene	0.1	0.1	ND
Dibromochloropropane	Zero	0.0002	ND
1,2-Dichloropropane	Zero	0.005	ND
Epichlorohydrin	Zero	Treatment Technique	ND
Ethylbenzene	0.7	0.7	ND
Ethylene dibromide	Zero	0.00005	ND
Heptachlor	Zero	0.0004	ND
Heptachlor epoxide	Zero	0.0002	ND
Lindane	0.0002	0.0002	ND
Methoxychlor	0.04	0.04	ND
Pentachlorophenol	Zero	0.001	ND
Polychlorinated biphenyls	Zero	0.0005	ND
Styrene	0.1	0.1	ND
Tetrachloroethylene	Zero	0.005	ND
Toluene	1	1	ND
Toxaphene	Zero	0.003	ND
2, 4,5-TP	0.05	0.05	ND
Xylenes (Total)	10	10	ND

* = Most current data
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
MFL = Million fibers per liter
ND = Not detected

The Phase V regulation for synthetic organic chemicals and inorganic compounds listed MCLs and MCLGs for an additional 22 pollutants. The specified limits for the organic contaminants are listed in Table 3.1-3, and the limits for the inorganic contaminants are listed in Table 3.1-4. The CMWD monitors synthetic organic chemicals and inorganic compounds according to the current CDPH vulnerability assessment. The raw water has had no detection of any of the contaminants outlined in this regulation.

Table 3.1-3
Phase V Organic Chemicals

Contaminant	MCLG, mg/L	MCL, mg/L
Dichloromethane	Zero	0.005
1,2,4-Trichlorobenzene	0.07	0.07
1,1,2-Trichloroethane	0.003	0.005
Dalapon	0.2	0.2
Dinoseb	0.007	0.007
Diquat	0.02	0.02
Endothall	0.1	0.1
Endrin	0.002	0.002
Glyphosate	0.7	0.7
Oxamyl(Vydate)	0.2	0.2
Picloram	0.5	0.5
Simazine	0.004	0.004
Benzo(a)pyrene	Zero	0.0002
Di(2-ethylhexyl)adipate	0.4	0.4
Di(2-ethylhexyl)phthalate	Zero	0.006
Hexachlorobenzene	Zero	0.001
Hexachlorocyclopentadiene	0.05	0.05
2,3,7,8-TCDD(dioxin)	Zero	3×10^{-8}

MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal

Table 3.1-4
Phase V Inorganic Compounds

Contaminant	MCLG, mg/L	MCL, mg/L
Antimony	0.006	0.006
Berylium	0.004	0.004
Cyanide	0.2	0.2
Thallium	0.0005	0.002

MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal

Disinfectants/Disinfection By-Products (D/DBPs)

Based on the running annual averages of quarterly trihalomethane (THM) measurements, Lake Casitas water quality has continuously complied with the total THM MCL of 100 mg/L. However, to consistently meet the new Stage 1 D/DBP MCL of 80 mg/L of THM and 60 mg/L of haloacetic acid compounds (HAA5), the change to chloramination was implemented.

The CMWD converted to chloramines in November/December 2002 and has since complied with the Stage 1 D/DBP. The monitoring results for THM are shown in Table 3.1-5.

Table 3.1-5
THM Monitoring Results

Sampling Date	THM mg/L Running Annual Average	HAA5 mg/L Running Annual Average
February 2001	48.2	51.1
May 2001	56.5	63.5
August 2001	57.7	60.3
November 2001	66.0	65.1
February 2002	57.4	55.4
May 2002	49.6	44.2
August 2002	53.9	41.6
November 2002	44.5	33.3
February 2003	44.9	34.9
May 2003	42.7	29.3
August 2003	34.5	25.7
November 2003	33.2	22.2
February 2004	32.0	21.3
May 2004	31.8	22.1
August 2004	30.6	21
November 2004	30.0	17
February 2005	36.6	23
May 2005	42.9	27
August 2005	49.9	31
November 2005	54.4	35

The Stage 1 D/DBP Rule also sets Maximum Residual Disinfectant Levels for free chlorine, and chloramine. The disinfectant level in the distribution system has been below the maximum residual disinfectant level of 4.0 mg/L.

The sampling for THM and HAA5 has been in continual compliance with the Stage 1 D/DBP Rule. The CMWD is optimistic that the change to chloramines may also help meet the upcoming Stage 2 D/DBP Rule requirements.

The USEPA promulgated the Stage 2 D/DBP Rule and the associated LT2ESWTR in late 2005. The Stage 2 rule is designed to reduce D/DBP occurrence peaks in the distribution system. An Initial Distribution System Evaluation (IDSE) will be required to select new compliance monitoring sample points that more accurately represent high THM/HAA5 levels. The IDSE will consist of 1 year of bimonthly monitoring.

The CMWD changed the disinfection method to chloramines to meet the Stage l regulations during December 2002. CT requirements are met using chlorine, and then ammonia is added to stop the formation of DBPs. This reduces the formation of THMs and HAA5s while maintaining disinfection efficiency. The monitoring results indicate that Casitas may comply with the Stage 2 rule; however, the results of the IDSE will help determine this.

3.1.2.3 Teague Memorial Watershed (Open Space Lands)

The Teague Memorial Watershed encompasses approximately 3,500 acres of land, most of which lies adjacent to and north of the Park in the Open Space Lands. These 5.5 square miles represent the largest portion of the Lake Casitas Watershed that supports activity such as

residence and miscellaneous recreation. Since it is such an important contributor to the quality of the lake water, the federal government began purchasing the land in 1974 in the hopes of returning the area to its natural state of permanent open space.

There is a commitment by Reclamation to remove the residences from the Teague Memorial Watershed, thus eliminating the potential for contamination from private waste disposal systems and common pollution often associated with basic lawn care. Since 1974, 15 homes and concurrent septic systems have been removed, improving the overall quality of the surface and groundwater. Only two private residences remain, each with septic systems operated and maintained by the owners.

3.1.2.4 Existing Water Treatment Facility

In response to the SWTR and the conclusions of the first Lake Casitas sanitary survey conducted in 1994, Marion Walker Pressure Filtration Plant was constructed to treat the waters of Lake Casitas. As stated before, it is a high-rate in-line plant whose features include horizontal pressure filters, continuous real-time monitoring systems, and chloramine application processes. The facility was installed to reduce turbidity and suspended solids in the lake effluent.

The facility has incorporated a pilot plant for the purpose of evaluating treatment and testing options. The pilot plant is a small-scale version of the main plant where alternate treatment practices can be analyzed without altering the entire facility.

Based on the current beneficial uses associated with Lake Casitas, the quality of effluent meets all federal, state, and local standards. Any proposed additions/alterations to the associated beneficial uses would require a reassessment of the current treatment practices to assure continued regulatory compliance.

3.2 AIR QUALITY

3.2.1 Regional Setting

The semipermanent high-pressure system west of the Pacific coast strongly influences California's weather. The system creates sunny skies throughout the summer and influences the pathway and occurrence of low-pressure weather systems that bring rainfall to the area during October through April. As a result, wintertime temperatures in Ventura are generally mild, while summers are warm and dry. During the day, the predominant wind direction is from the west and southwest, and at night, wind direction is from the north and generally follows the Santa Clara River Valley.

Predominant wind patterns occasionally change during the winter from storms coming from the north and northwest and from episodic Santa Ana winds. Santa Ana winds are strong northerly to northeasterly winds that originate from high-pressure areas centered over the desert of the Great Basin. These winds are usually warm, very dry, and often full of dust. Santa Ana winds are particularly strong in the mountain passes and at the mouths of canyons.

Daytime summer temperatures in the area average in the high 70s to the low 90s. Nighttime low temperatures during the summer are typically in the high 50s to low 60s, while the winter high temperatures tend to be in the 60s. Winter low temperatures are generally in the 40s. Annual

average rainfall in Ventura ranges from about 14 to 16 inches, almost all of which falls in winter months.

Two types of temperature inversions (warmer air on top of colder air) are created in the Ventura County area: subsidence and radiational (surface). The subsidence inversion is a regional effect created by the Pacific high-pressure area in which air is heated as it is compressed when it flows from the high-pressure area to the low-pressure areas inland. This type of inversion generally forms at about 1,000 to 2,000 feet and can occur throughout the year, but is most evident during the summer months. Surface inversions are formed by the more rapid cooling of air near the ground at night, especially during winter. This type of inversion is typically lower and is generally accompanied by stable air. Both types of inversions limit the dispersal of air pollutants within the regional airshed. The primary air pollutant of concern during the subsidence inversions is ozone (O_3), while carbon monoxide (CO) and nitrogen oxides (NO_x) are of greatest concern during winter inversions.

The Southern California area has been divided into several geographical air basins. The County of Ventura is located within the South Central Coast Air Basin (the Basin), which includes Ventura, Santa Barbara, and San Luis Obispo Counties. The Plan Area is located within the Ojai nongrowth area, a subarea of the basin. Common pollutants of concern within the Basin are described below along with associated health effects.

Ozone. O_3 is known as a photochemical pollutant. O_3 is not emitted directly into the atmosphere but is formed by a complex series of chemical reactions between reactive organic compounds (ROCs), NO_x and sunlight, so it is considered a regional air pollutant. ROC and NO_x are emitted from automobiles, solvents, and fuel combustion. Significant O_3 formation generally requires an adequate amount of precursors and several hours in a stable atmosphere with strong sunlight. It is generated over a large area and is transported and spread by wind. The worst O_3 concentrations tend to be found downwind from emission sources in metropolitan areas. O_3 exposure can cause eye irritation and damage to lung tissue in humans. O_3 also harms vegetation, reduces crop yields, and accelerates deterioration of paints, finishes, rubber products, plastics, and fabrics.

Reactive Organic Compounds. ROCs, also known as VOCs, are photochemically reactive hydrocarbons that are important for O_3 formation. This definition excludes methane, CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonates, methylene chloride, methyl chloroform, and various chlorofluorocarbons.

Nitrogen Oxides. NO_x are a family of gaseous nitrogen compounds that are precursors to O_3 formation. The major component of NO_x, nitrogen dioxide, is a reddish-brown gas that is toxic at high concentrations. NO_x results primarily from the combustion of fossil fuels under high temperature and pressure. Health effects of NO_x include increased risk of acute and chronic respiratory disease.

Carbon Monoxide. CO is an odorless, colorless gas that is highly toxic. CO is formed by the incomplete combustion of fuels and is emitted directly into the air. Under most conditions, CO does not persist in the atmosphere and is rapidly dispersed. CO concentrations are most likely to be the highest during the winter months, when relatively low inversion levels trap pollutants near the ground and concentrate the CO. CO health effects are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Particulates. Particulates are suspended particulate matter (airborne dust) and consist of particles small enough to remain suspended in the air for long periods. Respirable particulate matter includes particulates of 10 microns or less or 2.5 microns or less in diameter (PM_{10} and $PM_{2.5}$, respectively): small enough to be inhaled, pass through the respiratory system, and lodge in the lungs. These particles can consist of dust, sand, salt spray, and metallic or mineral particles as well as pollen, smoke, mist and acid fumes. Also of importance are sulfate and nitrates from photochemical reactions of gaseous sulfur dioxide (SO_2) and NO_x in the atmosphere. The actual composition of PM_{10} and $PM_{2.5}$ varies greatly with time and location depending upon the sources of the material and meteorological conditions. Chronic particulate inhalation can cause bronchitis, chronic cough, respiratory illness, pulmonary diseases and asthma exacerbations, decreased longevity, and lung cancer.

Sulfur Oxides (SO_x). SO_x are gaseous compounds of sulfur and oxygen that are colorless but containing a strong smell of "rotten eggs." SO_x is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_x is also emitted from several industrial processes, such as petroleum refining and metal processing. Exposure of a few minutes to low levels of SO_x can result in airway constriction in some asthmatics. All asthmatics are sensitive to the effects of SO_x. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_x. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_x.

Sulfates. Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized SO_2 formed during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

Lead. Lead in the atmosphere is present as a mixture of several compounds. Leaded gasoline and lead smelters have typically been the main sources emitted into the air. Lead was used as an additive that increased the octane rating in gasoline. Since gasoline-powered automobile engines were a major source of airborne lead and given the use of leaded fuels has been mostly phased out, the ambient concentrations of lead have dropped dramatically. In fact, the Ventura County Air Pollution Control District (VCAPCD) no longer conducts ambient monitoring for lead.

Hydrogen Sulfide. Hydrogen sulfide is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Hydrogen sulfide is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide has a distinct odor and can cause dizziness, nausea, and headaches at low concentrations, and more serious effects at higher concentrations. It is naturally emitted in geothermal areas and is also associated with certain industrial processes. There is a California ambient air quality standard for hydrogen sulfide but no corresponding national standard. Concentrations of this pollutant are not monitored within the Basin.

Vinyl Chloride. Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinylchloride plastic and vinyl

products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

3.2.2 Plan Area Existing Conditions

Air quality is determined primarily by the type and amount of contaminants emitted into the atmosphere, the size and topography of the air basin, and the meteorological conditions. The Basin has low mixing heights and light winds, which are conducive to the accumulation of air pollutants. Whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to national and state standards. The criteria pollutants for which federal and state standards have been developed and that are most relevant to air quality planning and regulation in the Basin are O_3, CO, PM_{10} and $PM_{2.5}$, SO_2, and lead. The California and national ambient air quality standards for each of the monitored pollutants and their effects on health are summarized in Table 3.2-1 (next page).

3.2.3 Regulatory Setting

Air quality within Ventura County is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies primarily responsible for improving the air quality within the county are discussed below along with their individual responsibilities.

3.2.3.1 U.S. Environmental Protection Agency

The USEPA implements national air quality programs. The USEPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA) and the 1990 amendments. The predecessor to the CAA was the federal Air Pollution Control Act enacted in 1955. This act empowered the Secretary of Health, Education, and Welfare to work for a better understanding of air pollution causes and effects. The first CAA was enacted in 1963 and empowered the Secretary of Health, Education, and Welfare to define air quality criteria. The CAA was most recently amended in 1990.

Table 3.2-1
Ambient Air Quality Standards

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard	Federal Primary Standard	
Ozone	0.09 ppm, 1-hr. avg.	0.12 ppm, 1-hr avg. (Revoked 6/15/05) 0.08 ppm, 8-hr avg. (3-year average of annual 4th-highest daily maximum)	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals; (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. 20 ppm, 1-hr avg.	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr avg.	0.053 ppm, annual arithmetic mean	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg. 0.25 ppm, 1-hr. avg.	0.030 ppm, annual arithmetic mean 0.14 ppm, 24-hr avg.	(a) Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in person with asthma
Suspended Particulate Matter (PM_{10})*	20 $\mu g/m^3$, annual arithmetic mean 50 $\mu g/m^3$, 24-hr avg.	50 $\mu g/m^3$, annual arithmetic mean 150 $\mu g/m^3$, 24-hr avg.	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter ($PM_{2.5}$)*	12 $\mu g/m^3$, annual arithmetic mean	15 $\mu g/m^3$, annual arithmetic mean (3-year average) 65 $\mu g/m^3$, 24-hr avg. (3-year average of 98th percentile)	(a) Increased hospital admissions and emergency room visits for heart and lung disease; (b) Increased respiratory symptoms and disease; and (c) Decrease lung functions and premature death
Sulfates	25 $\mu g/m^3$, 24-hr avg.	None	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage

Table 3.2-1
Ambient Air Quality Standards

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard	Federal Primary Standard	
Lead*	1.5 µg/m^3, 30-day avg.	1.5 µg/m^3, calendar quarterly average	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount to produce extinction of 0.23 per kilometer due to particles when relative humidity is less than 70%, 8-hour average (10 AM – 6 PM)	None	Visibility impairment on days when relative humidity is less than 70 percent
Hydrogen Sulfide	0.03 ppm, 1-hr avg.	None	Odor annoyance
Vinyl Chloride*	0.01 ppm, 24-hr avg.	None	Known carcinogen

Source: South Coast Air Quality Management District. Final Program Environmental Impact Report to the 2003 Draft AQMP (Diamond Bar, California: South Coast Air Quality Management District, August 2003), Table 3.1-1, p. 3.1-2. This report may be reviewed on the SCAQMD website at http://ww.aqmd.gov/ceqa/documents/2003/aqmd/finalEA/aqmp/ AQMP_FEIR.html

µg/m^3 = microgram per cubic meter
ppm = parts per million by volume

* The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

The USEPA deals with global, international, national, and interstate air pollution issues. Its primary role at the state level is one of federal oversight of state air quality programs through the delegation process. The USEPA sets federal vehicle and stationary source emission standards and provides research and guidance in air pollution control programs. The USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

The CAA requires the USEPA to set National Ambient Air Quality Standards (NAAQS) for several air pollutants on the basis of human health and welfare criteria. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards that protect the public from nonhealth-related adverse effects (e.g., visibility reduction). Primary NAAQS have been identified for the following criteria pollutants: O_3, CO, NO_x, SO_x, PM_{10}, $PM_{2.5}$, and lead. The NAAQS as well as the Basin's designation status for these criteria pollutants are presented in Table 3.2-2.

Table 3.2-2
National Ambient Air Quality Standards and Status
South Central Coast Air Basin

Pollutant	Averaging Time	Designation/Classification
Ozone	8 Hour	Attainment/Unclassifiable
	1 Hour[1]	Attainment/Unclassifiable
Carbon Monoxide	8 Hour	Nonattainment/Moderate
	1 Hour	Nonattainment/Moderate
Nitrogen Dioxide	Annual Arithmetic Mean	Attainment/Unclassifiable
Sulfur Dioxide	Annual Arithmetic Mean	Attainment/Unclassifiable
	24 Hour	Attainment/Unclassifiable
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	Attainment/Unclassifiable
	24 Hour	Attainment/Unclassifiable
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	Attainment/Unclassifiable
	24 Hour	Attainment/Unclassifiable
Lead	Calendar Quarter	Attainment

Source: UESPA. "Region 9: Air Programs, Air Quality Maps." [Online] [February 26, 2007]. http://www.epa.gov/region9/air/maps/maps_top.html
[1] The national 1-hour O_3 standard was revoked on June 15, 2005. The previous attainment designation/classification is shown for informational purposes.

3.2.3.2 California Air Resources Board

The CARB, a board within the California Environmental Protection Agency, oversees air quality planning and control throughout California. CARB is primarily responsible for ensuring implementation of the California Clean Air Act (CCAA), responding to the federal CAA requirements, and regulating emissions from motor vehicles and consumer products within the state. The CARB has established emission standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The CCAA established a legal mandate to achieve the California ambient air quality standards by the earliest practicable date. These standards apply to the same six criteria pollutants as the CAA and also include sulfate, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. They are also more stringent than the federal standards.

Based on monitored pollutant levels, the CCAA divides nonattainment areas into four categories—moderate, serious, severe, and extreme—to which progressively more stringent requirements apply. The California ambient air quality standards and the Basin's attainment status for the criteria pollutants are presented in Table 3.2-3.

Table 3.2-3
California Ambient Air Quality Standards and Status
South Central Coast Air Basin

Pollutant	Averaging Time	Designation/Classification
Ozone	1 Hour	Nonattainment
Carbon Monoxide	8 Hour	Attainment
	1 Hour	Attainment
Nitrogen Dioxide	1 Hour	Attainment
Sulfur Dioxide	24 Hour	Attainment
	1 Hour	Attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	Nonattainment
	24 Hour	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	Unclassified
Lead[1]	30 Day Average	Attainment
Sulfates	24 Hour	Attainment
Hydrogen Sulfide	1 Hour	Attainment
Vinyl Chloride[1]	24 Hour	Unclassified
Visibility-Reducing Particles	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent.	Unclassified

Source: CARB. "Area Designations (Activities and Maps)." [Online] [February 26, 2007]. http://www.arb.ca.gov/desig/desig.htm
[1] The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined.

The Basin is classified as a nonattainment area for O_3 and PM_{10}. Under this classification, an air quality management plan (AQMP) is required to include specific emission reduction strategies, and to meet specified milestones in implementing emission controls to achieve better air quality. The new control strategies include an indirect and area source control program, best available retrofit control technology for existing sources, a program to mitigate all emissions from new and modified permitted stationary sources (no net increase), transportation control measures, and substantial use of low-emission vehicles (e.g., natural gas or methanol-powered vehicles) by fleet operators. The CCAA also requires control measures to be ranked by priority and cost-effectiveness. The AQMPs must achieve a reduction in emissions of 5 percent or more per year, or 15 percent or more in a 3-year period for pollutants causing extreme nonattainment.

3.2.3.3 Ventura County Air Pollution Control District

The management of air quality in Ventura County is the responsibility of the VCAPCD. The VCAPCD is responsible for bringing air quality in the county into conformity with federal and state air quality standards. Specifically, the VCAPCD has the responsibility to monitor ambient

air pollutant levels throughout the county and to develop and implement attainment strategies to ensure that future emissions will be within federal and state Standards.

As previously discussed, the CAA and CCAA require the preparation of plans to reduce air pollution to acceptable levels. The VCAPCD has responded to this requirement by preparing a series of AQMPs, the most recent of which was approved by the Ventura County Air Pollution Control Board on November 8, 1994. The 1994 AQMP prepared by the VCAPCD includes a number of air pollution control measures to reduce emissions and bring the region into compliance with the federal O_3 standard. The AQMP was revised in 1995, 1997, and 2004 and predicted attainment of the federal 1-hour O_3 standard by 2005.

Based on the last 3 years of monitoring, Ventura County has effectively attained the federal 1-hour O_3 standard. Further emission reductions are needed to attain the 8-hour standard. To that end, the VCAPCD is currently developing a new AQMP, with a draft anticipated for submission to the USEPA in June 2007. The 2007 AQMP will contain strategies for attainment of the new 8-hour federal O_3 standard by 2010. It will also incorporate updated projections of population, dwelling units, and motor vehicle emissions. The population projections are being updated by the Southern California Association of Governments and will be submitted to the VCAPCD based on countywide projections rather than by individual jurisdictions as has been done in the past.

Ventura County must also comply with the CCAA (effective January 1, 1989), which requires attainment of the California Ambient Air Quality Standards by the earliest practicable date. The state O_3 standard is more stringent than the federal standard and is more difficult to achieve. The latest Triennial Plan Assessment and Update (VCAPCD, February 2004) does not predict an attainment date for the state O_3 standard, but provides documentation that the county has met exposure reductions mandated under California Health and Safety Code Section 40920. Health and Safety Code Section 40914(b)(2) requires a demonstration that the plan to attain the O_3 standard provides for expeditious implementation of "every feasible measure" to reduce O_3 precursor emissions. Per the Triennial Plan Assessment and Update, VCAPCD staff examined 26 emission source categories with the "Most Stringent All Feasible Measures List" prepared by the California Air Pollution Control Officers Association Rules Subcommittee and determined that "all feasible measures" have been implemented for 13 of the source categories. The VCAPCD has scheduled rule making from 2004 to 2006 for the other 13 emission source categories.

3.3 SOILS AND GEOLOGY

3.3.1 Regional Setting

Lake Casitas is located in the Ojai Valley and is bordered by the Santa Ana Valley to the southwest and the Ventura River Valley to the east. The lake is flanked by the Santa Ynez Mountains to the northwest, the Topatopa Mountains to the northeast, Sulphur Mountain to the East, and Red Mountain to the southwest. To the south and southwest of the lake lie the upland areas such as Laguna Ridge and Red Mountain, where the Santa Ana Valley and small tributaries to the lake are located (California Geological Survey 2003a).

The north-to-south-oriented Ventura River is located east of Lake Casitas. The Matilija, Santa Ana, and Coyote creeks each cross the Ojai Valley and are three of the four main tributaries to the Ventura River from the Santa Ynez Mountains. The Ventura River originates at the

confluence of the Matilija Creek and its tributary, the North Fork Matilija Creek, in the Santa Ynez Mountains and initially flows through a narrow canyon before opening into a 0.5-mile-wide alluvial valley—the Ventura River Valley, near the western edge of the Ojai Valley. San Antonio Creek is the fourth tributary to the Ventura River, which also crosses the Ojai Valley but originates from the Topatopa Mountains (California Geological Survey 2003a).

The Casitas Dam and the Robles Diversion Dam were constructed as part of the Ventura River Project to deliver water for industrial, municipal, and agricultural uses. The Casitas Dam and the Matilija Reservoir Dam were both built on tributaries to the Ventura River. The Casitas Dam was built in 1959 on Coyote Creek, approximately 2 miles above its confluence with the Ventura River, and the Matilija Reservoir Dam was built in 1947 on Matilija Creek, approximately 0.5 mile above its confluence with the North Fork Matilija Creek. The Robles Diversion Dam was built in 1959 on the Ventura River, 1.5 miles downstream from its formation, with the purpose of diverting water into the Casitas-Robles canal, which transports water to Lake Casitas.

Major topographic features at Lake Casitas include the following:

- Main Island, in the middle of the lake, approximately 200 feet above the water
- Arrow Island, a high spot between the Main Island and the east shore
- Saddle Dike (Dam), on the northeast, Wadleigh arm of the Lake
- Laguna Ridge, which separates the northwest (Station Canyon) and southwest arms
- Lookout Point and Wren's Nest, along the west shore
- Eagle Point and Long Valley, along the southwest arm of the Lake
- Vista Point, adjacent to Casitas Dam
- Casitas Dam, a 334-foot-high, 2,000-foot-long earthen dam

The topography along the shores of the lake is very rugged, not very accessible, and a mix of canyons, cliffs, and hills. On the west shore are three narrow, steep areas where the Ayers Creek, Chismahoo Creek, and Willow Creek tributaries enter the lake. The topography of the recreation area (north of the lake) is less mixed and ranges from gentle to moderately steep, as shown on Figure 3.3-1 (Roney 2007; Weinerth 2007; Fish-n-Map Company 1990; Reclamation 1977).

3.3.2 Existing Conditions

3.3.2.1 Geology

The geomorphology of an area is created by complex interaction of climate, rock types, and tectonics. The geomorphology of the Park is characterized by large linear rugged transverse mountain ranges to the north and west, the moderate topography of the Ojai Valley and Ventura River Valley, and the upland areas of Laguna Ridge and Red Mountain to the south.

A brief description of the structural geology of the area is provided in the following excerpt (California Geological Survey 2003a):

> The Ventura Basin is characterized by an unusually thick, nearly continuous sequence of Upper Cretaceous through Quaternary sedimentary rocks, which has been deformed into a series of east trending folds associated with thrust and reverse faults. The Tertiary

formations in the Santa Ynez Mountains generally strike east-west and dip steeply south or are spectacularly overturned and dip moderately to steeply to the north. The prominent large fold in the Tertiary rocks (Dibblee 1987) dissected by the Ventura River is a manifestation of the "Matilija Overturn" (Kerr and Schenck 1928). This structure is part of the south limb of a faulted, 40-mile long anticlinal fold with extensive areas of upside-down sandstone and shale beds. The structural framework of the region is believed to be the result of both crustal-block rotation and north-south compression within a restraining bend of the San Andreas Fault (Sorlien et al. 2000). The main structural elements in the quadrangle include: the Matilija Overturn, the Arroyo Parida Fault, a series of down-to-the-north faults called the Oak View faults east of Oak View, and numerous anticlinal and synclinal folds that have deformed Sespe Formation rocks in the Lake Casitas region. Due to their recency of activity several of the Oak View faults meet the criteria required for inclusion in the Official Earthquake Fault Zone prepared by the Division of Mines and Geology (DMG 1986).

Numerous Quaternary fluvial terraces are present along both the west and east sides of the Ventura River, as well as around Lake Casitas (USGS 2006). Figures 3.3-2a and 3.3-2b illustrate the geologic formations within the watershed.

3.3.2.2 Seismicity

The Lake Casitas region is located in a seismically active area of California. The historical seismicity displays diverse styles of earthquake mechanisms showing strike-slip, reverse-oblique-slip, and reverse-slip displacement. Based on various local and regional seismic studies, the seismicity of the Park is considered moderate to high (California Geological Survey 2003a, 2003b; USGS 2003; VCGP 2005a).

The available historical and instrumental data indicate that two large earthquakes have occurred in the region since 1812. A magnitude (M) ~7 earthquake occurred in 1812, likely in the south-central Santa Barbara Channel. The Fort Tejon earthquake (M 7.9–8.2), on the San Andreas Fault, occurred in 1857 (Weber and Kiessling 1978; Ross et al. 2004).

Other earthquakes of lower magnitude that have occurred in or near the region include earthquakes centered in the Santa Barbara Channel in 1925 (M 6.3), 1941 (M 5.9), and 1978 (M 5.1); the 1933 Long Beach (M 6.4) earthquake; an earthquake offshore of Point Mugu (M 5.2) in 1973; and the 1994 Northridge (M 6.7) earthquake (Weber and Kiessling 1978; Ross et al. 2004).

The locations of significant historical earthquakes are generally coincident with the presence and distribution of major fault zones within the area. Major active or potentially active seismic sources in the region include the Malibu Coast, the Simi-Santa Rosa, the Oak Ridge, the San Cayetano-Red Mountain-Santa Susana, the Lion Mountain-Big Canyon-Sisar, and the Mission Ridge-Arroyo Parida-Santa Ana Fault Systems. Other seismic sources include the Bailey, Camarillo, Sycamore Canyon and Boney Mountain, the Ventura and Pitas Point, the Santa Ynez, and the San Andreas Faults and faults between the Santa Ynez and the north county line (VCGP 2005a).

3.3.2.3 Geohazards

Geohazards may affect structures in the Lake Casitas region through landslides, subsidence, and earthquake-related effects such as surface fault rupture, ground shaking, and liquefaction.

Existing and potential geologic hazards in the area include erosion, landslides, and rock fall (such as those triggered by an earthquake or normal slope-degrading processes).

Earthquakes/Ground Shaking. California contains many active faults capable of generating damaging earthquakes. The major effects of earthquakes are ground shaking, surface rupture, and other forms of ground failure including liquefaction and subsidence. The U.S. Geological Survey (USGS) National Earthquake Hazards maps (Frankel et al. 2002) indicate the potential for earthquake ground motions at Lake Casitas. Figure 3.3-3 illustrates the ground shaking potential in the Plan Area. Figure 3.3-4 shows areas that are susceptible to earthquake-induced landslides in the Plan Area.

Surface Fault Rupture. Surface fault rupture is defined as a slip on a fault plane that has propagated upward to, and offset or disturbed, the earth's surface. Areas subject to fault rupture hazard are zoned by state law under the Alquist-Priolo Earthquake Fault Zoning Act (Hart 1994). Maps of areas of potential surface faulting are prepared by and available from California Geological Survey. These maps depict the most recently active traces of faults and a zone around these traces within which future surface faulting might occur. Figure 3.3-5 illustrates the major known faults in the Plan Area.

Mass Wasting. Mass wasting is downward movement of soils and rock under gravity, including landslides, rock falls, and debris flows. Mass wasting requires source materials, a slope, and a triggering mechanism. Source materials include fractured and weathered bedrock and loose soils. Triggering mechanisms include earthquake shaking, heavy rainfall, and erosion.

3.3.2.4 Soils

The soils in the vicinity of Lake Casitas are part of the Ojai-Sorrento, heavy variant; Benito-Naciemento-Linne; Millsholm-Malibu-Los Osos; and Sespe-Lodo associations (U.S. Department of Agriculture 1970). The general descriptive characteristics of soil associations in the vicinity of Lake Casitas are shown in Table 3.3-1. Soils associations are shown in Figure 3.3-6.

Soils are thin to absent on steep slopes, where erosion and runoff effectively precludes good soil development. Soils on steep slopes strongly reflect the constituents in the parent material on which they lie, and are often lost through erosion nearly as fast as they form through weathering of the parent material. The soil types in the Lake Casitas region are shown in Table 3.3-2.

3.3.2.5 Erosion

Erosion is the gradual wearing away of land by water, wind, and general weather conditions. Erosion is a natural geological process, but accelerated soil erosion results from poor land-use practices, leading to the loss of fertile topsoil and to the silting of water bodies such as Lake Casitas. Shallow soils on steep slopes tend to easily erode, and any activity that alters natural soil conditions can cause significant erosion problems. The steep slopes within the Park (10 degrees or more) can be especially susceptible to erosion from surface impacts from recreation if not managed properly. The concentration of unstable slopes and landslide areas are found generally on the west and south shore of the lake (California Geological Survey 2003a). There is a high potential for erosion at the east and west ends of the Park, on the north shore of the Lake, where slopes are 10 feet or greater in height.

Table 3.3-1
Soil Associations and Characteristics in the Vicinity of Lake Casitas

Soil Association	Characteristics				
Ojai-Sorrento, heavy variant	Level to moderately steep	Very deep	Well drained very fine sandy loams and clay loams	Slowly and moderately slowly permeable sandy clay loam and heavy clay loam subsoil	
Benito-Naciemento-Linne	Strongly sloping to very steep	Moderately deep to deep	Well drained clay loams and silty clay loams		Over shale and sandstone
Millsholm-Malibu-Los Osos	Strongly sloping to very steep	Shallow to deep	Well drained loams and clay loams	Clay loam and clay subsoil	Over shale and sandstone
Sespe-Lodo	Moderately to very steep	Moderately deep to deep Shallow	Well drained clay loams Excessively drained loams		Over shale Over shale

Source: United States Department of Agriculture 1970.

Table 3.3-2
Soil Summary for Lake Casitas Region

Soil Series	Texture	Slope	Erosion Hazards	Runoff
Anacapa	sandy loam	2 to 9 %	slight to moderate	slow to medium
Azule	loam	9 to 15 %	moderate	medium
Calleguas	shaly loam	30 to 50 %	severe	rapid
Cortina	stony sandy loam	2 to 9 %	slight	slow
Cropley	clay	2 to 9 %	slight to moderate	slow to medium
Diablo	clay	9 to 15 %	moderate	medium
Diablo	clay	15 to 30 %	moderate to severe	medium to rapid
Diablo	clay	30 to 50 %	severe	rapid
Kimball	sandy loam, eroded	2 to 9 %	slight to moderate	slow to medium
Kimball	sandy loam, eroded	9 to 15 %	moderate[a]	medium[a]
Linne	silty clay loam, eroded	30 to 50 %	severe	Rapid
Lodo	rocky loam	30 to 50 %	severe	rapid
Los Osos	clay loam, eroded	9 to 15 %	moderate	medium
Los Osos	clay loam, eroded	15 to 30 %	moderate to severe	medium to rapid
Los Osos	clay loam	30 to 50 %	severe	rapid
Malibu	loam, eroded	15 to 30 %	moderate to severe	medium to rapid
Malibu	loam	30 to 50 %	severe	rapid
Millsholm	loam	15 to 50 %	moderate to severe	medium to rapid
Millsholm-Malibu	complex, eroded	30 to 50 %	severe	rapid
Nacimiento	silty clay loam, eroded	15 to 30 %	moderate to severe	medium to rapid

Table 3.3-2
Soil Summary for Lake Casitas Region

Soil Series	Texture	Slope	Erosion Hazards	Runoff
Nacimiento	silty clay loam	30 to 50 %	severe	rapid
Ojai	very fine sandy loam, eroded	2 to 9 %	slight to moderate	slow to medium
Ojai	very fine sandy loam, eroded	9 to 15 %	moderate	medium
Ojai	stony fine sandy loam, eroded	2 to 15 %	slight to moderate	slow to medium
San Benito	clay loam, eroded	9 to 15 %	moderate	medium
San Benito	clay loam, eroded	15 to 30 %	moderate to severe	medium to rapid
San Benito	clay loam, eroded	30 to 50 %	severe	rapid
Sespe	clay loam, eroded	15 to 30 %	moderate to severe	medium to rapid
Sespe	clay loam	30 to 50 %	severe	rapid
Sespe	clay loam	50 to 75%	very severe	very rapid
Soper	loam, eroded	15 to 30 %	moderate to severe	medium to rapid
Soper	gravelly loam, eroded	30 to 50 %	severe	rapid
Sorrento	clay loam, heavy variant	2 to 9 %	slight	medium
Sorrento	clay loam, heavy variant	9 to 15 %	moderate	medium[a]

Source: United States Department of Agriculture 1970.
[a] These determinations for erosion hazard and runoff were inferred from information in the source listed above.

Constraints Due to Soils

In many instances, the soils and slope of the terrain can interact to produce a physical constraint to construction. Based on these two considerations, constraints for septic systems, ponds and reservoirs, local roads and streets, dwellings without basements, campgrounds and picnic areas, and trails and paths can be mapped. Most development constraints based on soils are due to slope, porosity, rockiness, or depth to bedrock. In addition to these specific constraints, overall erosion hazard potentials should be considered. These constraints are based solely on soil type and slope. They do not necessarily preclude development, though they may limit development options in some instances. The constraints mean, however, that special design considerations and increased installation/maintenance costs may be involved in development of facilities.

3.3.3 Regulatory Setting

Several federal and state regulations govern geology, seismicity, and soils in California. The federal regulations include the Earthquake Hazard Reduction Act of 1977, Executive Order 12699 on Seismic Safety of Federal Buildings, and the Uniform Building Code (superseded in California by the 2001 California Building Code). State regulations include the Alquist-Priolo Act, the Field Act, the 2001 California Building Code, the Seismic Hazards Mapping Act, and the Historic Structures Act (California Public Resources Code Section 5028). Some state agencies, including Caltrans and the DWR Division of Safety of Dams, have their own

regulations covering seismic and geologic hazards. In addition, municipalities and counties can have general or specific plans that may include regulatory requirements.

3.4 BIOLOGICAL RESOURCES

3.4.1 Regional Setting

The Plan Area is located in Ventura County in the southeastern portion of the Santa Ynez Mountain range, along SR 150 between Carpinteria and Ojai near the junction with Santa Ana Road. The Plan Area is within the western transverse ranges of Southwestern California according to the Jepson Manual (Hickman 1993). USGS 7.5-minute quadrangles covering the Plan Area include the Matilija and Ventura quadrangles.

The watershed of Lake Casitas is an expansive area of largely undeveloped national forest with scattered residential units or private ranch holdings. Santa Ana, Poplin, and Coyote creeks drain into Lake Casitas, which impounds runoff for municipal storage. Each of the three creeks includes reaches within the Open Space Lands and extends above into LPNF. Robles-Casitas Canal also carries water to Lake Casitas from the Robles Diversion Dam on the Ventura River, about 1.5 miles downstream of the confluence of Matilija Creek and North Fork Matilija Creek. These creeks primarily drain the undeveloped Matilija Wilderness of LPNF. Casitas Dam at the southern end of Lake Casitas is located on Coyote Creek about 2 miles above the junction of the creek and the Ventura River.

3.4.2 Plan Area Setting

The Plan Area encompasses approximately 7,400 acres, including Lake Casitas (2,700 acres at full level), 1,200 acres of Park land, including surrounding shores and rugged hillsides, and 3,500 acres of open space area. The Plan Area comprises Casitas Dam, Lake Casitas, the developed recreation area at the north end of the lake, and the Open Space Lands north of the lake, purchased in the 1970s.

Data to describe existing conditions were gathered from biological field studies, existing reports, articles, and interviews with knowledgeable agency employees and professionals in the area. Primary sources of informational interviews and existing reports for the area were Reclamation staff. A list of special-status species was compiled from queries of the USFWS online database, the California Department of Fish and Game (CDFG) California Natural Diversity Data Base (CNDDB), and the California Native Plant Society (CNPS) online Rare Plant Inventory database for the following USGS 7.5-minute quadrangles: Matilija, Old Man Mountain, Wheeler Springs, Lion Canyon, Ojai, Saticoy, Ventura, and Pitas Point.

3.4.3 Vegetation

The vegetation types of the Plan Area were identified, mapped, and characterized based on an analysis of low-altitude air photos and field surveys in 2003 to 2007. Inaccessible areas were mapped by determining vegetation signatures on aerial photography based on previous field surveys. Rare plant searches were performed in conjunction with vegetation surveys, with additional focused rare plant surveys in 2004 and 2007. Plant nomenclature follows Hickman (1993) and Smith (1998), and vegetation types are based on Holland (1986).

The vegetation types identified in the Plan Area are listed with acreages in Table 3.4-1 and described below. Twenty-one major vegetation types (18 upland and three wetland or riparian types) were identified within the Plan Area. Although the vegetation in most areas consists of a mix of native and nonnative plant species, the vegetation types are divided into those that represent native plant communities and those that are primary the result of human disturbance and alteration of the landscape. The general structure, appearance, and characteristics of each vegetation type are described below. The dominant plant species associated with each vegetation type are also noted. Figures 3.4-1 and 3.4-2 illustrate vegetation within the Plan Area. See Appendix A, Table A-1, for a comprehensive list of plant species identified within the Plan Area. Site photographs are also provided in Appendix A.

Chaparral, coastal sage scrub, and oak woodland are the dominant vegetation types, followed by grassland. The most sensitive and uncommon habitats in the Plan Area are native grassland and black walnut woodland. The vegetation communities in the Plan Area are determined by a combination of various environmental factors including slope aspect, elevation, topography, and soil type. Oak savannah and grassland are mostly found in the flat and gentle slopes of the Open Space Lands. Chaparral and oak woodland are found on north-facing slopes while coastal sage scrub is typically found on south-facing slopes. Riparian vegetation dominates the creeks in the Plan Area.

3.4.3.1 Native Vegetation Types

Upland Vegetation

Upland vegetation around the lake is composed mostly of grassland, chaparral, oak and black walnut woodland, oak and black walnut savannahs, coyote brush scrub, and coastal sage scrub. Most of these habitats are often found intermixed. For example, commonly intermixed vegetation includes coyote brush scrub with grasslands, chaparral with coastal sage scrub, and oak and black walnut woodland (on the south side of the lake).

Of these upland habitats, native grassland, oak woodland/savannah and black walnut woodland/savannah are considered sensitive in the region. All oaks are considered protected trees under the Ventura County Tree Protection Regulations (Sections 8107-25 and Subsections added by Ordinance 3993 of the Ventura County Coastal and Noncoastal Zoning Ordinance). Very few populations of black walnut woodland/savannah remain in the region. It is most abundant on the southern side of Lake Casitas, which is one of the largest remaining populations in the region. Native grasslands have declined significantly in California, and less than 20 percent of the historical population remains. The extensive grasslands in the Plan Area were historically grazed or disturbed and are now covered primarily by annual nonnative grassland, which often extends into the chaparral, coastal sage scrub, and oak/black walnut woodland as the understory. However, a few remnant patches of native grassland remain throughout the Plan Area, mostly in the Open Space Lands. In addition, there is an approximately 10-acre native grassland and wetland restoration site across from the Park entrance on the southeast corner of Santa Ana Road and SR 150. Other habitat restoration sites in the Plan Area include an approximately 7-acre oak woodland restoration site just south of Casitas Dam, and two chaparral and coastal sage scrub restoration sites that total approximately 25 acres called the Borrow Sites. All of the restoration sites are related to mitigation associated with the Casitas Dam Modernization Project in 2000. See Figure 3.4-3 for the locations of these restoration sites.

Table 3.4-1
Acreage of Habitats in the Lake Casitas Plan Area

Vegetation Type	Acreage
Upland Types	
Agriculture	468.98
Black Walnut Savanna	2.00
Black Walnut Woodland	44.36
Chaparral	409.63
Chaparral-Coastal Sage Scrub	3174.86
Coastal Sage Scrub	686.83
Coastal Sage Scrub-Chaparral	1394.62
Coyote Brush Scrub	84.32
Native Grassland	358.48
Nonnative Grassland	971.52
Oak Savanna	351.06
Oak Woodland	1037.49
Oak-Black Walnut Savanna	72.47
Oak-Black Walnut Woodland	2186.14
Ornamental Trees and Landscaping	8.48
Recreation	139.17
Residential	160.21
Ruderal	488.55
Wetland Types	
Riparian Scrub	85.01
Oak/Sycamore Riparian Woodland	482.25
Freshwater Marsh	159.46
Total	12765.89

Chaparral. Chaparral vegetation is composed of tough-leaved evergreen shrubs. Most chaparral shrubs in the Plan Area are about 6 feet tall. Chaparral is open in many places, and species diversity is high in the lower elevations possibly due to historic cattle browsing. In the steeper elevations, the chaparral is dense and typically dominated by a single species, usually chamise *(Adenostoma fasciculatum)*. In general, the chaparral occurs on south-facing slopes in rocky, thin soils. Chaparral is most abundant on the west and south side of the lake.

Other shrubs that co-occur with chamise include ceanothus (*Ceanothus megacarpus* and *C. spinosus*), lemonade berry *(Rhus integrifolia)*, scrub oak *(Quercus dumosa)*, manzanita *(Arctostaphylos glandulosa* ssp. *Eastwoodiana)*, and black sage *(Salvia mellifera).* Openings are sparsely vegetated by perennial herbs and subshrubs, such as deerweed *(Lotus scoparius)*, bush mallow *(Malacothanmus fasciculatus),* rush rose *(Helianthum scoparium)* and poison oak *(Toxicodendron diversilobum).*

Coastal Sage Scrub. Coastal sage scrub is a low, mostly soft-woody shrub habitat, with some bare ground beneath and between shrubs. Many species become dormant during summer and fall and drop their leaves. This vegetation type typically occurs at lower elevations and in better-

developed soils than chaparral. It often grows for a few years in areas that revert to chaparral following fire or other disturbance creating a mosaic of the two vegetation types. Coastal sage scrub vegetates the dry, gentler south-facing slopes throughout the Plan Area.

Dominant species in coastal sage scrub are California sagebrush *(Artemisia californica),* coyote brush *(Baccharis pilularis consanguinea),* California buckwheat *(Eriogonum fasciculatum),* lemonade berry *(Rhus integrifolia),* white sage *(Salvia apiana),* purple sage *(Salvia leucophylla),* black sage *(Salvia mellifera),* yucca *(Yucca whipplei),* and toyon *(Heteromeles arbutifolia).*

Coyote Brush Scrub. Coyote brush scrub is a type of coastal scrub vegetation and is dominated by low shrubs, in dense patches separated by grassy openings. This vegetation type flowers in late spring and early summer and occurs on windy, exposed sites with shallow, rocky soils. In the Plan Area, coyote brush scrub occurs in previously disturbed areas and along roadsides on mostly flat slopes. It is most abundant mixed with grasslands in the Open Space Lands and along the upper edges of the lake.

This vegetation type is dominated by coyote brush. The understory is dominated by invasive species such as wild oat *(Avena fatua),* brome *(Bromus rubens),* black mustard *(Brassica nigra),* and yellow star thistle *(Centaurea melitensis).*

Native Grassland. Native perennial grassland was once common in California but has been greatly reduced primarily by the pressures of grazing, invasive plants, agriculture, urbanization, and alteration of hydrological and fire regimes. In the oak woodland/savannah grassy openings, there are scattered individuals of a native perennial bunchgrass, purple needlegrass *(Nassella pulchra).* Because only small remnants of this habitat are left, grassland areas with at least 10 percent cover of natives are typically identified as native grassland. Native grassland provides high-quality habitat for small mammals and birds, and foraging areas for raptors. Native grassland can recover only with active restoration efforts. It is considered a highly sensitive habitat type and therefore is differentiated from nonnative grassland on Figures 3.4-1 and 3.4-2. Individual records of purple needlegrass are also displayed on Figure 3.4-3. A more detailed mapping effort would be needed to document all native grassland habitats in the Plan Area, but these figures show those that were encountered by URS biologists during field surveys from 2004 to 2007.

Purple needlegrass is the dominant species in this habitat type and is often mixed with native forb species such as red maids *(Calandrinia ciliata),* purple owl's clover *(Castilleja exserta),* blue-eyed grass *(Sisrynchium bellum),* vinegar weed *(Trichostema lanceolatum),* and threadstem madia *(Madia exigua).*

Oak Savannah. Oak savannahs are stands of relatively widely spaced oak trees with a grassland understory. In the Plan Area, they typically occur on rolling foothills with deep alluvial soils. The savannah habitat may be a result of years of grazing and other types of disturbances that have impeded tree and shrub regeneration. Coast live oak *(Quercus agrifolia)* and valley oak *(Q. lobata)* are the dominant trees in the oak savannah habitat. Understory species are similar to those listed in the grassland vegetation type.

Oak savannah and oak woodland (see below) are both sensitive habitat types. All oaks are considered protected trees under the Ventura County Tree Protection Regulations (Sections 8107-25 and Subsections added by Ordinance 3993 of the Ventura County Coastal and

Noncoastal Zoning Ordinance). The alteration, felling, or removal of any oak must comply with these regulations, and may require a tree permit and/or mitigation.

Oak Woodland. Oak woodland habitat occurs in patches on north-facing slopes and shaded canyons throughout the Plan Area. The tree canopy is dense and is dominated by coast live oak. The shrub layer is less developed and dominated by scattered patches of poison oak, gooseberry *(Ribes speciosum),* virgin's bower (*Clematis* spp.), and monkeyflower *(Mimulus auranticus).* The herbaceous layer is continuous and is dominated by annual and perennial grasses and herbs such as those listed in the grassland vegetation type. In addition, purple sanicle *(Sanicula bipinnatisecta)* and California figwort *(Scrophularia californica)* are common in the understory.

Black Walnut Savannah. Southern California black walnut savannahs are stands of relatively widely spaced black walnut *(Juglans californica)* trees with a grassland understory. They typically occur on the rolling foothills with deep alluvial soils of the Plan Area. The savannah habitat may be a result of years of grazing and other types of disturbances that have impeded tree and shrub regeneration. Understory species are similar to those listed in the grassland vegetation type.

Black walnut savannah and black walnut woodland (see below) are both sensitive habitat types. Black walnut savannah/woodland has been greatly reduced in Southern California due to urbanization and loss of young trees to overgrazing. Because of its rarity and decline throughout southern California, it is a sensitive habitat type in the Plan Area.

Black Walnut Woodland. Southern California black walnut grows in open savannah or woodland settings as a small winter-deciduous tree. In the Plan Area, this habitat type often occurs mixed with coast live oak savannah or woodland on clay soils. Understory species are similar to those in oak woodland and savannah. Black walnut offers important habitat for many vertebrate and invertebrate species. Leaf production and flowering occur at approximately the same time in the spring, and mature fruit is abundant by late summer. By November or December, this tree begins to shed its leaves and mature fruit, supplying invertebrates and reptiles with shelter beneath the leaf litter. The fruit provides overwintering food for California ground squirrels and gray squirrels, and the foliage provides food for browsing herbivores. The canopy and hollows in the trunks offer roost sites, shelter and nesting habitat for songbirds and raptors.

Rock Outcrop. Large rock outcrops occur within the Plan Area. These outcrops consist of sandstone and shale and areas of very thin soil. Plant vegetation is typically sparse and includes a variety of grasses, pygmy weed *(Crassula connata)*, dudleya *(Dudleya lanceolata),* ferns, and numerous unidentified lichens and mosses.

Wetland/Riparian Vegetation

The wetland types observed in the Plan Area are described below. The descriptions are based on the classification system developed by Holland (1986). Common plant species for these habitat types are presented below. See Section 3.4.4 for descriptions of common plant species specific to individual aquatic habitats in the Plan Area.

Freshwater Marsh. Freshwater marsh comprises permanent and seasonal freshwater marsh areas that support a flora dominated by hydrophytes and aquatic plants. Marsh areas are located at quiet sites lacking significant current where prolonged saturation permits the accumulation of deep, peaty soils. Dominant plants in these marshy areas include California bulrush *(Scirpus*

californicus) and cattails (*Typha* sp.). Other species found in freshwater marshes include nonnative species such as curly dock *(Rumex crispus)* and rabbitsfoot grass *(Polypogon monspeliensis),* and native species such as common rush *(Juncus patens),* toad rush *(Juncus bufonius),* yellow monkeyflower *(Mimulus guttatus),* red monkeyflower *(M. cardinalis),* and umbrella sedge *(Cyperus eragrostis).*

Freshwater marshes occur along the shore of the lake, especially in coves and channels where the bottom slopes gradually into deeper water, and along the creeks, drainages, and seeps within the Plan Area (see Figure 3.4-4). The largest freshwater marsh in the Plan Area consists primarily of California bulrush and is located along the edge of the lake near Coyote Creek. Freshwater marsh is a sensitive wetland habitat. Freshwater marshes support a diversity of wildlife and may be regulated as wetlands by the U.S. Army Corps of Engineers and CDFG.

Oak/Sycamore Riparian Woodland. Oak/sycamore riparian woodland is an open woodland dominated by coast live oak, and the broadleaved, winter-deciduous sycamore *(Platanus racemosa)* and arroyo willow *(Salix lasiolepis).* It includes shrubs of mule fat *(Baccharis salicifolia)* on more exposed and disturbed sites. Mugwort *(Artemisia douglasiana)* is common in the understory. These woodlands are seasonally flooded and occur on the banks and terraces of the creeks in the Plan Area.

Riparian woodland is considered a sensitive habitat. Oaks and sycamores are both considered protected trees under the Ventura County Tree Protection Regulations (see Oak Savannah discussion above). Riparian woodland also supports a high diversity of wildlife.

Riparian Scrub. Riparian scrub is most commonly on alluvium deposited near stream channels where the substrate is composed of loose sand and fine gravel. This vegetation habitat type is dominated by willow shrubs and small trees, such as arroyo willow, red willow, and narrow-leaved willow. Mule fat shrubs are often codominant with the willows. It provides habitat for a variety of small birds. Riparian scrub is a sensitive habitat and may be regulated by the U.S. Army Corps of Engineers and CDFG.

Nonnative Vegetation Types

Nonnative Grassland. Historic uses, including cattle grazing and disturbance associated with recreation, have converted what probably was oak woodland/savannah and native bunchgrasses into grasslands dominated by introduced annual species. Grasslands occur both in areas lacking trees and shrubs and as an understory in oak woodland on well developed soils, especially on gentler slopes.

Dominant grass species include wild oat, ripgut grass (*Bromus diandrus*), soft chess *(B. hordeaceus),* brome, and foxtail *(Hordeum murinum)*. Native annual and perennial herbs are common among the grasses, especially blue dicks *(Dichelostemma pulchellum),* owls' clover *(Castilleja exerta),* lupine *(Lupinus bicolor),* farewell-to-spring *(Clarkia purpurea),* and others. Nonnative herbs like filaree *(Erodium),* clovers *(Trifolium* and *Medicago),* and thistles (*Carduus* and *Centauria*) also contribute to this community.

Ruderal. Ruderal vegetation consists of nonnative weedy species and is found in disturbed areas throughout the plan area. It is often interspersed with grassland, coastal sage scrub, and oak savannah and woodland. Common plant species include fennel, thistle, mustards, fountain grass, tree tobacco, and pampas grass. Ruderal vegetation may also occur in riparian or wetland areas, where it commonly consists of poison hemlock, dock, harding grass, and tamarisk.

Ornamental Trees and Landscaping. Ornamental trees and landscaping occur around developed and residential areas. The vegetation is mostly nonnative, and common woody species include palms (*Phoenix* sp.), pine trees (*Pinus* sp.), eucalyptus (*Eucalyptus* sp.), pepper trees (*Schinus* sp.), olive trees *(Olea europea),* and cypress trees (*Cupressus* sp.). Some of these species have escaped from cultivation and are found mixed with native vegetation.

Invasive Exotic Plants

Several invasive exotic species occur throughout the Plan Area, primarily due to grazing and human disturbance. These are considered noxious due to their destabilizing effects on native ecosystems and threat to livestock, among other reasons. If not properly maintained, the Plan Area can serve as a source for noxious weeds to spread into natural areas. Eight noxious species known to occur within the Plan Area are listed on California Invasive Plant Council's high alert list. The council describes species on the high-alert list as follows:

> These species have severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. These species are usually widely distributed ecologically, both among and within ecosystems.

These high-alert noxious weeds include the widespread and common red brome *(Bromus madritensis* ssp. *rubens)* and scattered patches of sweet fennel *(Foeniculum vulgare)* and Spanish broom *(Spartium junceum)* in disturbed areas and grassland and shrub habitats. Some tamarisk (*Tamarix* spp.) and giant reed *(Arundo donax)* are present in riparian areas. Giant reed is very common along the Ventura River, and its potential spread into the riparian areas below the dam should be monitored. Cape ivy *(Delairea odorata)* is actively invading the plan area in riparian areas and north-facing scrub and woodland slopes. Scattered clumps of pampas grass (*Cortaderia* sp.) are also present throughout the plan area, especially in grasslands and riparian areas. Milfoil (*Myriophyllum* sp.) is an aquatic mat-forming plant present in some still or slow-moving freshwater areas. All nonnative species (including those on the Invasive Plant Council's moderate and limited alert lists) known to occur in the Plan Area are listed in Appendix A, Table A-1 and marked with an asterisk. Some of the locations where invasive species were observed during field surveys from 2004 to 2007 are shown on Figure 3.4-5. The most severe invasive species problem in the Plan Area is cape ivy, which is found mainly on the west and south side of the lake and covers areas of oak woodland and chaparral.

3.4.4 Aquatic Resources

The Plan Area consists of natural and human-made aquatic resources (see Figure 3.4-4). Human-made aquatic resources consist of Lake Casitas and its associated freshwater marshes scattered along the edges of the lake, a restored freshwater marsh, two perennial ponds (Selby Pond and North Pond), and three intermittent ponds. The types of natural aquatic resources found within the Plan Area include perennial creeks, intermittent creeks, several unnamed drainages, a vernal marsh, springs, and seeps. The major natural creeks that feed into Lake Casitas are located north of the lake in the Open Space Lands and include Coyote Creek, Santa Ana Creek, and Poplin Creek. Coyote Creek and Santa Ana Creek are the two larger creeks draining extensive areas of the Santa Ynez Mountains. Poplin Creek is much smaller and is a tributary of Coyote Creek; Cooper Canyon is a tributary of Santa Ana Creek. The west side of the lake consists of two small creeks, Willow and Chismahoo creeks. The south side of the lake includes a small drainage

called Ayers Creek and the southern end of Coyote Creek, which flows from Lake Casitas Dam to the Ventura River. In addition, a vernal marsh is located in the Open Space Lands, and several drainages, seeps, and springs are found along the mountain slopes and canyons throughout the Plan Area. Creeks in the Plan Area are described in Table 3.4-2.

Table 3.4-2
Summary of Major Creeks in the Plan Area

Tributary	Total Length of Creek	Creek Length from Lake to Plan Area Boundary	Elevation Change (feet)	Access
Coyote Creek	22,000 feet	700 feet	600' to 2000'	Walking trail from SR 150; Forest Service dirt road at top of watershed; otherwise, no trail
Coyote Creek (East)	11,000 feet	NA	600' to 2,200'	Walking trail from SR 150 for 1/2 mile; otherwise, no trail
Poplin Creek	11,000 feet	7,000 feet	600' to 1,800'	A number of intersecting public roads within RMP; Forest Service road at top of watershed
Poplin Creek (East)	13,000 feet	2,000 feet	600' to 1,400'	(same as above)
Santa Ana Creek	30,000 feet	10,000 feet	600' to 2,800'	Dirt road parallels the creek almost to top of watershed
East Santa Ana Creek (Cooper Canyon)	7,000 feet	4,000 feet	600' to 1,000'	Dirt road parallels creek in RMP; no access beyond RMP

Creeks

Coyote Creek. Coyote Creek on the north side of the lake has perennial flow. Coyote Creek enters the northwest portion of Lake Casitas, flowing from its headwaters in the Santa Ynez Mountains. Most of the Coyote Creek drainage is within LPNF. The mainstem of Coyote Creek above Lake Casitas is approximately 8 miles long, and its east and west forks are each about 2 miles long. The east fork and west fork confluences with Coyote Creek occur approximately 5,890 and 8,040 feet upstream of Lake Casitas, respectively. The lower section of Coyote Creek is relatively low gradient up to the west and east fork confluences, where the hydraulic gradient increases and the channel becomes more structurally controlled by bedrock and boulders. The lower section of Coyote Creek within the Open Space Lands consists of a considerable length of stream, or delta, which is affected by lake water level fluctuations.

Very little past or present human development or water use is apparent within the drainage. The riparian corridor is thickly vegetated with a wide variety of native vegetation and very few nonnative species. The stream channel is well shaded by riparian trees including white alder *(Alnus rhombifolia),* sycamore, willow, and Fremont cottonwood supporting clear, cool water

and a rock, sand, and cobble streambed. Numerous large, deep pools were noted along the surveyed portions of the creek.

Coyote Creek south of Casitas Dam has intermittent flow and is dominated by sycamore, coast live oak, arroyo willow, elderberry, mule fat and scattered cottonwoods. The upper banks are mixed with patches of weeds such as milk thistle and yellow star thistle.

Poplin Creek. Poplin Creek is a small ephemeral stream that is a tributary to Coyote Creek. It is located between Coyote and Santa Ana creeks. The upstream end above the LPNF consists of a narrow steep gradient lined with bedrock and boulders. Downstream of the LPNF it has a low gradient and flows through sandy bottoms with very few deep pools into Coyote Creek immediately upstream of the confluence with Lake Casitas. Most of the 2 miles of Poplin Creek, including a tributary impounded by a small earthen dam reservoir called Selby Pond, is located within the Open Space Lands. Most of Poplin Creek surveyed was observed either dry or with trickle flow (<0.1 cubic feet per second). Outside of the rainy season, water persists only in a number of scattered rocky pools where the creek flows over bedrock. The upper portion of Poplin Creek near the edge of the Plan Area boundary is dominated by sycamores and oaks, poison oak, mugwort, willows, Leopold's rush *(Juncus acutus),* bush mallow, red monkeyflower, and horsetail (*Equisetum* sp.). Poplin Creek has more rural development than other creeks in the Plan Area, hence a more degraded riparian corridor with numerous invasive weeds.

Santa Ana Creek. Santa Ana Creek flows southward from the Santa Ynez Mountains into the northern portion of Lake Casitas. Prior to the construction of Lake Casitas, Santa Ana Creek was a tributary to Coyote Creek. The Santa Ana Creek mainstem is approximately 6 miles long, including 2.5 miles of the north fork. The west fork of Santa Ana Creek is approximately 2.25 miles long, and its confluence with the north fork forms the mainstem within the LNPF. The lower section of Santa Ana Creek is relatively low gradient within the broad Santa Ana Valley. The upper section of Santa Ana Creek, upstream of the Open Space Lands/LPNF boundary, tends to be higher gradient and structurally controlled by boulders and bedrock. The Robles Diversion Canal enters Santa Ana Creek approximately 800 feet upstream of Lake Casitas within the delta area. The Park campground facilities are located adjacent to the stream within the lower reaches of Santa Ana Creek.

Santa Ana Creek does not appear to be a perennial stream as large portions of the creek bed were dry during both the fall and spring surveys. Within the surveyed portion of the creek underground flows surfaced in two separate locations, creating active channels each approximately 0.25 mile long. The riparian corridor was well vegetated with a wide variety of native trees and shrubs. The native tree canopy created a shady stream corridor. The stream flows were small but clear and cool, flowing around large boulders and over a rock/cobble bottom.

Cooper Canyon Creek. Cooper Canyon is a small tributary to Santa Ana Creek entering from the east approximately 0.75 mile upstream from the Santa Ana Road crossing. The stream channel is similar to Poplin Creek, a small ephemeral drainage with a sandy bottom and very few deep pools. The riparian corridor was well vegetated with native trees and shrubs, providing a shaded stream channel. A section of the stream had some scoured deep pools in the bedrock.

Ayers Creek. Ayers Creek is located at the southwest corner of the lake. It is an intermittent stream dominated by willows. The creek bottom consists mostly of fine sand with very few cobbles. Bear tracks were observed in the channel bottom.

Ponds

Selby Pond. Selby Pond is a 2-acre human-made pond approximately 20 feet deep located just downstream of the LPNF boundary. The pond is spring fed and appears to have been in existence since before 1953. The pond consists of mostly open perennial fresh water with freshwater marsh vegetation and a number of large riparian trees around the edges. The pond is located on a western tributary of Poplin Creek just before the area of convergence. Dominant wetland species include California bulrush *(Scirpus californicus),* umbrella sedge, Hooker's evening primrose *(Oenothera elata* ssp. *hirsutissima),* cockle bur *(Xanthium strumarium),* western ragweed *(Ambrosia psilostachya),* and common plantain *(Plantago major).* Other species include cattails (*Typha* sp.), Leopold's rush, mugwort, mule fat, willow, and spike rush *(Eleocharis macrostachya).* Red monkeyflower and common rush are uncommon wetland species found along small drainages. Nonnative species include curly doc, bristly ox-tongue *(Picris echioides),* Bermuda grass *(Cynodon dactylon),* hyssop loosestrife *(Lythrum hyssopifolium),* and speedwell (*Veronica* sp.). Native perennial grassland is the dominant habitat of the uplands on the north side of the pond including purple needlegrass, Farewell-to-spring (*Clarkia* sp.), blue-eyed grass *(Sisrynchium bellum),* vinegar weed *(Trichostema lanceolatum),* threadstem tarweed *(Madia exigua),* common goldenstar *(Bloomeria crocea),* and cudweed aster *(Lessingia filagifolia).*

North Pond. The North Pond is an isolated 1-acre human-made pond located within the Santa Ana Creek watershed near the LPNF boundary and west of Santa Ana Creek. The pond has likely been in existence for many years. It is a perennial freshwater pond, probably spring fed, and lined with wetland vegetation along the edges. California bulrush is the dominant vegetation. Just beyond the California bulrush, willows and mule fat are present in some areas. The pond is located within a basin with chaparral slopes to the north and a small human-made berm to the south consisting of ruderal vegetation with a few oak trees. Other species include horseweed *(Conyza canadensis),* curly doc, cockle bur, bristly ox-tongue, and prickly lettuce *(Lactuca serriola).* The pond appears to have a healthy fish population and several bullfrogs.

Intermittent Ponds. Three small intermittent ponds occur in the Plan Area (see Figure 3.4-4). Two of these ponds (Ponds 2 and 3) are located on the southwest side of the lake, and the other (Pond 1) is located in the Open Space Lands west of Santa Ana Creek. Pond 1 is mostly nonnative vegetation with patches of low-growing wetland plants such as spike rush. Pond 2 is a small pond located at the end of the access road to the old borrow site. It consists mostly of cattails. Pond 3 is located along the access road heading toward the lake just past where it crosses with Ayers Creek and consists mostly of cattails, water plantain *(Alisma plantago-aquatica),* bur head *(Echinodorus berteroi),* and nonnative weeds.

Seeps and Freshwater Wetlands

Spring (Tributary to Santa Ana Creek). A spring feeds into Santa Ana Creek from the west. The upper end of the spring at the edge of the Plan Area boundary contains perennial ponded water with ferns, mugwort, poison oak, bush mallow, vervain *(Verbena lasiostachys),* sycamores, and oaks along the banks. The riparian trees continue down the drainage about half way and in the drier areas contain deep cut banks and less understory, including climbing penstemon *(Keckielia cordifolia),* poison oak, giant rye *(Leymus condensatus),* and Italian thistle *(Carduus pycnocephalus).* The lower half of the drainage that passes through grassland before it connects with Santa Ana River is dry with deep cut banks.

Restored freshwater marsh. On the southeast corner of SR 150 and Santa Ana Road across from the Park entrance is a 3-acre wetland restoration site that was created as mitigation for the Casitas Dam Modernization Project in 2001. This restored freshwater marsh is connected with a small drainage that is parallel with SR 150 and drains into lower Santa Ana Creek in the Park. The upper portion of this drainage consists of a narrow strip of riparian vegetation primarily consisting of willows and coast live oak with a few scattered western sycamore and Fremont cottonwood *(Populus fremontii)* trees. The drainage flows into the restored wetland, which consists primarily of umbrella sedge, common rush *(Juncus patens), Carex barbarae,* cattails, willows, and mule fat. The freshwater marsh then flows over a spillway dominated by mule fat and into a created meandering drainage lined with mule fat that flows through the restored native grasslands. This drainage connects with the existing drainage that flows through nonnative grassland until it reaches Santa Ana Road and flows through an underground pipe.

Shoreline freshwater marshes. California bulrush is the dominant wetland plant in the freshwater marsh areas scattered along the shoreline of Lake Casitas. The amount of freshwater marsh along the shoreline is directly related to rainfall and lake level. The largest freshwater marsh along the shoreline is located near Coyote Creek just south of SR 150. The two other largest marsh habitats are along the north shore near Wadleigh and the cove just north of Ayers Creek. The shoreline marshes provide important habitat for breeding grebes, soras, and possibly least bitterns.

Vernal marsh. A fault sag vernal marsh wetland is located on the north side of SR 150 just east of Poplin Creek. This is a sensitive resource in the region because it is one of the last remaining historic vernal marshes. It consists of several wetland plants that are uncommon in the Plan Area such as creeping ryegrass *(Leymus condensatus),* brown-headed rush *(Juncus phaeocephalus),* and western goldenrod *(Euthamia occidentalis).*

3.4.5 Wildlife

The Plan Area supports a high diversity of wildlife species. This can be attributed to (1) the geographic location of the Plan Area in a regional faunal and floral transition zone between coastal and montane; (2) the diversity of chaparral, grassland, and oak woodland habitats; and (3) numerous water sources and riparian habitats. The Plan Area is adjacent to the LPNF, which is one of the more diverse National Forests in California, supporting over 468 species of fish and wildlife. Many of the habitats and wildlife occurring in the LPNF are present in the Plan Area. Comprehensive bird surveys were conducted in the Plan Area from 2004 to 2005. Wildlife observations were noted during other surveys and site visits to the Plan Area by URS biologists from 2003 to 2007. A summary of the types of wildlife observed is provided below. Birds are discussed first due to the abundance of data gathered during field surveys, with the remaining wildlife listed in taxonomic order.

3.4.5.1 Birds

Bird diversity at the Plan Area is especially high due to the variety of aquatic and terrestrial habitats. Lake Casitas has been named a Globally Important Bird Area by the American Bird Conservancy. Since the construction of Casitas Dam in the 1950s, many birds have come to depend on the lake's open water, protected bays, vegetated shallows, and freshwater marsh habitats. The riparian areas along Santa Ana, Poplin, Coyote, and Ayers creeks support a variety

of breeding species, as well as migrant and wintering land birds. Lake Casitas is an important inland site for many bird species. As the largest inland body of water in Ventura County, it hosts some species that occur nowhere else inland in the county. Other species occur here in larger numbers than anywhere else in the county. Common avian resources include brown towhee, California thrasher, turkey vulture, canyon wren, wrentit, Nuttall's woodpecker, plain titmouse, scrub jay, and house wren in the upland plant communities. The patches of lakeside emergent wetland vegetation provide habitat for marsh birds such as red-winged blackbird, common yellowthroat, green heron, pied-billed grebes and American coots. Riparian habitats provide foraging and breeding areas for a large diversity of species, such as green heron, belted kingfisher, swallows, and warblers. Although not restricted to this habitat, many raptor species forage within the grassland and savannah habitats in the Plan Area. A complete bird list for the Plan Area is presented in Appendix A, Table A-2.

Information on the avian resources in the Plan Area was taken from a variety of sources. Christmas Bird Count data from 1987 through 2002 were reviewed to determine the presence or absence of species and any trends in their abundance over time. Systematic bird surveys also were conducted by URS biologists in 2004 and 2005. The surveys were designed to cover a broad range of habitats during seasons when birds were likely to be active. Waterfowl surveys were conducted every other month for 2 years from a motorized pontoon boat that circled the lake. Riparian surveys were conducted twice along each major tributary stream (Santa Ana, Poplin, Coyote, and Ayers creeks) during the spring of 2004. Additional raptor surveys were conducted twice during the breeding season in March and May 2004. These surveys were conducted by vehicle and on foot to locate raptor nests. Lakeshore and upland bird surveys were also conducted twice in the spring of 2004 in the Park east and north of the lake, and marsh surveys for breeding birds, especially nesting grebes, were conducted twice in the spring of 2004 by boat and land. All birds observed during surveys, not just the target species, were recorded. Birds were also noted during vegetation surveys. A complete summary of bird surveys is included in Appendix B.

Avian Habitats in the Plan Area

The following is a description of each of the major avian habitat types that occur in the Plan Area and the types of birds that typically occur in these areas.

Deep Water. The deeper parts of the lake (125 to 150 feet deep) are generally areas furthest from shore in the main body of the lake. Shallower divers (e.g., diving ducks, American coots, Pied-billed grebes) seem to prefer water of less than 30 feet in depth at Lake Casitas. For the purposes of this discussion, deep water will refer to areas of greater than 30 feet in depth. The deep water areas do not support as great a variety of species, and very few, if any, species are truly dependent on water more than a few feet deep. However, these areas are still important food sources for the deeper divers at Lake Casitas, species that use these areas to hunt for fish and aquatic invertebrates. Western and Clark's grebes are most consistently found in the deeper areas around the lake, sometimes in large numbers. Figure 3.4-6 illustrates locations where grebes tend to congregate in deep water areas. These areas include northwest, northeast, east, southwest, and south of the Main Island, and near Casitas Dam.

Shallow and Medium-Depth Water. Areas less than 30 feet deep are the most productive for water-dependent birds around the lake. Areas of shallow and medium-depth water habitats occur around the edges of the lake, on the east side of the Main Island, and in the major coves around

the lake including Coyote Creek, Station Canyon, Santa Ana Creek, Wadleigh, Dead Horse Canyon, Chumash Bay, Ayers Creek, Indian Mesa, Chismahoo Creek, and Willow Creek. Numerous birds depend on shallow water in the lake. In addition to the variety of diving and dabbling ducks are various species that dive principally in medium-depth water: grebes, double-crested cormorant, and American coot. Herons and egrets use shallow water, stalking their prey along the edges of the lake and in very shallow water. Some of the species using shallow and medium-depth water occur at Lake Casitas in great numbers (especially western grebe, lesser scaup, ruddy duck, and American coot).

In addition to its value to large numbers of birds that use such areas for feeding or resting, the shallows also provide breeding habitat for several species of grebe and for American coot, all of which nest in emergent vegetation in the shallows of the lake. Also, while these areas naturally attract large numbers of birds because of the food and breeding habitat they offer, the shallow to medium depth areas of the lake that are off-limits to boaters, including Casitas Dam/Ayers Creek and Santa Ana Creek, partly account for the high numbers of birds in these areas. Major areas of emergent vegetation are indicated on Figure 3.4-6. The amount of emergent vegetation along the edge of the lake fluctuates depending on the lake level.

Mudflats and Margins. Mudflats and margins provide very good shorebird habitat when lake levels are low. The large mudflat that is exposed at low lake levels on the east side of the Main Island and the edges of the mouth of Santa Ana Creek provides particularly good habitat. Various species of shorebirds (plovers, avocets, stilts, sandpipers, and phalaropes) use mudflats and the margins of the water to search for invertebrates on or below the surface of the mud. The availability of shorebird habitat is variable at Lake Casitas due to fluctuating water levels. Only two shorebird species have been documented as breeders in the area around Lake Casitas—killdeer and spotted sandpiper.

Reedy Marshes. Areas of extensive reedy marshes consisting mostly of bulrushes occur near Coyote Creek, Wadleigh, Indian Mesa, and several other scattered locations of the lake margins as shown on Figure 3.4-6. These areas dry up when the lake level is low but can provide important habitat when the water from the lake reaches the bulrushes. Virginia rails and soras often inhabit some of the larger patches of cattails and bulrushes in the winter. One least bittern has been heard on the lake in this habitat, but this species is uncommon. Reedy marshes also sometimes provide habitat for roosting red-winged blackbirds and for some smaller passerines, such as common yellowthroat, song sparrow, and marsh wren.

Riparian Woodland. Well-developed riparian habitat is located along Santa Ana, Poplin, and Coyote creeks (Figure 3.4-4). A series of surveys focused on these areas during spring 2004. To quantify the relative quality of riparian habitat at Lake Casitas, the abundance and diversity of birds in each drainage were censused. Of the three major riparian areas surrounding the lake, all had high species richness, but Coyote Creek had the highest bird abundance.

Oak Savannah. A variety of species use the oak savannah habitats surrounding Lake Casitas. Most of the species associated with this habitat are songbirds, although raptors and turkey vultures can be found here as well. Many of the species using this habitat are those that prefer to forage on the ground in open and grassy areas. Raptors and turkey vultures also take advantage of the clearings to find prey and carrion. Some species make use of the mature trees in this habitat for nesting or foraging.

Oak Woodland. Dense oak woodlands occur on north-facing slopes around the lake. The variety of birds breeding is not as great as in riparian woodlands, but these areas are host year-round to many of the common woodland species of Southern California, including California quail and a variety of woodpeckers.

Chaparral and Coastal Scrub. Chaparral and coastal sage scrub are widespread in the Plan Area. The species diversity of these areas is relatively low. Most of the birds using these habitats are common to fairly common species on the Pacific slope of southern California, including the rufous-crowned sparrow, wrentit, California thrasher, and spotted towhee.

Rock outcrops. Steep rock outcrops are important mostly as nesting sites for certain species. Various species take advantage of the seclusion of cliff faces, the views they provide of the surrounding areas, and the access they provide to nearby foraging. Several rock outcrops are located at the north end of the Open Space Lands. Species that nest on cliff faces include red-tailed hawk, great horned owl, white-throated swifts, and cliff swallows.

Bird Species of Interest in the Plan Area

The Plan Area is an important location for many bird species and for a variety of reasons. For several species, Lake Casitas and its environs is the only breeding location or one of only several breeding locations in Ventura County. For a somewhat larger group of species, it is the primary location in the county where these species can be found, while a still larger group can be found here in greater numbers than at any other location in the county. Also, for a wide variety of species, Lake Casitas is the primary or only inland location in Ventura County. Miscellaneous other rare or otherwise unusual species occur here. Appendix A, Table A-2 lists all bird species that occur at Lake Casitas that are rare, the seasons in which they occur, and notes about their importance. The importance of Lake Casitas to water-dependent birds and raptors is summarized below. Special-status birds are discussed in Section 3.4.6.

Water-Dependent Birds

This category of birds includes a variety of waterfowl and shorebirds. Based on the field surveys conducted in the Plan Area from 2004 to 2005, several important observations can be made regarding water-dependent birds at Lake Casitas, as follows.

- Most water-dependent birds at Lake Casitas concentrate in shallow areas.
- Water-dependent birds in general tend to be more abundant during winter than summer. However, numbers peaked in the late fall (November) during the surveys, while the lowest numbers came during the late spring. (Appendix B, Graph 2).
- Changing lake level affected the locations of the highest concentrations of birds. Lake levels increased sharply with the onset of heavy rains in late December 2004, at which point the lake level rose from approximately 530 feet to almost 550 feet. This rise in lake level increased the amount and location of open water habitat available.
- Despite the effect of changing lake levels, certain areas can be identified as particularly important. See Appendix B, Graph 1 for abundance of water-dependent birds by lake section. Also, see Figure 3.4-6 for marshes known to support grebe breeding and locations of great blue heron rookeries.

Raptors

Species known to breed at the lake include white-tailed kite, red-shouldered hawk, red-tailed hawk, Cooper's hawk, and American kestrel. Turkey vultures may possibly breed in the area. Visiting species that are unlikely to breed in the area include osprey, bald eagle, northern harrier, sharp-shinned hawk, golden eagle, peregrine falcon, and prairie falcon. Visiting species that would not breed at Lake Casitas include zone-tailed hawk, ferruginous hawk, and merlin. Owl species that have been seen regularly in the Park during the Christmas Bird Count include barn owl *(Tyto alba)* and great horned owl *(Bubo virginianus).* In addition, western screech-owl *(Otus kennicottii)* is likely to be present. Northern pygmy-owl *(Glaucidium gnoma),* short-eared owl *(Asio flammeus),* and burrowing owl *(Athene cunicularia)* have been seen on previous Christmas Bird Counts in small numbers, but they are only likely to occur in the area on an occasional basis.

Key Bird Use Areas in the Plan Area

Key bird use areas are widely distributed around Lake Casitas and surrounding lands in the Plan Area and are indicated on Figure 3.4-6. These important bird use areas include bald eagle perching sites, great blue heron rookeries, marshes that may support grebe breeding, important waterfowl areas, locations where sensitive birds were observed, grassland habitats that support sensitive birds such as white-tailed kites and grasshopper sparrows, and raptor nest locations. Also shown on Figure 3.4-4, the main riparian areas along Coyote Creek, Poplin Creek, Santa Ana Creek and Ayers Creek provide important habitat for a diversity of riparian birds.

The area around the mouth of Coyote Creek and Station Canyon, Wadleigh, Indian Mesa, and the peninsula near the buoy line by Casitas Dam are important grebe breeding and waterfowl areas. In addition, the mouth of Santa Ana Creek, the Casitas Dam/Ayers Creek areas, which are protected by log booms and buoys, respectively, provide protected areas where waterfowl tend to congregate. Nonprotected areas where waterfowl congregate also include the Chismahoo and Willow Creek coves, Chumash Bay, and Dead Horse Canyon. Water-dependent birds are most abundant in the winter around Lake Casitas with the greatest average number of individuals totaling almost 1,000 in Wadleigh followed by Ayers Creek and South Island with just over 600 individuals (See Appendix B, Graph 1). Grebes are most abundant in the winter with approximately 700 individuals at Wadleigh and South Island (See Appendix B, Graphs 3-5). Dabbling ducks were most abundant in July at Santa Ana Creek with about 225 individuals observed (See Appendix B, Graphs 6-13). Wadleigh had the highest number of coots and rails in winter reaching over 800 individuals (See Appendix B, Graphs 16 and 17). Santa Ana and Wadleigh had the highest number of gulls in the winter and summer with numbers greatest in the winter reaching about 150 individuals at Santa Ana (See Appendix B, Graphs 19 and 20).

When the lake level is low a large mudflat island east of the Main Island provides good shorebird, waterfowl, and raptor foraging habitat. Shorebirds were greatest at East Island in July; however, in January, Coyote Creek had the greatest number of individuals (See Appendix B, Graph 18).

Great blue heron rookeries are located in the eucalyptus trees at the marina parking lot and near the north side of the lake by Wadleigh. A historically known rookery that was not active during recent surveys is located in large sycamore and cottonwood trees on the west side of the lake near the northern tip of the Main Island. Santa Ana Creek had the highest number of herons and egrets in the winter at about 34 individuals (See Appendix B, Graphs 14 and 15).

Most of the grasslands that provide habitat for sensitive birds are located in the Open Space Lands and in an area at the southwest side of the lake near Indian Mesa. Most of the raptor nests were also observed in these areas due to suitable grassland foraging habitat adjacent to oak or riparian trees. Raptors were fairly evenly distributed across the lake with the greatest number observed in Ayers and Chumash Bay at just under 20 individuals (See Appendix B, Graphs 21-24).

3.4.5.2 Fish and Aquatic Resources

Fisheries Management

The Fisheries Management Plan for Casitas Municipal Water District/Lake Casitas Recreation Area was adopted in July 2005 and is updated annually. The goal is to reach self-sustainable catch levels and maintain world-class bass fishing. Actions governed by the Fisheries Management Plan include fish stocking, fish habitat enhancement, and community activities. Under the Fisheries Management Plan, Lake Casitas has been stocked with black crappie, Florida bluegill, Florida bass, red swamp crawdads, catfish and trout. Fish habitat has also been enhanced on a quarterly basis by the placement of cement pipe and dead trees into the lake. Community activities have consisted of family fishing activities and moonlight fishing. The complete text of the 2005 Fisheries Management Plan and the 2006 update are included in Appendix C.

Prior to the Fisheries Management Plan, CDFG participated in stocking Lake Casitas with trout and other game fishes. These fish may use the tributaries for spawning, rearing, and even adult residence. In 1978, CDFG planted between 30,000 and 40,000 silver (Coho) salmon into Lake Casitas (CDFG 1978). According to fish stocking records provided by the Park, Lake Casitas has been stocked annually with rainbow trout by CDFG (Fillmore Hatchery) and by various private contract facilities from northern California. Between 1992 and 1998, roughly 500,000 trout were planted in Lake Casitas. Generally, CDFG planted smaller trout (average 0.58 pounds per fish), and private facilities planted larger trout (average 1 pound per fish). In addition, between 1,600 and 3,800 catfish were planted per year. Thousands of steelhead from the nearby Santa Ynez River were stocked into Matilija and Santa Ana creeks between 1938 and 1944 (Titus et al. 1994, in Chubb 1997).

Exotic Aquatic Species

In addition to the stock fish mentioned above, several introduced species are present in Lake Casitas, including sunfish, bullhead, and mosquitofish.

Two species of non-native, invasive mollusks have recently become a concern in the Plan Area. The quagga mussel and zebra mussel are Eastern European species that are believed to have been transported accidentally to the United States in transoceanic ship ballast. The quagga mussel (*Dreissena rostriformis bugensis*) is a freshwater mollusk that is thought to have been first introduced into the Great Lakes region in the late 1980s. Since then, the species has spread, either by boat or water movement, throughout the Midwest and the Eastern United States. In January 2007, quagga mussels were detected in Lake Mead and the Colorado River water system, and in early 2008 they were found in a small number of lakes in Southern California. Both quagga and zebra (*Dreissena polymorpha*) mussels are dime-sized freshwater mussels that are prolific breeders.

Native Fish

Several fish species are native to the Ventura River Watershed, including the Coyote Creek drainages. Steelhead/rainbow trout *(Oncorhynchus mykiss),* three-spined stickleback *(Gasterosteus aculeatus),* and arroyo chub *(Gila orcutti)* are all California native fish found in the Ventura River system. In the Plan Area below Casitas Dam, some steelhead spawning and rearing typically occurs in Coyote Creek, above its confluence with the Ventura River. Arroyo chub are also found throughout the Ventura River Watershed. Arroyo chub are native to the Los Angeles River system, but have been introduced to a variety of drainages in southern California, including the Ventura River.

Steelhead

Above Lake Casitas, steelhead (anadromous rainbow trout) are no longer present, since seaward and spawning migration are impossible due to Casitas Dam. It is possible that residualized stocks of steelhead remain in Coyote and Santa Ana creeks in nonanadromous, resident form. According to Forest Service reports, the existing rainbow trout genetic stock is likely diluted by stocked rainbow trout from other parts of California. Although CDFG files do not indicate any stocking has occurred in Coyote and Santa Ana creeks, Forest Service reports indicate otherwise (Chubb 1997). In addition to trout planted in the creeks, it is possible that trout planted in Lake Casitas have migrated upstream to spawn. Despite the generally low survival rates of planted trout, especially in streams, a few often will survive and interbreed with wild trout. Thus, indiscriminant planting of rainbow trout has led to loss of many distinctive local populations through hybridization.

Steelhead spawning and rearing on the Ventura River, outside the Plan Area, is variable and is affected by the diversion of water from the Ventura River to Lake Casitas through the Robles-Casitas Canal (Entrix and Woodward-Clyde Consultants 1997). The diversion dam itself acts as a partial barrier to fish movement, and the reduction of water flows in the lower Ventura River also limits steelhead migration. Steelhead migration on the Ventura River is also completely blocked by the Matilija dam upstream of the diversion dam. The Matilija dam is currently being considered for removal, and restoration of steelhead to the Ventura River may require coordination with the management of Lake Casitas.

Three streams within the Open Space Lands were surveyed for fish habitat and evaluated for rainbow trout and potential steelhead suitability. Coyote Creek and Santa Ana Creek appear to be lacking deep pools and the associated rearing habitat. The rainbow trout present in both streams are likely a genetic hybrid of residualized steelhead, stocked migrants from Lake Casitas, and planted stocks. A majority of the suitable rearing habitat is only available in the upper portion of the streams within the LPNF. The quality of instream spawning habitat is low in both streams. However, suitable spawning gravel is available in small patches within the channel and is more abundant on the stream banks. During the wet season, the gravel on the banks is likely available to spawners, since streamflow exceeds the low-flow channels. Streamflow regulates the amount of spawning area available in any stream by regulating the area covered by water and the velocities of water over gravel beds. The amount of space required by salmonids for spawning depends on the size and behavior of spawners and the quality of the spawning area; poor quality spawning areas may force females to make several redds. The quality of instream cover and overall shelter complexity is fairly low due to the absence of abundant large woody debris, which is somewhat normal for Southern California streams. Streamflow through riffles within the streams is low to intermittent, which may adversely affect food (insect) production and overall fish growth and

productivity. The rainbow trout observed were oversummering within isolated pools and unable to move to more hospitable habitat during the dry season. The presence of rainbow trout within the upper portions of the streams, however, indicates that reproduction is fair and the populations are dependent upon rearing habitat availability. It is unknown what the migratory connection between Lake Casitas and the streams might be. It is possible that larger fish tend to move downstream to the lake once they have reached a size that is not supported by the available stream habitat. In addition, some adult rainbow trout from Lake Casitas may use Coyote Creek for spawning and rearing.

Human-made structures observed on lower Santa Ana Creek and within LPNF may limit rainbow trout mobility during low- and high-flow conditions. Many of the concrete road crossings and concrete bottomed box culverts are definite low-flow barriers and present major challenges during high-flow conditions. To the degree possible, modifications to these identified fish passage impediments would benefit rainbow trout by providing migratory access to upstream spawning and rearing habitat. The diversion structure on upper Santa Ana Creek with LPNF both impedes fish passage to upstream headwaters and is likely diverting dry season streamflow that would otherwise provide habitat benefits downstream. Although possible, the likelihood of adult rainbow trout migrating upstream into Santa Ana Creek for spawning is unlikely, due to a variety of natural and human-made barriers present in the lower portion of the stream.

Poplin Creek is intermittent and does not support a dry season fish population. Most of the stream was dry during the surveys, and the small pools present were very shallow and of poor water quality. Due to the degree of channel incision and banks scour observed, Poplin appears to be a flashy, high-energy system. Within the Open Space Lands virtually no rearing habitat is present due to the lack of streamflow. It is unknown what the affect of the small reservoir may be on dry season flows within Poplin Creek.

3.4.5.3 Amphibians

Amphibians, a group that includes salamanders, frogs, and toads, require an aquatic environment at some point in their life cycle. They can easily become dehydrated in dry environments and must lay their eggs in water. Amphibians are relatively common within the Santa Ynez Mountains, especially where perennial stream flows and pools are more common due to springs and groundwater sources. Lake Casitas and the numerous riparian areas and ponds surrounding the lake provide habitat for a variety of amphibian species. These habitat types include mature riparian woodland, willow riparian woodland, riparian oak woodland, riparian scrub, willow scrub, and freshwater marsh. The upper watershed above the Plan Area may present some of the better habitat areas due to more reliable water sources that are impacted at low levels due to the inaccessibility of the area.

Amphibians were recorded during bird and plant surveys, and during protocol surveys for the California red-legged frog, a federally listed threatened species. Common amphibian species include Pacific treefrog, California treefrog, and bullfrog. Amphibian species are abundant in the water sources within the Plan Area including the lake, creeks, and ponded water habitat. Results of the California red-legged frog protocol surveys are discussed in Section 3.4.6. Amphibian species observed during these surveys include: arboreal salamander, Coast range newts, Pacific treefrogs, California treefrogs, Western toads and numerous bullfrogs on Coyote Creek; Pacific treefrogs, California treefrogs, Western toads, and bullfrogs on Santa Ana Creek; bullfrogs in Poplin Creek; Pacific treefrogs, California treefrogs, Western toads and bullfrogs in Cooper Canyon Creek. In

addition, several large adult bullfrogs were observed in the North Pond. California slender salamander also likely occurs in the Plan Area.

3.4.5.4 Reptiles

Reptiles include cold-blooded species with thicker skins, protective scales or shells that enable them to live more independently of water resources. In California this group includes all turtle, snake, and lizard species. Reptiles may be found in a variety of habitats from grassland and scrub areas to wet riparian areas. Reptiles were noted during bird and plant surveys. Common reptiles in the Plan Area include western fence lizard, southern alligator lizard, side-blotched lizard, western rattlesnake, and gopher snake. Southwestern pond turtle was observed during the red-legged frog protocol surveys in Cooper Canyon. Southwestern pond turtle and garter snakes are also known to occur in Coyote Creek (National Forest Service 2001). Other reptiles likely to occur in the Plan Area include ring-necked snake and western skink.

3.4.5.5 Mammals

Observations and evidence of mammal use of the Plan Area were noted during bird and plant surveys. Mammal species occupy a wide variety of habitats with most being dependent on riparian habitat for foraging, breeding, and protection. Common medium-sized and large mammal species include opossum, striped skunk, raccoon, mountain lion, bobcat, coyote, fox, wild pigs, black bear, and black-tailed mule deer. It is likely that the small mammal fauna is equally diverse, to support the high numbers of carnivores found in the area. Small mammals in the area include rabbits, jackrabbits, California ground squirrel, chipmunks, gophers, weasels, dusky footed woodrat, shrews, deer mouse, other mice, rats, and bats. A list of mammal species known to occur in the Plan Area is presented in Appendix A, Table A-3.

Small numbers of feral pigs have appeared in the Santa Barbara District of the LPNF in recent years. Feral pigs are a concern for resource management because they are destructive to wetland and riparian habitats and compete directly with wildlife, especially deer, for food and cover in the fall.

3.4.6 Special-Status Species

The following section discusses the special-status plant and wildlife species known to occur within the Plan Area, and those that have potential to occur in the Plan Area due to presence of suitable habitat and known occurrences near the Plan Area.

3.4.6.1 Special-Status Plants

Special-status plant species consist of plants listed as rare, threatened, and endangered by the CDFG, federally threatened or endangered by the USFWS, or rare with the CNPS. Appendix A, Table A-4 provides a list of special-status species that occur in the region of the Plan Area and that were evaluated for potential occurrence in the Plan Area. The list was compiled from a search of the CNDDB and CNPS inventory of rare plants database (CNDDB 2007; CNPS 2007) for the following nine USGS 7.5-minute quadrangles: Matilija, Old Man Mountain, Wheeler Springs, Lion Canyon, Ojai, Saticoy, Ventura, and Pitas Point.

Currently, three special-status plant species are known to occur in the Plan Area (see Appendix A, Table A-4) that were observed during the 2004 and 2007 rare plant surveys. These species are

mapped in Figure 3.4-3 and include the Catalina mariposa lily *(Calochortus catalinae)* and Coulter's Matilija poppy *(Romneya coulteri),* which are both listed by the CNPS as status 4.2 (Plants of Limited Distribution—Fairly Endangered in California); and Plummer's baccharis *(Baccharis pilularis),* which is listed by CNPS as status 4.3 (Plants of Limited Distribution—Not Very Endangered in California). Figure 3.4-3 is not a complete map of rare plants in the Plan Area but is limited to the existing information and species observed in accessible areas during the 2004 and 2007 rare plant surveys. The late-flowered mariposa lily *(Calochortus weedii* var. *vestus)* was not observed but is likely to occur in the Plan Area. Appropriate habitat exists near Laguna Ridge Road. It is listed by the CNPS as 1B.2 (Plants Rare, Threatened, or Endangered in California and Elsewhere). There are also several species observed during the rare plant surveys that are rare or uncommon in the Plan Area but not listed by CDFG, USFWS, or CNPS. These species are shown on Figure 3.4-3, and include western goldenrod *(Euthamia occidentalis),* wind poppy *(Stylomecon heterophylla),* wild honeysuckle *(Guara coccinea),* succulent lupine *(Lupinus succulentus),* creeping ryegrass *(Leymus triticoides)*, narrow-leaved milkweed *(Asclepias fascicularis),* purple needlegrass *(Nasella pulchra),* purple owl's clover *(Castilleja exserta),* blue-eyed grass *(Sisrynchium bellum)*, and vinegar weed *(Trichostema lanceolatum).*

Special-status plant species that have been observed in the vicinity of the Plan Area but have a low probability of occurring in the Plan Area include Ojai fritillary *(Fritillaria ojaiensis)* and chaparral nolina *(Nolina cismontane).* These species are both listed by CNPS as 1B status. Other species in Appendix A, Table A-4 are found in the surrounding Santa Ynez Mountains or by the coast and are not expected to occur in the Plan Area.

The following is a brief description of each special-status plant known to occur or with the potential to occur in the Plan Area.

Catalina mariposa lily. The Catalina mariposa lily is a perennial bulbiferous herb that grows in chaparral, woodland slopes, coastal scrub, and grassland. It occurs from 15 to 700 meters in elevation and typically flowers in March through June. Catalina mariposa lily was observed in the locations marked on Figure 3.4-3 during rare plant surveys and was also reported by URS biologist Anne Wells during surveys in 1998 to occur in several grassland locations throughout the Plan Area.

Coulter's Matilija poppy. Coulter's Matilija poppy is a perennial rhizomatous herb that grows in chaparral and coastal scrub, often in areas that have recently burned. It occurs from 20 to 1,200 meters in elevation and flowers from March through July. The Coulter's Matilija poppy was planted along Santa Ana Road as a landscape plant. No natural occurrences were observed in the Plan Area.

Plummer's baccharis. Plummer's baccharis is a perennial shrub found in shady to partially shady locations in chaparral, coastal sage scrub, and riparian and oak woodlands. It flowers from May to October. Plummer's baccharis was observed on the access road along the ridge at the southern boundary of the Plan Area.

Late-flowered mariposa lily. The late-flowered mariposa lily is a perennial bulbiferous herb that grows in chaparral, woodland slopes, and riparian woodland, often on serpentine soils. It occurs from 275 to 900 meters in elevation. It typically flowers in the summer (June through August), after most other wildflowers have finished flowering.

Ojai fritillary. Ojai fritillary is listed as CNPS 1B. Ojai fritillary occurs in broadleaved mesic upland forest, chaparral and lower montane coniferous forest on rocky sites, mostly on north slopes. This perennial bulb flowers March through May and typically occurs between 900 and 2,000 feet in elevation. The higher mountains within the Plan Area were canvassed for this species, but none was found. CNDDB records show occurrences of Ojai fritillary from the mountains north and west of Ojai.

Chaparral nolina. Chaparral nolina is a perennial evergreen shrub that occurs in chaparral and coastal scrub on sandstone or gabbro soils. It grows from 140 to 1275 meters in elevation and typically flowers in May through July. There is an undated CNDDB record for this species from Coyote Creek near Lake Casitas.

3.4.6.2 Special-Status Wildlife

Appendix A, Table A-4 provides a list of special-status wildlife species known to occur or with the potential to occur in the region and within the Plan Area. Two federally or state listed species are known to occur in the Plan Area, including the bald eagle *(Haliaeetus leucocephalus)* and peregrine falcon *(Falco peregrinus anatum)*. Three federally or state listed species are not known to occur but have the potential to occur in the Plan Area, including the arroyo toad *(Bufo californicus),* California red-legged frog *(Rana aurora draytonii),* and southern steelhead *(Oncorhynchus mykiss irideus)*. Ten additional special-status species (state species of special concern and/or state fully protected) are known to occur in the Plan Area, and five additional special-status species have the potential to occur.

The following is a description of each of the special-status species known to occur or with a potential to occur in the Plan Area, in taxonomic order. Several occur in the Plan Area during life history stages when they are not considered special-status. One rare species with no official status is also described. Other special-status species not expected to occur in the Plan Area are listed in Appendix A, Table A-4.

Southern California steelhead ESU*(Oncorhynchus mykiss).* Southern California steelhead is a federally endangered species and a state species of special concern with high potential to occur below Casitas Dam. See Section 3.4.5.2 for a detailed description of steelhead habitat and interactions with stocked fish.

Arroyo chub *(Gila orcuttii).* The arroyo chub is a California species of special concern that occurs in the Ventura River Watershed and has the potential to occur in the Plan Area, although it was not observed during surveys. Its native range does not include the Ventura River Watershed; therefore, it is not considered a sensitive species in the Plan Area.

Arroyo toad *(Bufo californicus).* The arroyo toad is a federally endangered species and a state species of special concern. It historically occurred in coastal drainages from the upper Salinas River to Rio Santo Domingo in northern Baja California. The current range is smaller than the historic range, and the species has been extirpated from many historic locations. The species occurs in semiarid regions near washes or intermittent streams. Arroyo toads are typically found in the upper reaches of streams, where they breed in pools generally less than 1 foot deep with minimal current and a gently sloping shoreline, and where bordering vegetation is absent or set back from the margins of the pool. Adults use nearby sandy terraces for burrowing and may forage in live oak flats and riparian woodland along the river floodplain. Generally, the known populations exist in

the upper portions of major Southern California coastal watersheds, including the Sisquoc River, Sespe Creek, Piru Creek, and the upper Santa Ynez River watersheds.

This species has a low potential to occur in the Plan Area. Marginal habitat is present, but bullfrog predators are common. No arroyo toads were observed during California red-legged frog protocol surveys. The nearest documented observation from the CNDDB is along Lion Creek east of Ojai.

California red-legged frog *(Rana aurora draytonii).* California red-legged frog is federally listed as a threatened species and has a low potential to occur in the Plan Area. It historically occurred in coastal mountains from Marin County south to northern Baja California, and along the floor and foothills of the Central Valley from about Shasta County south to Kern County. California red-legged frogs are confined strictly to aquatic habitats, such as creeks, streams, and ponds, and occur primarily in areas with pools that are 2 to 3 feet deep and have dense emergent or shoreline vegetation. Although they may move between breeding pools and foraging areas, they rarely leave the dense cover of the riparian corridor. Major predators include introduced fish, bullfrogs, and native garter snakes.

Red-legged frogs are not likely to occur in Lake Casitas due to the presence of predatory fish and bullfrogs. Red-legged frog larvae were observed in Cooper Canyon by URS biologists in May 1998; however, during protocol surveys in 2003–2004, no red-legged frogs were found. Suitable habitat is present in the tributaries to the lake, but due to the presence of bullfrogs in these tributaries and the lack of observations during the protocol surveys, there is only a low potential for red-legged frogs to occur. See Appendix D for the full report from the protocol surveys.

Western spadefoot toad *(Scaphiopus hammondii).* The western spadefoot toad is a state species of special concern that occurs in and adjacent to vernal pools and other ephemeral water sources, usually adjacent to oak savannah habitat. This species is generally terrestrial but requires ponded water to breed. The species has a low potential to occur in the Plan Area. Marginal habitat is available, but bullfrog, fish, and crayfish predators are present. The western spadefoot toad was not observed during California red-legged frog protocol surveys.

Silvery (=California) legless lizard *(Anniella pulchra pulchra).* The silvery legless lizard is a state species of special concern that occurs in sandy soils under litter of oak woodland, chaparral, and coastal sage scrub. No records of this species are known from the Plan Area; however, due to the nature of this species, observation is difficult. Legless lizards are fossorial animals that construct burrows in loose sandy soil and are active in the morning, evening, and nighttime. This species has a moderate potential to occur in the Plan Area because suitable habitat is available. The nearest CNDDB recorded occurrence is from the City of Ventura in 2001.

San Diego horned lizard *(Phrynosoma coronatum blainvilii).* The San Diego horned lizard is a state species of special concern that occurs in the mountains of Southern California and Baja, Mexico. It is found in a wide variety of habitats including coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest with loose sandy soils with an abundance of ant and other insect prey. San Diego horned lizards require patches of open habitat and are unable persist in areas affected by agriculture, urbanization, or off-road vehicle use. The species has a moderate potential to occur in the Plan Area because suitable habitat is present. The nearest CNDDB recorded occurrence is north of the Los Robles Diversion Canal just outside of the Plan Area.

Two-striped garter snake *(Thamnophis hammondii).* The two-striped garter snake is a state species of special concern with a low potential to occur in the Plan Area. It occurs from Monterey County south through the Coast Ranges to northern Baja California. It is a highly aquatic species that is typically found near slow-moving creeks and streams, ponds, and coastal lagoons where water is permanent and tadpoles, frogs, and small fish are present as a prey base. These snakes are often found in areas of barren soil or short grass near the aquatic sites, and individuals may use large boulders for basking. The CNDDB has records of this snake from Sespe Creek and near Rose Valley Falls, approximately 15 miles northeast of Ojai. It is unlikely that the species occurs along Lake Casitas, but it has a low potential to be found on some of the tributaries flowing into the lake.

Western pond turtle *(Actinemys marmorata).* The western pond turtle is a state species of special concern known to occur in the Plan Area. The species lives primarily in freshwater rivers, streams, lakes, ponds, vernal pools, and seasonal wetlands but also seems to have some tolerance for slightly brackish conditions. Western pond turtles may live in intermittent streams where permanent pools exist. The species requires slow-moving water and appropriate basking sites such as logs, bands, or other suitable areas above water level. The hatchling period is a particularly vulnerable state and requires shallow water (less than 1 foot) and abundant emergent vegetation. Western pond turtles have been observed in the Plan Area in Santa Ana Creek and the Cooper Canyon area of East Santa Ana Creek.

Least bittern *(Ixobrychus exilis hesperis).* The least bittern is a state species of special concern that is rare and generally hard to see. The species is a type of heron that eats frogs, tadpoles, slugs, and small fish. The least bittern is secretive and usually stays within the cover of dense stands of cattails, rushes, or sedges for roosting and nesting.

Least bitterns are rare in the Plan Area. One individual was heard that responded to playback of a tape-recorded least bittern call during the waterfowl surveys in July 2005 in the large wetland area dominated by California bulrush near the Coyote Creek area (see Figure 3.4-6). There are no nesting records for this species at Lake Casitas; however, due to the difficulty of detecting this species, there may be more individuals in the Plan Area than this single sighting would indicate, and breeding is also possible.

Bald eagle *(Haliaeetus leucocephalus).* The bald eagle is state listed as engdangered and is fully protected. This species was originally federally listed as endangered in 1967, downgraded to federally threatened in 1995, proposed for delisting in 1999 and delisted by USFWS in 2007.

Bald eagles are large raptors that mainly eat fish. They need large bodies of open water, such as lakes, marshes, seacoasts and rivers, where there are plenty of fish to eat and tall trees for nesting or roosting. They are very rare in Ventura County and elsewhere in Southern California, and are occasional winter visitors to the Plan Area. Two bald eagle sightings occurred during the course of the surveys. Both were in January and involved single individuals; one was in the South Island area and the other in the East Island area. Bald eagles are very rare nesters in Ventura County, and no nesting has been observed in the Plan Area.

The abundant forage base of Lake Casitas is one of the primary attractants for this species. Bald eagles forage on the lake's established warm-water fish species, such as largemouth bass, smallmouth bass, crappie, and catfish, a diet augmented by winter stocks of rainbow trout. It is likely that the eagles also prey on American coots, shallow-water ducks, small mammals, and the occasional reptile or amphibian. The bald eagle's reliance on a prey base that itself depends on quality shallow-water habitat points to the importance of preserving the integrity of the vegetated

flats and shallow bays of Lake Casitas. Other important requirements for this species are appropriate perching and roosting sites. Eagles use a number of favored perching sites around the lake, a few of which are shown on Figure 3.4-6. They generally choose dead limbs in large trees for these sites.

White-tailed kite *(Elanus leucurus).* White-tailed kites are state species of special concern. They are small raptors that forage over open country such as grasslands and agricultural fields. Kites were infrequently detected during the waterfowl surveys in the Plan Area. Three of the surveys that reported kites were during the winter, and one was in the spring. Most of the kites observed were in the large grassland areas of the Open Space Lands and in the grassland areas near the southwestern edge of the lake near the Ayers Creek area. During 16 years of Christmas Bird Count data, kites were seen during 14 counts in numbers ranging from one to five birds. Kites have been confirmed to nest at Lake Casitas, and at least three nests were present during the 2004 nesting season (see Figure 3.4-6).

Sharp-shinned hawk *(Accipiter striatus).* Nesting sharp-shinned hawks are a state species of special concern. This species lives and hunts in open woodlands, oak savannah, and similar areas. They eat birds and are common predators at suburban bird feeders. They nest in montane habitats, and no suitable breeding habitat for the species exists in Ventura County. Sharp-shinned hawks occur in the county exclusively as winter visitors.

One sharp-shinned hawk was observed during the surveys on January 13, 2004, at Chumash Bay, and this species has been observed during 12 of the 16 Christmas Bird Counts reviewed for the area. When sharp-shinned hawks are not nesting, they are silent and adept at sitting in the trees undetected. Therefore, the observations likely underestimate the abundance of this species in the area.

American Peregrine falcon *(Falco peregrinus anatum).* The peregrine falcon was formerly listed as federally endangered in the United States in 1970. It was federally delisted in 1999 and is a state candidate for delisting but is currently state listed as endangered and fully protected.

Peregrine falcons are large, regal falcons with a worldwide distribution that occur in low mountains and coastal areas throughout California. They are highly specialized predators of birds and capture their prey in flight. They have been recorded capturing prey ranging in size from wrens to geese, though typical prey items are shorebirds, meadowlarks, pigeons, and other medium-sized birds. Peregrine falcons usually nest on cliffs and are sparsely distributed breeders across California.

At Lake Casitas, peregrine falcons were recorded during four surveys at Coyote Creek, East Island, and the Wadleigh area. All of these sightings were outside of the nesting season and likely were of wintering birds. Peregrine falcons are unlikely to nest within the Plan Area, although the surrounding hills contain suitable nesting habitat.

Cooper's hawk *(Accipiter cooperii).* Nesting Cooper's hawk is a state species of special concern known to occur in the Plan Area. Cooper's hawks are ambush predators of open woodland. They are common in oak woodlands, riparian habitats and open areas, and they breed in low numbers in the Plan Area. They nest mainly in deciduous riparian growths in canyon bottoms on river flood-plains and also in coast live oak trees. They are known to breed in the Plan Area but are more common as winter visitors. Three individuals were seen during the surveys in 2004 at Ayers Creek,

Willow Creek, and Chumash Bay. Cooper's hawks also have been recorded during 13 of the past 16 Christmas Bird Counts in numbers ranging from one to three birds per count.

Golden eagle *(Aquila chrysaetos).* Golden eagles are state fully protected species and species of special concern. They are large predators of upland areas, including open woodland, chaparral, and grasslands. They mainly eat mammals, including animals as big as fawns, but they will also eat birds and carrion. Golden eagles use a variety of hunting methods, including soaring high in the air in search of distant prey, flying low to the ground to startle hidden prey, and sitting in wait in a snag or tree. Golden eagles breed in low numbers in Ventura County but are unlikely to breed in the Plan Area. They occasionally forage in the Plan Area and were seen during surveys at Ayers Creek and during three of the 16 Christmas Bird Counts.

Ferruginous hawk *(Buteo regalis).* The wintering ferruginous hawk is a state species of special concern. It is a large hawk that eats almost exclusively small- to medium-sized mammals, such as ground squirrels and rabbits. It uses open habitats, including plains and deserts, and breeds from the northern Great Plains in Canada south to Texas and Arizona. One female ferruginous hawk was observed on the west side of the lake during the May 2004 raptor survey. This species has been recorded on five of the last 16 Christmas Bird Counts at Lake Casitas. They are occasional winter visitors to the Plan Area and rare in the spring, but are not known to breed there.

Swainson's hawk *(Buteo swainsonii).* The nesting Swainson's hawk is a state threatened species that lives in riparian woodland habitat adjacent to open grassland or savannah. It is an occasional visitor to the Plan Area but is not known to breed there. One individual was seen at Ayers Bay during the May 2004 raptor survey.

Northern harrier *(Circus cyaneus).* The nesting northern harrier is a state species of concern. It inhabits scrublands, grasslands, and fields. Northern harriers are ambush predators and eat birds, lizards, and small mammals. Northern harriers are uncommon in Ventura County and occur in the Plan Area as fall and winter visitors, but do not breed there. Northern harriers have been seen during 15 of the last 16 Christmas Bird Counts, and they were also seen during surveys in November 2004 in the East Island and Wadleigh areas.

Burrowing owl *(Athene cunicularia hypugea).* The nesting burrowing owl is a state species of special concern that nests in grassland areas and roadbanks. It mainly eats rodents and has been in decline due to loss of grassland habitats and the destruction of ground squirrel habitats. Burrowing owls have been sighted during Christmas Bird Counts but are not known to breed in the Plan Area. They were last seen in the Plan Area in 1988.

Merlin *(Falco columbarius).* Merlins are rare throughout California and are a state species of special concern. They are small falcons usually found in open habitats such as grasslands and marshes, where they sit and wait for prey. They mainly eat birds, including sparrows, small shorebirds, doves, and other similarly sized birds. Merlins do not nest in California.

Merlins have been regularly seen during the Christmas Bird Counts, and one wintering merlin was seen during the survey in November 2005 at Coyote Creek. Merlins are uncommon in inland areas of Ventura County, and probably only forage at the Plan Area on an occasional basis.

Prairie falcon *(Falco mexicanus).* Nesting prairie falcons are a state species of special concern. They are large falcons of arid regions of the western United States, similar in their feeding habitats to peregrine falcons, but with a greater likelihood of taking mammal prey. They nest on cliffs or high banks, and possibly nest in the hills surrounding Lake Casitas, but would be

unlikely to nest in the Plan Area. A single prairie falcon was seen at Lake Casitas during the 1990 Christmas Bird Count.

Loggerhead shrike *(Lanius ludovicianus).* Nesting loggerhead shrikes are a state species of special concern. They are predatory songbirds that eat mice, birds, and insects. They are generally uncommon and occur in open country such as meadows, agricultural fields, semidesert scrub, and savannahs. They build their nests in bushes and trees. Loggerhead shrikes are present year-round in the Plan Area and likely nest there. They are common in many parts of Ventura County, and were rarely detected during the surveys in the Plan Area and during Christmas Bird Counts.

Yellow warbler *(Dendroica petechia).* Nesting yellow warblers are a state species of special concern and are common in the riparian woodland and riparian scrub of the Plan Area. Most yellow warblers winter in Mexico and leave the Plan Area during the cooler months. A single juvenile yellow warbler was observed at Ayers Creek in 2004, indicating probable local breeding.

Rufous-crowned sparrow *(Aimophila ruficeps canescens).* The rufous-crowned sparrow is a state species of special concern. It is a nonmigratory songbird that lives in Southern California coastal sage scrub and chaparral habitat, often near steep, rocky exposed slopes. Rufous-crowned sparrows were not documented during the surveys but have been observed during Christmas Bird Counts.

Grasshopper sparrow *(Ammodramus savannarum perpallidus).* The western race of the grasshopper sparrow is considered a sensitive species in California although it does not have any formal listing status. This species occurs in native or nonnative grassland, including openings in coastal sage scrub and chaparral. The grasshopper sparrow inhabits North American prairies and early successional grasslands from western Ontario, Minnesota, western Oklahoma, and central Colorado west to the Pacific Coast, and from the extreme southern prairie provinces of Canada south through eastern Washington and Oregon to central Nevada and southwestern California. As the species most closely linked to one of the state's most threatened habitats, native grassland, the grasshopper sparrow has long been acknowledged as a locally declining species. More than 80 percent of California's native grasslands have been lost. California's grasshopper sparrow population declined an average annual rate of 16.6 percent per year from 1982 at 1991 (Breeding Bird Survey 1991).

This secretive ground-dwelling bird is present in the grassland areas of the Open Space Lands. It was observed in three different locations within the Open Space Lands in 2004 and 2005 (see Figure 3.4-6). Potential native and nonnative grassland habitats where this species may occur are shown in Figure 3.4-6. Grassland areas that are heavily grazed were not included as potential habitat.

Tricolored blackbird *(Agelaius tricolor).* Tricolored blackbirds are endemic to California and are a state species of special concern. They live in riparian habitats and are occasional visitors to the Plan Area. They are not known to breed there.

3.5 CULTURAL RESOURCES

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, cultural, or scientific importance. Numerous laws, regulations, statutes,

on both the federal and state levels, seek to protect and target the management of cultural resources. All activities in the Plan Area (i.e., under the aegis of Reclamation) that have a potential to affect cultural resources must comply with Section 106 of the National Historic Preservation Act. Agencies that have management responsibilities for/on federal lands (through agreements or contracts) are required to follow federal laws and regulations on federal lands. Any undertakings on lands under the purview of Reclamation must, without exception, follow Reclamation's Section 106 cultural resources directives and management standards manuals LND P01, LND 02-01, and LND 07-01. The Reclamation Mid Pacific Office will serve as the point of contact for all cultural resource issues. This office will be responsible for directing the federal compliance processes on all undertakings on Reclamation lands. The regulatory framework and the mechanisms for compliance are presented in the *Lake Casitas Cultural Resources Technical Report* (URS 2007).

The information provided below is summarized from the *Lake Casitas Cultural Resources Technical Report* (URS 2007). Archaeological site locations are considered confidential; therefore, the report is available only on a need-to-know basis.

3.5.1 Regional Setting

3.5.1.1 Prehistory

Archaeological data support the hypothesis that prehistoric occupation of the California coast dates to over 10,000 years before present (Erlandson and Colten 1991). Such data include the recent dating of human bones from Santa Rosa Island at 13,000 years old (Ritsch 1999). This early Paleo-Indian occupation is not well understood due to the paucity of archaeological data. The archaeological record indicates that sedentary populations occupied the coastal regions of California more than 8,000 years ago. Several chronological frameworks have been developed for the Chumash region including Rogers (1929), Wallace (1955), Harrison (1964), Warren (1968), and King (1990).

Based on the artifact typologies from a great number of sites, King was able to discern numerous style changes within the Early, Middle, and Late periods. The Early period (8,000 to 3,350 before present) is marked by a shift in the economic/subsistence focus from plant gathering and the use of hard seeds, to a more generalized hunting-maritime-gathering adaptation, with an increased focus on acorns. The full development of the Chumash culture, one of the most socially and economically complex hunting and gathering groups in North America, occurred during the Late Period (800 to 150 before present)

At the time of Spanish contact (1542), large Chumash villages typically contained sweathouses, storehouses, numerous homes, ceremonial areas, and extensive middens of residential debris. Villages were located near important resources in coastal, estuarine, and riparian habitats. Cemeteries were typically located near the villages; elaborate burial practices include the interment of grave goods such as beads, quartz crystals, red and yellow pigments, delicate soapstone bowls, sandstone mortars, and carved charmstones.

Subsistence was based on a wide variety of floral and faunal resources. Acorns, pinyon nuts, and seeds from numerous grasses and forbs provided storable staples. Deer, quail, rabbit, and freshwater fish were consumed, as were marine fish, shellfish, and sea mammals acquired through exchange or trips to the coast.

Ethnohistoric records indicate that the interior Chumash established summer and winter villages, individual sweat bath sites, short-term camps for gathering and processing acorns and pinyon nuts, isolated hearths and millingstone sites for roasting yucca and pounding and boiling islay bulbs, and caches for food and water in caves and rock shelters.

3.5.1.2 Ethnography

The Plan Area lies within the historic territory of the Native American Indian group known as the Chumash. The Chumash occupied a region from San Luis Obispo County to Malibu Canyon on the coast, inland as far as the western edge of the San Joaquin Valley, and the four northern Channel Islands (Grant 1978). The Chumash are subdivided into factions based on six distinct dialects: Barbareño, Ventureño, Purisimeño, Ynezeño, Obispeño, and Island.

The Plan Area falls along the border of the historic territories of the Ynezeño and Ventureño. The Ynezeño and Ventureño are less documented than the coastal Chumash both in historical references and by archaeological research. Their material culture was known to be quite similar to the coastal Chumash, but their economy placed more emphasis on hunting and gathering than on the maritime-oriented economy of the coastal tribes.

The Chumash were advanced in their culture, social organization, religious beliefs, and art and material object production (Morrato 1984). Class differentiation, inherited chieftainship, and intervillage alliances were all components of Chumash society. The development of a highly effective maritime subsistence pattern, composed of exploitation of fish, shellfish, sea mammals, and waterfowl, enabled Chumash villages of nearly 1,000 individuals to cluster in areas along the coast. These were the most populous aboriginal settlements west of the Mississippi River (Morrato 1984). Permanent inland settlements subsisted from a variety of resources including acorns, seed plants, rabbits, and deer. The smaller inland villages were often economically allied with a larger coastal village.

3.5.1.3 History

Early Exploration Period (1542–1782)

The initiation of the historic era in the area began with an exploratory voyage led by Juan Rodriguez Cabrillo in 1542–1543. Numerous European explorers passed through the Santa Barbara Channel, including Sebastian Rodriguez Cermeno in 1595 and Sebastian Vizcaino in 1602. In 1769, Gaspar de Portola and Fray Crespi departed the newly established San Diego settlement and marched northward toward Monterey with the objective of securing the port and established five missions along the route. They passed through present-day Ventura County that same year. The 1769 Portola Expedition and the 1775 De Anza Expedition were preludes to systematic Spanish colonization of Alta California. These early maritime and overland expeditions brought the Spanish in contact with the natives of the Ventura region, but it was not until the late 1700s that the interior was penetrated.

Spanish Mission Period (1782–1820)

In the area, the Spanish Mission Period commenced with the foundation of the San Buenaventura Mission in 1782. The general Plan Area region was under the mission's purview until 1837. The primary economic activity of the mission was cattle ranching for the purpose of producing hides and tallow.

Rancho and Anglo-Mexican Period (1821–1848)

With the successful revolt of Mexico against Spain in 1821, all mission lands passed from Spanish to Mexican ownership. Anxious to remove any sources of former Spanish power, the Mexican government in 1834 secularized the missions and began to sell or grant their former grazing lands. Governor Juan B. Alvarado granted the 21,522-acre Santa Ana Rancho to Crisogno Ayala and Cosme Vanegas in 1837. Lake Casitas is located within Santa Ana Rancho's historic boundaries, which extended from the east side of Coyote Creek southward to the top of Red Mountain, following the ridge east to the bank of the Ventura River at the point of its beginning (Percy 1979:3). The Mexican period ended with the signing of the Treaty of Guadalupe Hidalgo on February 2, 1848, which transferred control of California.

Americanization Period (1848–1960)

As more and more Americans emigrated to California in search of gold and to buy farm land, towns sprang up, roads and wharves were developed to take crops to market, and a stage coach system grew up to connect passengers and mail throughout the state. Ranching continued to be a major activity within the Lake Casitas region as settlers moved into the area. By 1912, the major landowners in the area were Selby, Hardy, Barnard, and Sturgis (Alexander 1912). The Barnard family purchased Santa Ana Valley land from Ventura Ayala in 1879, and later bought a ranch house off of Santa Ana Road in 1887 (Percy 1979:10). A member of the Barnard family had lived in the ranch house in recent years; however, the house has since been vacated and demolished. The Selbys purchased their property in 1908 from Henry Dubbers (Percy 1979). Little information on the Sturgis or Hardy families exists.

3.5.2 Plan Area Existing Conditions

Archival research consisted of a review of ethnographic and historic literature and maps, archaeological base maps, archaeological base maps and site records, previous survey reports, and atlases of historic places on file at the South Central Coastal Information Center (SCCIC) of the California Historical Resource Information System at the University of California, Fullerton. The SCCIC provided both the technical reports and archaeological site records referenced in this document.

As a federal agency, Reclamation conducts formal government-to-government consultation with federally recognized Indian tribes. As part of Section 106, Reclamation also consults with interested parties and individuals, and this may include nonfederally recognized members of the Native American community. With regard to Section 106, these nonrecognized groups and individuals do not have the same legal standing as federally recognized Indian tribes.

To further assist in securing information regarding known cultural resources located in or near the Park, a request for information was submitted to the Native American Heritage Commission (NAHC). The Sacred Lands Files of the NAHC did not indicate the presence of any cultural resources (i.e., traditional cultural properties) within the Park. In addition to a review of their Sacred Land Files, the NAHC provided a list of Native American contacts. These groups and individuals were asked whether they had knowledge of, or concern for, any archaeological sites in the Park. The groups and individuals were also asked to provide general comments for the *Lake Casitas Cultural Resources Technical Report.*

3.5.2.1 Previous Cultural Resources Investigations

Several cultural resources investigations have been conducted throughout the Plan Area, including archaeological and architectural investigations. A detailed description of these investigations can be found in the "Background Research" section of the *Lake Casitas Cultural Resources Technical Report* (URS 2007). The previous cultural resources investigations include two studies conducted for URS in 2000, the *Preliminary Historic Properties Resource Management Plan for Archaeological Resources Casitas Open Space Lands, Ventura County, California* (Maki 2000) and the *Section 106 and CEQA Historic Resources Evaluation, Casitas Resource Management Plan, Ventura County, CA* (San Buenaventura Research Associates 2000). These studies (Maki 2000; San Buenaventura Research Associates 2000) have not been submitted to the SCCIC and therefore were not listed in the records search and background review conducted by this facility; however, they are listed here because they cover a part of the Plan Area.

3.5.2.2 Previously Recorded Cultural Resources

Table 3.5-1, presented at the end of Section 3.5, summarizes the known cultural resources within the Plan Area. Individual site records of these resources are confidential and are available on a need-to-know basis as Attachment 1 of the *Lake Casitas Cultural Resources Technical Report.* Table 3.5-1 also summarizes cultural resources (including built environment resources) identified in the *Preliminary Historic Properties Resource Management Plan for Archaeological Resources Casitas Open Space Lands, Ventura County, California* (Maki 2000) and the *Section 106 and CEQA Historic Resources Evaluation, Casitas Resource Management Plan, Ventura County, CA* (San Buenaventura Research Associates 2000). These sites have not been submitted to the SCCIC but are listed here because they are located within the Plan Area.

3.5.3 Regulatory Setting

The legal framework for addressing cultural resources at the federal and state levels are generally equivalent. The four criteria for evaluation established by the National Register of Historic Places (NRHP), listed below, are identified in 36 Code of Federal Regulations (CFR) 60.4 and are in accordance with the regulations outlined in 36 CFR 800 established by the Advisory Council on Historic Preservation.

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

- Criterion A: resources that are associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: resources that are associated with the lives of persons significant in our past; or
- Criterion C: resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or

- Criterion D: resources that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

Hence, these evaluating criteria are used to help determine what properties should be considered for protection from destruction or impairment (36 CFR 60.2).

Reclamation has developed a manual that discusses the application of cultural resource regulations as they apply to Reclamation properties. These regulations include the National Historic Preservation Act, the Archaeological Historic Preservation Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, 36 CFR Part 800 (Protection of Historic Properties), 36 CFR 60 (NRHP), 36 CFR Part 79 (Curation of Federally Owned and Administered Archaeological Collections), Archaeology and Historic Preservation: Secretary of the Interior's Guidelines, and the Secretary of the Interior's Standards for Rehabilitation and the Guidelines for Rehabilitating Historic Buildings.

At the state level, CEQA provides guidance for addressing cultural resources. A property qualifies as a historic resource if it meets one or more of the criteria for listing on the California Register of Historical Resources (CRHR).

Table 3.5-1
Previously Recorded Cultural Resources

Site	Time Period	Description	Size	Condition	NRHP/CRHR Eligible
CA-VEN-48	Prehistoric	Midden, artifacts include manos, metates, pestle fragments, one Olivella bead, and mortar fragments. Three human burials were also encountered in later excavation at the site.	315' x 370'	Destroyed – relating to the construction of Casitas Dam	Not Evaluated
CA-VEN-113	Prehistoric	Midden, with an abundance of sea shell	50' x 100'	Destroyed – relating to the construction of Casitas Dam	Not Evaluated
CA-VEN-114	Prehistoric	Midden, artifacts include shell beads, steatite bead, metates, bowl, and projectile point.	540' x 80'	Destroyed – relating to the construction of Casitas Dam	Not Evaluated
CA-VEN-115	Prehistoric	Midden, artifacts include manos, metates, slab grinding stones, and chert debitage.	1000' x 400'	Destroyed – relating to the construction of Casitas Dam	Not Evaluated
CA-VEN-116	Prehistoric	Unknown – Site record not available at the time of the record search. Information provided from SCCIC database	200' x 200'	Unknown – Likely destroyed due to inundation from Lake Casitas	Not Evaluated
CA-VEN-117	Prehistoric	Midden, artifacts include metates, manos, bowls, pestles, and some projectile points. Human burials also noted at the site.	150' x 300'	Destroyed – relating the construction or Casitas Dam	Not Evaluated
CA-VEN-192	Prehistoric	Remnants of midden with scattered shell, no artifact observed	Not noted on site record	Destroyed – leveling of the knoll top for water tank construction	Not Evaluated
CA-VEN-193	Prehistoric	Artifacts include over 40 flakes (mostly chert and quartzite) and one core.	300' x 200'	Unknown – was present during 2000 survey, existing structures in area to be removed and land to be returned to natural condition once lease expires.	Not Evaluated

Table 3.5-1
Previously Recorded Cultural Resources

Site	Time Period	Description	Size	Condition	NRHP/CRHR Eligible
CA-VEN-658	Prehistoric	Rock shelter with petroglyphs and associated midden with small amounts of shell, artifacts include manos, chert and quartzite tool and debitage. Located partially on private property within the Los Padres National Forest.	140m x 80m	Good	Not Evaluated
CA-VEN-701	Prehistoric	Light scatter of milling artifacts and chipping debris. No discernable midden. Some historic materials also noted. The majority of the site, including its sandstone outcrops, are located on private property within the Los Padres National Forest.	50m x 80m	Good	Not Evaluated
COSL-1	Prehistoric	Bedrock mortar milling site.	16.10m x 4.3m	Good	Not Evaluated
COSL-2	Prehistoric	Concentration of artifacts include quartzite core, quartzite hammerstone, 3 quartzite flakes, and possible mano fragment.	50m x 50m	Fair	Not Evaluated
2826 W. Avenal Street	Historic	Single family property (constructed 1969)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11205 McPherson Way	Historic	Multiple family property (constructed 1974)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11211 McPherson Way	Historic	Single family property (constructed 1973)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11050 N. Noguera Avenue	Historic	Single family property (constructed 1965)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11501 N. Noguera Avenue	Historic	Single family property (constructed 1975)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11683 N. Noguera Avenue	Historic	Single family property (constructed 1976)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
10956 Santa Ana Road	Historic	Single family property (constructed 1969)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
10958 Santa Ana Road	Historic	Single family property (constructed 1965)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation

Table 3.5-1
Previously Recorded Cultural Resources

Site	Time Period	Description	Size	Condition	NRHP/CRHR Eligible
10972 Santa Ana Road	Historic	Single family property (constructed 1970)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
10974 Santa Ana Road	Historic	Single family property (constructed 1974)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11539 Santa Ana Road	Historic	Multiple family property (constructed 1920)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11696 Santa Ana Road	Historic	Single family property (constructed 1887-1900)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11705 Santa Ana Road	Historic	Single family property (constructed 1955)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11709 Santa Ana Road	Historic	Single family property (constructed 1920)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11780 Santa Ana Road	Historic	Multiple family property (constructed 1960)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11795 Santa Ana Road	Historic	Multiple family property (constructed 1920)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation
11925 Santa Ana Road	Historic	Single family property (date of construction unknown)	NA	NA	Determined not eligible for listing on the NRHP and/or CRHR at the time of evaluation

3.6 HAZARDOUS MATERIALS

3.6.1 Regional Setting

Land uses within the region include Lake Casitas and associated dam, campsites, picnic areas, park store, trailer rentals, marina (with cafe, boat rentals, and bait and tackle shop), two boat ramps, water park (with snack bar and general store), bicycle rental store, boat and trailer storage yard, biking and hiking trail, special events area, and park office.

3.6.2 Plan Area Existing Conditions

An evaluation of potential recognized environmental conditions within the Plan Area was conducted using readily available public information and interviews with local officials. The

term "recognized environmental conditions," as defined by American Society for Testing and Materials Designation E 1527-00, means (ASTM 2000):

> [T]he presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not recognized environmental conditions.

No hazardous sites are known within the Plan Area.

3.6.2.1 Interviews

Mr. Rob Weinerth, a Park Services Officer for the Park, provided the hazardous substance inventory list for the Park on March 1, 2007. The following hazardous materials are stored and used at the Park, in accordance with state and federal regulations: oxygen, oil 30W, propane, hydrochloric acid, sodium hypochlorite, gasoline, diesel, copper sulfate, citric acid, chemitol pine, glyphosate (Round-up), diphacinone (rat bait), and diuron.

At the Park maintenance facility, there are two 1,000-gallon-capacity underground storage tanks, one carrying gasoline and one carrying diesel. Next to the Bait and Tackle Shop in the Santa Ana parking lot, there is one 500-gallon-capacity aboveground gasoline tank. The 1,000-gallon-capacity tanks are constructed of double-walled fiberglass, and the 500-gallon-capacity tank is constructed of steel and is triple contained. These tanks are checked for annual monitoring certification by the Ventura County Environmental Health Division. The certification requires, but is not limited to, the examination of sensors and alarms, specialized employee training, a permit for vapor emissions (from the VCAPCD), the correct secondary containment, up-to-date emergency procedures, and an emergency response plan. There are no known or documented notices of violation for the Park for these three tanks.

To Mr. Weinerth's knowledge, no recognized environmental conditions currently exist at the Park.

Ms. Susan McMahon, the CMWD Water Quality Supervisor, provided the hazardous substance inventory list for the water treatment plant located at the Casitas Dam on March 2, 2007. Chlorine and ammonia hydroxide are the primary substances at the site, but oil, ferric sulfate, clarisloc, diesel, and phosphate are also stored and used at the site. Of these substances, chlorine was the only recognized potential environmental condition.

A search using the USEPA's Envirofacts Query Form, which scans multiple environmental databases for toxic chemical releases, water discharge permit compliance, hazardous waste handling processes, Superfund status, and air emissions, yielded no recognized environmental conditions for any facilities in the study area (March 2007).

3.6.3 Recognized Environmental Conditions

Based on the results of the investigation, chlorine at the water treatment plant was the only potential recognized environmental condition observed or discovered in the study area. The amounts of chlorine used at the facility are required to be regulated under the California Release Program.

3.7 VISUAL AND SCENIC RESOURCES

3.7.1 Regional Setting

Lake Casitas is located in the Ojai Valley. Created in 1958 through the diversion of tributaries to the Ventura River and construction of the Casitas Dam (Figures 3.7-1a and 3.7-1b), the lake is used as a municipal water source and recreational area. The lake is located between the Ojai Valley and the City of Ventura, and to the west of the unincorporated communities of Oak View and Meiners Oaks. Access to the Park is provided by SR 150.

The area surrounding Lake Casitas is generally undeveloped with the exception of the unincorporated communities of Oak View and Meiners Oaks to the west. The LPNF is located to the north of the Plan Area, which consists of rolling undeveloped and unaltered foothills in the foreground. The background view includes distant ridgelines forming a visual backdrop to the area (Figure 3.7-2). This area is generally vacant and undeveloped. Visual resources within the forest generally have retained their natural appearance due to limited human-made modifications, such as roads, utility lines, or grading.

3.7.2 Plan Area Existing Conditions

Lake Casitas is located in a low-lying area in the northern portion of the Ventura River Valley. Due to this location, the lake is surrounded by unaltered ridgelines that form the scenic backdrop to the lake. In general, views of the Lake Casitas from surrounding areas and views adjacent to the lake of the surrounding area are considered to be high quality and visually important areas (Figure 3.7-3).

The topography associated with Lake Casitas is dominated by gentle to steep hills that are interrupted by deep side canyons. Aside from the fact that the lake is human-made, the visual character of the area is generally undeveloped (Figure 3.7-4). From vantage points located adjacent to the present water height, views consist of undeveloped local hillsides and ridgelines in the foreground to distant views of mountain ridgelines and rugged canyons (Figure 3.7-5) located in the LPNF to the north that form the backdrop to the Ojai Valley. Elevations generally decrease looking to the south (Figure 3.7-6) with the exception of the steep foothills on either side of the Ventura River Valley, which flows to the Pacific Ocean.

The Ventura County General Plan identifies Lake Casitas and the surrounding areas as an important scenic resource area. Specifically, Figure 2 of the Ojai Valley Area Plan shows that all of the area under the jurisdiction of Reclamation is located within a Scenic Resource Protection Overlay Area. The intent of the Scenic Resource Protection Overlay is to preserve and protect areas that are considered visual important areas. Additionally, areas within the scenic overlay zone provide observation points of distant ridgelines that form the backdrop to the northern portion of the Ventura River Valley and the Ojai Valley.

SR 150 runs along the northern and western boundaries of Lake Casitas. Although not formally identified as a scenic highway in the Ventura County General Plan, the portion of SR 150 adjacent to the lake provides views of the lake and surrounding areas. Observation points along SR 150 from the northern and western boundaries of Lake Casitas provide uninterrupted views of the lake below and the ridgelines to the east (Figure 3.7-7).

Structures and paved areas are located primarily on the northern portion of the lake. There are two boat ramps (Santa Ana Boat Ramp, Figure 3.7-8, and Coyote Boat Ramp, Figure 3.7-9), several campsites (Figure 3.7-10), areas for special events (Figures 3.7-11a and 3.7-11b), and a boat and trailer storage area (Figure 3.7-12).

3.8 LAND USE

3.8.1 Regional Setting

The Park is located between Santa Barbara and Los Angeles, approximately 13 miles northwest of the City of Ventura on SR 33. It is adjacent to the south of the LPNF, west of the unincorporated community of Oak View, southwest of the City of Ojai, and to the north of the City of Ventura. Created by the Casitas Dam and fed by the local watershed, Lake Casitas spreads over 2,700 acres of water surface, providing 35 miles of shoreline for recreation uses.

The Park is located on federal lands within Ventura County and within the Upper Ventura River Watershed. The LPNF is located within the upper reaches of the watershed, approximately 10 miles north of Lake Casitas. With the exception of recreational areas (campgrounds and day use areas) and associated access roads, lands within the LPNF boundary consist of undeveloped open space.

Existing land uses in the watershed include undeveloped open space, recreation, irrigated and nonirrigated agriculture, rural residential, commercial, and industrial uses. Open space areas include the LPNF lands in the eastern area of the watershed and undeveloped lands in private ownership. These private undeveloped lands generally occupy the steeper portions of the watershed. One of the owners of private undeveloped lands in the area is the Ojai Valley Land Conservancy (Conservancy). The Conservancy is a community-based, nonprofit group of private citizens and landowners that acquire, hold, and manage land in the public interest with the goal of protecting and restoring open space in the Ojai Valley. The Conservancy also works with landowners to acquire conservation easements, which convey the development rights of a parcel of land to the Conservancy, while the title and daily management remains with the landowner.

Higher-density residential development is associated with the unincorporated communities of Oak View and Meiners Oaks to the west and Ojai to the northeast. Rural residential and residential ranchettes border Ojai and Oak View, providing a transition into the agricultural areas. Commercial and industrial land uses within the watershed are also generally associated with the unincorporated Community of Oak View and Ojai.

3.8.2 Plan Area Existing Conditions

Approximately 7,400 acres of land and water at Lake Casitas, including Open Space Lands, comprise the Plan Area of this RMP. The Park consists of federal lands owned by Reclamation.

Land uses within the Park include recreation and undeveloped open space (both open lands and open water).

3.8.3 Demographics

According to the Southern California Association of Government demographic data and forecasts, the population in Ventura County in 2005 was 821,045. Ventura County is projected to have an approximate population of 989,765 by 2030 or an average annual growth rate of 0.82 percent.

3.8.3.1 Built Up Areas

The majority of the Park's recreation facilities are located at the north end of Lake Casitas. They provide a range of recreational facilities for both local residents and others from throughout Southern California. The lake is a very popular attraction for boating, fishing, picnicking, camping, and special events such as the Ojai Wine Festival, the Renaissance Festival, and the Native American Pow-Wow. The Park has a full range of facilities, including picnicking and day use areas, RV and group camping (413 campsites), individual campgrounds (12 campgrounds), two newly refurbished boat ramps, bike rentals, snack bar, bait and tackle shop, boat rentals, boat slips, camp store, and water park.

3.8.3.2 Open Space

The Open Space Lands are located primarily north of the Park, adjacent to Lake Casitas, and the LPNF, and encompass approximately 3,500 acres. These lands were acquired by the federal government (Reclamation) in 1974 under the authority of Title IV of the Reclamation Development Act "for the purpose of protecting water quality, and to provide for the preservation and enhancement of recreation, fish and wildlife, and the environment of the area." The purchase of these private lands was subject to either lifetime or term use (not-to-exceed 25 years) and occupancy leases. A total of 79 parcels were acquired. Upon expiration of the leases, structures are demolished and the land is returned to a natural state.

Currently, only three structures remain: the Fraser, Voyce, and Selby Houses. The Fraser and Voyce Houses are the only two still leased, and are under lifetime leases. The Fraser House is located along the south side of SR 150 near Santa Ana Road, on the east side of the lake. Once the lease ends, it may be used by the Forest Service as office space or housing for Forest Service staff. The Voyce House is located near Santa Ana Creek and may be used as a visitor center after the end of the lease. The Forest Service recently conducted restoration work on the Selby house.

3.8.3.3 Livestock Grazing

The CMWD currently prohibits the grazing of any animal on the Open Space Lands at any time within its jurisdictional boundary (Ordinance No. 81-2, Rules and Regulations for the Management of the Charles M. Teague Memorial Watershed, 1981).The Lake Casitas Management Plan of 1976 adopted animal control guidelines to protect the water quality of the lake. The number of domestic animals allowed on a given property was based on the recommended grazing carrying capacity for vegetation. The grazing carrying capacity was 5 animal unit months (AUMs) per hectare per year for irrigated pasture, 0.5 AUM per hectare per year for agricultural land able to be cultivated but returned to grass, and 0.25 AUM per hectare

per year for rangeland. No stables or corrals were permitted within 300 meters of the maximum water surface elevation, and no animals were permitted within 30 meters of the active tributary streams or within 60 meters of the maximum water surface elevation.

Seven parcels had agricultural leases by the mid-1980s (parcels # 27, 57, 58, 39, 42, 93, and 94), and only a few of those had cattle. Any grazing on these parcels was relatively light grazing with only 10 to 20 heads of cattle. All of the agricultural leases came to term by 1989. No grazing has occurred within the Open Space Lands since 1989; however, the Lake Casitas Watershed north of the Open Space Lands boundary, managed by the Forest Service, is not entirely protected from grazing. The two major reasons for concern regarding livestock in the watershed are the hazard of microbiological contamination of the lake and nutrient contributions to the lake. These concerns were relative to corrals, stables and/or animals being permitted too close to active tributaries and/or maximum water surface elevation of the lake. Today these threats of contamination are no longer prevalent due to the fact that only two grazing permits exist in the Lake Casitas Watershed, and all applicable state guidelines ensuring water quality are enforced. The two grazing permit holders are as follows:

- Vivian Forsberg holds a permit for grazing 20 heads of cattle. No cattle are allowed to graze in or near Coyote Creek. The established period of use is April 1 to August 31 to avoid the rainy season that could carry animal waste contamination to the lake via runoff.
- Jim Pendleton holds a grazing permit pertaining to the Rice-Wills allotment, which is located east of the Santa Ana River and therefore would not affect the watershed.

3.8.3.4 Weed Eradication

The effects of grazing on the Open Space Lands are still evident. Weedy, invasive vegetation is currently revegetating the previously grazed pastureland. No weed eradication efforts have been implemented to date. Very little herbicide is used in the Lake Casitas Watershed. The ranchers operating orange, lemon, and avocado orchards do use small amounts of Roundup to control weeds. CMWD uses only small amounts of herbicides to control weeds along roadsides, and the amounts of herbicides used are reported to the Ventura County Agricultural Commission.

3.8.3.5 Fire Management and Hazards

Managing fire in the Open Space Lands involves a coordinated effort between the Forest Service, Ventura County Fire Department, and CMWD. The fuel bed that surrounds Lake Casitas is the Ventura County Black Mountain Fuel Bed. The current fire management efforts within this fuel bed include the annual upkeep of four major fuel breaks by the Ventura County Fire Department, one of which lies within the Open Space Lands boundary. This fuel break within the Open Space Lands is the Lake Casitas Camp fuel break, located on the northwest side of the lake. The fuel break is a common management strategy that controls the age of the fuels by conducting prescribed burns and/or manual removal of older vegetation that could result in high intensity wildfires. These “breaks” support low-growing and low-volume vegetation, which help to reduce erosion while providing a safe place for firefighters to make a stand.

Other fuel breaks that were previously maintained by the Forest Service were the Laguna Ridge, Superior Ridge, and the Rice-Wills Canyon fuel breaks. These have not been maintained since the early 1980s due to some CMWD opposition to the Forest Service preferred method of prescribed burning to upkeep the fuel breaks. However, recent conversations have taken place

between CMWD board members and the Ventura County Fire Department about accepting the prescribed burning management tactic and re-opening the main fuel breaks. The main access roads into this management area are Superior Road off SR 33, Chismahoo Road, and Santa Ana Road.

The last major fire to occur in the Black Mountain Fuel Bed was the Wheeler fire of July 1985. This large fire burned 122,724 acres, some of which lie within the Open Space Lands. Other smaller fires occurred within the Open Space Lands boundary in 1950 and 1951, and the Poplin fire burned 193 acres in 1983, just north of the lake along the Forest Service boundary line.

The Open Space Lands have not had a fire in 15 years (see Figure 3.8-1). According to the Forest Service BMPs, vegetation between the ages of 15 and 20 years should be converted back to age zero, preferably by prescribed burning.

The California Department of Forestry, through the Fire and Resource Assessment Program, has developed a methodology to assess and rank fuel (vegetation) for the California Fire Plan to identify and prioritize fuel management projects that reduce the potential for large catastrophic fire. The fuel ranking method assigns ranks based on expected fire behavior for unique combinations of topography and vegetative fuels under a given severe weather condition (wind speed, humidity, and temperature). The procedure makes an initial assessment of rank based on an assigned fuel model and slope, and then refines ranks based on the amount of ladder and/or crown fuel present to arrive at a final fuel rank.

The Fire and Resource Assessment Program map for the Plan Area depicts nonfuel, moderate, high, and very high levels of fuel rank around Lake Casitas (Figure 3.8-2). The fuel rank map depicts a relatively large concentration of very high hazard areas on the west side of the lake, the portions of the Main Island, and portions of the area north and northeast of the lake. These general areas should be a focus point for fire management at Lake Casitas.

The Ojai Ranger District Forest Service has recently written a Prescribed Burn Plan for the Rice/Wills land in the LPNF. This 19-point plan may be a useful tool for guiding fire management planning in the Plan Area. As this document portrays, a Prescribed Burn Plan is a detailed process. (1) It is organized and conducted by a “burn organization” including a fire manager, a burn boss, an approving line officer, a safety officer, a resource advisor, an ignition specialist, holding crews, mop-up crews and patrols, and so on. (2) The location and fuel types of the project area are described and (3) resource management goals and prescribed fire objectives are set. (4) Sensitive features in need of protection are identified and (5) a range of acceptable results are determined. (6) The financing for the project is broken down into a cost share agreement. (7) A “burn prescription” is given which contains key parameters to achieve desired results. The prescription also contains provisions to record on-site conditions such as environmental variables (temperature, wind speed and direction, soil moisture, etc.) and the physiological condition of vegetation fire characteristics (fire spread and direction, rate of spread range, flame length, etc.). (8) Weather data collection is performed and reported. (9) A smoke management plan is implemented. Affected areas and conditions are determined and a prediction for smoke dispersal is done. (10) Firing provisions are decided, such as where the wind will be coming from and where the firing will start, etc. (11) Holding procedures are outlined. (12) Mop up and patrol procedures are also outlined. (13) Detailed safety and emergency procedures and a helicopter operations plan are noted. (14) It is decided who will be the public information sources for the prescribed burns, such as who will administer all news releases and local radio

advisories. (15) An "Escaped Fire Situation Analysis and Contingency Plan" is set and (16) a risk assessment is discussed. (17) The complexity level of the project is determined by utilizing the National Wildfire Coordinating Group Prescribed Fire Complexity Rating system Guide. (18) It is noted that a burn documentation and summary folder must be kept, which would include the "Go No Go Checklist," found in the beginning of the plan, which has 15 preparatory questions that all must be answered "yes" before one may proceed with lighting. Finally, (19) monitoring guidelines have been outlined in Chapter 5 of the Los Padres Land Management Plan.

The Rice/Wills Prescribed Burn Plan also includes a helitorch operations plan and an Escaped Fire Situation Analysis. The Escaped Fire Situation Analysis is written as a contingency to a possible escape of the Rice/Wills Prescribed Burn Plan. The intent is to evaluate alternative suppression strategies under various burning conditions.

3.8.4 Regulatory Setting

Land use policies relating to Lake Casitas and the surrounding area are addressed in the County of Ventura General Plan. Specifically, the Ojai Valley Area Plan identifies specific land use goals, policies and objectives intended to regulate uses within the Ojai Valley.

3.9 RECREATION

Lake Casitas is widely known for its natural, scenic qualities. It is also one of southern California's favorite bass and trout fishing lakes. No body contact sports such as swimming or water skiing are currently allowed. Recreation activity is concentrated at the north end of the lake. The Park is well appointed with facilities including campsites, group camp areas, RV sites, boat and trailer storage, park store, cafe, marina and launch ramps, bait and tackle shop, trailer storage yard, water park, an event area, a radio-controlled airplane strip, trailer, bicycle and boat rentals, and a park office. Open Space Lands located to the north of developed facilities on the north shore are not open to general public access.

3.9.1 Regional Setting

In 1948, Santa Barbara County water agencies joined with Reclamation to build three large-scale federal water projects in the region. These seacoast reclamation projects were designed to capture seasonal floodwaters that would otherwise "waste to the sea." They were the first of their kind to be constructed by Reclamation. The first constructed was the Cachuma Project, built on the Santa Ynez River. This was followed by the Santa Maria Project on the Santa Maria River, and finally, the Ventura River Project. The Ventura River Project's key features were Casitas Dam and Lake Casitas, which is located on Coyote Creek about 2 miles above its junction with the Ventura River.

The Park is located about 78 miles northwest of the City of Los Angeles in the Ventura River Valley. The lake was created from the Casitas Dam on Coyote Creek near the City of Ojai. Lake Casitas sits west of SR 33 and south of SR 150, providing opportunity for world-class bass fishing, picnicking, boating, camping and hiking. The LPNF is 10 miles north of the lake on SR 33, and about 13 miles to the south is the Pacific Ocean. Campgrounds and picnic areas fill up on holidays and summer weekends, but weekdays are quieter. The Park hosts three major annual special events including the Renaissance Festival, the Ojai Wine Festival, and the Pirate Faire

and Renaissance Festival. Children and adults can also enjoy the Park's water park, the flying disc golf course, and the radio-controlled airplane strip.

Potential effects to water quality such as sedimentation were mitigated in the late 1970s and early 1980s by protection of the Lake Casitas Watershed by withdrawing 69,000 acres of the LPNF from future development and by the purchase of the Open Space Lands, as discussed in Section 2.5.1.

In the early 1980s, a Safety and Evaluation of Existing Dams report assigned Casitas Dam a "Poor" grade because of the potential for liquefaction of the dam's foundation during a high-magnitude earthquake, which could cause damage to the slope intake structure. In 1999, Reclamation started a 2-year effort to upgrade Casitas Dam to current earthquake safety standards as part of an ongoing modernization effort to enable Casitas Dam to withstand a M 7 earthquake. The work was designed to strengthen the toe of the dam by constructing an earthen berm to widen and buttress the dam. An Early Warning System of alarm sirens was also installed at the dam to provide a means of warning the downstream community in the event of a pending dam failure. The system is currently being maintained and managed by Ventura County.

Subsequently, computerized piezometers placed in the dam embankment recorded satisfactorily low levels of seepage. Consequently, Casitas Dam's safety classification was upgraded to safe status.

Recreation has long been a prime activity at Lake Casitas. The regional area is highly populated and the lake has served as a popular activity spot for the many area residents. In 1984, Lake Casitas had the distinction of hosting rowing events for the Los Angeles Olympics.

3.9.1.1 Recreation Comparison (Other Lakes in the Region)

Other lakes in the region also offer water-based recreation opportunities including Lake Piru and Lake Castaic, which are both about 60 miles east of Lake Casitas. To the north are five lakes within 200 miles that offer recreation opportunities: Cachuma Lake, Santa Margarita Lake, Lake Lopez, Lake Nacimiento, and Lake San Antonio. An overview of these recreational areas is provided below.

A comparison of the regional recreation opportunities is summarized in Table 3.9-1, and the special events and educational opportunities provided at each lake are summarized in Table 3.9-2.

Table 3.9-1
Regional Recreation Opportunities

Lake	Boating	Fishing	Camp	Picnic	Swim	Water Sports*	Hiking	Biking	Horses	Other
Casitas	√	√	√	√			√	√	√	Radio-Controlled Airplane Airfield, Water Park
Cachuma	√	√	√	√			√	√	√	Swimming Pool, Golf Course
Lopez	√	√	√	√	√	√	√	√	√	Water Slide
Margarita	√	√	√	√			√	√	√	Swimming Pool 1 Mi. From Park
Nacimiento	√	√	√	√	√	√				None
San Antonio	√	√	√	√	√	√	√	√	√	None
Piru	√	√	√	√	√	√	√	√	√	None
Castaic	√	√	√	√	√	√	√	√	√	CSUN Sailing Lessons
Pyramid	√	√		√	√	√				Camping 2 miles from Park

*Body contact water sports, other than swimming, including waterskiing, wind surfing, personal watercraft, etc.

Table 3.9-2
Special Events/Educational Opportunities

Lake	Nature Walks	Bird-Watching	Wildlife Tours	Astronomy Programs	Fireside Theatre	Water Tours	Movies	Other
Casitas	√	√	√			√		Center For Earth Concerns, Kids Fishing Day, Renaissance Festival, Ojai Wine Festival, Pirate Faire and Fall Renaissance Festival
Cachuma	√	√	√	√	√	√	√	Jr. Ranger Program
Lopez	√	√	√			√	√	Fishing Clinic, Triathlons, Campfire, And Litter Program.
Margarita								None
Nacimiento								None
San Antonio	√	√	√		√	√	√	Triathlons
Piru	√							None
Castaic								Triathlons, Drag Boat Races, Boat Parades
Pyramid								None

Eastern Lakes

Lake Piru

Lake Piru is located in Ventura County, in the LPNF next to the Sespe condor sanctuary. The recreation area is less than an hour away from Ventura and approximately 60 miles from Lake

Casitas. The nearest town is Fillmore, located just 6 miles south from the lake. The natural setting of the area is mostly grassland and chaparral, with a few oak and pine trees. The lake is 4.1 miles long with an average width of 1 mile, which equates to 1,200 surface acres of water. Lake Piru provides water conservation, flood control, hydropower, seawater intrusion abatement, groundwater recharge, recreation, irrigation, municipal, and industrial water supplies.

In addition to fishing, waterskiing can be enjoyed all year long on the lake. There are segregated areas for both high-speed boating and fishing. Day use picnic areas and camping are also offered. Swimming is restricted to the designated beach area on the northwest side of the lake.

Castaic Lake

Castaic Lake is the largest State Water Project reservoir in Southern California, located at the northern end of the Santa Clarita Valley, approximately 60 miles from Lake Casitas. Built by the DWR and the California Department of Parks and Recreation, the 8,000-acre park is operated and maintained by the Los Angeles County Department of Parks and Recreation.

The recreation facility consists of two separate lakes, the Main Reservoir and the Lagoon/Afterbay. The main reservoir forms a V-shaped body of water with approximately 29 miles of shoreline. The east arm of the lake is open to boating, fishing, and sailing, with a portion open to waterskiing and wakeboarding. The west arm is reserved for waterskiing and wakeboarding, with a special use area next to the dam for all personal watercraft. Fishing in the west arm is allowed only in the coves. Swimming is prohibited in the main reservoir; however, chlorinated swim beaches located on the west side of the lagoon are open on a seasonal basis. Gasoline powered engines are not to be used in the Lagoon/Afterbay, and any boats with gas engines must have the engine tilted up when the vessel is on Lagoon waters.

In addition to fishing, boating, and water sports, other recreational opportunities include camping and picnicking. Designated hiking trails are open to bikers, hikers, and equestrians. There are over 7 miles of trails on the west side of the Lagoon and Main Reservoir. The system of trails is a large loop with smaller loops accessible from the main trail. Professional bike races are often held on these trails.

Northern Lakes

Cachuma Lake

The Cachuma Lake Recreation Area is located north of Santa Barbara off Highway 154 along Paradise Road. The park entrance is about 40 miles north of Lake Casitas. The Cachuma Recreation Area encompasses approximately 9,250 acres, including Cachuma Lake and the surrounding shores and hillsides. The park is widely known for its natural, scenic qualities as well as one of California's favorite bass and trout fishing lakes. Because the lake provides drinking water for South Coast residents of the County, no body contact sports such as swimming or waterskiing are currently allowed. The 375-acre County Recreation Area is located on a peninsula on the south side of the lake. The north side of the lake consists of open space that is leased for grazing and permitted equestrian use. There are a total of 550 campsites, 90 of which have full electrical, water, and sewer access. Facilities also include a general store, marina and launch ramp, docks, bait and tackle shop, horse campsites, rustic amphitheater, trailer

storage yard, remnant mobile home park, Nature Center, County Park Ranger Station, Live Oak Camp, family center, swimming pools, and snack shop.

Pyramid Lake

Situated within the Angeles and Los Padres National Forests, on Piru Creek, Pyramid Lake is about 16 miles north of the town of Castaic and about 60 miles north of Los Angeles. It provides regulatory storage for Castaic Powerplant (owned and operated by the Los Angeles Department of Water and Power), an afterbay for William E. Warne Powerplant, emergency storage for water deliveries from the West Branch, incidental flood protection, and recreation. Visitors can camp, picnic, boat, waterski, fish, and swim. The lake is approximately 1,360 surface acres at capacity with 21 miles of shoreline, and is over 700 feet deep in some parts.

Emigrant Landing, reached from Interstate 5, has a marina, a boat ramp, beach, and picnic areas. The boat ramp is an 8-lane boat launch with 180 trailer parking spaces at the marina and a car-top launch site located near the Spanish Point area. Family and group campsites are available at Los Alamos Campground in lower Hungry Valley. Some beaches and picnic sites are reachable only by boat.

Lopez Lake

Lopez Lake is located approximately 75 miles north of Lake Casitas and 10 miles east of Arroyo Grande off U.S. Highway 101 (US 101). Recreational activities include fishing, camping, boating, waterskiing, sailing, picnicking, hiking, canoeing, and birdwatching. Completed in 1968 to provide domestic water for the Five Cities area of the Central Coast, the lake is fully stocked with game fish.

The recreation area on the east side of the lake has a camping area with 354 campsites, which fill to capacity most weekends during the spring through fall months. While no cabin rentals are available at the lake, primitive, electrical, and full hookup campsites are available. Fishing is the other major year-around recreational activity at Lopez.

Another important recreation highlight at Lopez Lake is boating. Nearly 1,000 acres of lake surface provides for waterskiing and jet skiing. Good winds also offer windsurfing and sailing opportunities, and canoeists enjoy the calmer waters of the secluded upper Lopez Arm.

Santa Margarita Lake

Santa Margarita Lake was created by the construction of the Salinas Dam in 1941. The lake was originally designed to furnish water to Camp San Luis Obispo. Today it is a major source of drinking water for the City of San Luis Obispo. The park first opened for fishing and boating in 1957 and is still considered to be one of the best locations for fishing and relaxation found on California's Central Coast. The lake is located about 8 miles off US 101, just east of the community of Santa Margarita, a little over 120 miles north of Lake Casitas. Santa Margarita is 7 miles long and has 1,100 surface acres and 22 miles of shoreline.

As a drinking water reservoir for the City of San Luis Obispo, body contact is forbidden and, therefore, no waterskiing or jet skiing is allowed on the lake. The result of these restrictions is a very quiet and natural atmosphere. The lake is also a fishing destination, open year-round, with good supplies of bass and catfish. It is surrounded by oak and pine covered hills, with interesting rocky crag formations. Just recently, camping has been allowed within the park boundaries,

operated by San Luis Obispo County. Camping areas include four sites along the south side of the lake and two primitive boat-in sites.

Lake Nacimiento

Lake Nacimiento is located west of US 101, 17 miles north of Paso Robles. It is approximately 150 miles north of Lake Casitas. The lake is close to 20 miles long and has 5,727 surface acres and 163 miles of shoreline. It was built for flood control and to provide farmers in the Salinas Valley with good summertime water. Lake Nacimiento is now a privately owned and operated recreational resort.

Many people visit Lake Nacimiento for boating and waterskiing and other water sports. Unlike the other lakes discussed here, Nacimiento has a primary focus on water sports. Good warm-water fishing is available, but at times during the hot summer months, the amount of boat traffic can disturb fishing. However, regulating the amount of boats on the lake would be difficult because many private communities are located on the lake, each with their own boat launch. There are two public multilane launch ramps and a full marina featuring boat rentals, equipment rentals, fueling services, bait and tackle shop, and hardware and accessories.

Lake Nacimiento has six different campgrounds totaling over 345 sites, including remote tent sites, full RV hookup sites, and RV/tent combination sites. Due to the fact that this lake is mainly oriented toward water sports and camping, there appears to be a lack of educational opportunities that are often offered at other lakes, such as nature walks, birdwatching, wildlife tours, water tours, and fireside theatres.

Lake San Antonio

Lake San Antonio is located west of US 101, just north of Lake Nacimiento, between Paso Robles and King City. The lake is about 16 miles long and has 5,000 surface acres and over 60 miles of shoreline. The shoreline is divided into a North Shore and a South Shore, with the most campsites and group facilities on the South Shore. The Monterey Plan Areas and Recreation Department operate the lake. The location offers boating, fishing, swimming, hiking, and biking.

Lake San Antonio offers excellent warm water fishing. The South Shore Marina rents boats, motors, jet skis, bait, and tackle. Rentals include aluminum fishing boats, pontoons, and ski boats, including tournament ski boats.

Over 4 miles of shoreline camping are available on Lake San Antonio's North Shore, and three campgrounds with over 500 campsites are available for individuals, families, and groups on South Shore. There are tent, electric, and full hookup sites. With over 500 campsites at the lake, this recreation area has the most intensive camping use of all the lakes discussed above. Trails are also available for hiking, biking, and equestrian use. The majority of the trails are around the South Shore.

3.9.1.2 Data Collection

Recreation at Lake Casitas is important to numerous user groups with diverse interests. To report on recreational uses at the lake, several study methods were conducted. A public hearing for use of the Open Space Lands was held in May 1999. Public hearings for the RMP were held in September 2003 and June 2006 to give user groups an opportunity to voice their concerns and desires. In addition, several key users of the lake and its recreational resources were interviewed individually. Numerous letters and e-mails from the public helped to identify key issues and

concerns to be addressed in the RMP, and are summarized in the Public Scoping Report (Reclamation 2007). Several meetings were held with CMWD, where information about the history and demands of recreation at the lake was shared. The visitation data came from the CMWD database for 1959 to 2006 daily uses. The daily data include day use, overnight use, and water park use information. These data are summarized in Section 3.9.4.1. User surveys were also assessed (see Section 3.9.4.1), and other lakes in the region were visited to study Lake Casitas recreation relative to other recreation resources in the area.

Recreation supply and demand data were collected from several existing literature sources. Demographic data for Santa Barbara, Ventura, and Los Angeles Counties was reviewed, and projected trends for recreation use were described. The demand and supply data along with projected trends in recreation use are described in Section 3.9.5.

The WROS system was used to inventory the existing conditions of Lake Casitas and the surrounding lake-related areas. This inventory was also used to assist in evaluating management alternatives for the lake, based on projected future use. A description of this tool and Lake Casitas WROS inventory results are presented in Section 3.9.6.

3.9.2 Park Existing Conditions

The Park is renowned for its natural beauty and variety of recreational opportunities, as shown in Figure 3.9-1. The Park is located in Ventura County, within a relatively rural environment, approximately 13 miles from the City of Ventura and 5 miles from the City of Ojai. It is approximately 40 miles southeast of Cachuma Lake. The Park has over 35 miles of fishable shoreline and approximately 1,200 acres of oak trees and rolling hills. The lake is filled with trout, bass, catfish, crappie, and sunfish. During the winter months the lake is stocked with additional trout.

CMWD manages Lake Casitas as a drinking water reservoir and, therefore, no body contact is allowed. Boating, however, is allowed and rentals are available at the full-service marina. The north shore of the lake has 413 campsites. The Park also has 12 picnic areas with tables, barbecues, running water, and shelters.

Other than boating, fishing, camping, and picnicking, a variety of other recreational activities are available to the nearly 775,000 annual visitors. Bike rentals are offered near the main gate. Paved and dirt roads adjoining the 4 miles of campgrounds are excellent for leisure bike rides, as is scenic SR 150 that follows the west and north shores of the lake.

3.9.2.1 Camping

More than 400 campsites in 12 campgrounds are available to visitors along the north shore of the lake. Each of the campgrounds has a distinct personality. Some are lakeside, while others are located among trees or tucked along hillsides. Sites are available for tents, tent trailers, campers, and RVs. They feature views of the lake, picnic tables and fire rings, and nearby stores, and are centrally located near bathrooms. Some sites are also available with basic hook-ups, including water and electricity, with others having sewer hook-ups, TV reception, and storage space for a boat or RV. Individual and a limited number of group sites are available year-round on a first-come, first-served basis. Table 3.9-3 shows the campgrounds and their accommodations, including tent and RV sites. While reservations are not required, they are encouraged and accepted up to 6 months in advance, especially throughout the busy summer season. Trailer

rentals are also available. Visitors can reserve a trailer that will be set up on-site by concessionaire staff.

Table 3.9-3
Lake Casitas Campsites Profile

Campgrounds	Sites	Facilities	Oak Tree Density	Aspect	Fee
Angler (A)	1-7	Picnic area, Water, Electric, Sewer	Dense	0	$50
Bass (B)	1-60 (25-37 are tents only)	Restroom, Picnic Area, Group Area	Medium	0	$30
Creekside (C)	1-30	None	Dense	0	$19
Deer (D)	1-12	Chemical Toilets	Dense	W	$19
Egret (E)	1-23	Basic amenities Restrooms	Medium	W	$30
Fox (F)	1-46	Group Area, Restrooms, Playground, Picnic Area, Cement Pad, Sewer, Electric, Water	Medium	0	Executive $50 Deluxe $40 Basic $30 Tent $19
Grebe (G)	1-34	Group Area, Fireside Theatre, Toilet	Medium	0	Tent $19
Hawk (H)	1-31	Restrooms	Dense	0	Tent $19
Indian (I)	1-30	Group Area, Restrooms	Dense	0	$30
Jay (J)	1-10	Group Area, Showers, Restrooms, W&E[1] hookups	Dense	0	$19
Kingfisher (K)	1-28	Showers, Restrooms	Dense	0	$19
Mallard (M)	1-52	Restrooms, Group Area, Picnic Area	Dense	N	$19
Osprey (O)	1-56	Chemical Toilets	Dense	0	$19
Lakeside (P)	Will accommodate 300 people	Chemical Toilets	Low	0	$19
Owl Court	Will accommodate 100 people	Water, Electric at 4 Posts	Medium	0	$25

[1] Water and electric hookups
[2] Water, electric and sewer hookups

3.9.2.2 Boating and Fishing

The marina rents aluminum fishing boats for four or six passengers, with or without 8-horsepower outboard motors, on a half-day or full-day basis. Pontoon boats, some with covered patio decks for 7, 10, or 12 passengers, are also available for rent, as are paddleboats, canoes, and kayaks. A boat launch and mooring facility for private sail and motorboats sits adjacent to the Marina. Fishing piers are also available throughout the Park. Boating regulations must be strictly adhered to.

Starting in March 2008, a temporary restriction was imposed on the entry of boats—including canoes, kayaks, and float tubes—that were not already stored at the Park to prevent the introduction of invasive mussels (see Section 2.5.2). The restriction is scheduled to be in effect for 1 year or until procedures are established to protect Lake Casitas from invasive species. These procedures could include the use of additional equipment for boat inspections; additional storage facilities; and coordination with local, state, and federal agencies. Boats currently stored or moored at Lake Casitas can continue to use the lake, but if a boat is removed, eligible boats will be allowed to return only after inspection and a 10-day quarantine period. A waiting list is available for visitors wishing to store boats at Lake Casitas, and Park staff is working on developing a proposal to expand the number of spaces available. The Board of Directors may periodically review the boat entry restrictions.

Lake Casitas is considered to be one of Southern California's finest fishing lakes. Trout, bass, catfish, crappie, and sunfish are all fished at the lake, and bass fishing tournaments are held throughout the year. Shoreline night fishing on selected weekends is permitted. There are two floating restrooms on the lake for boater convenience. During the winter months, the CDFG stocks the lake with a variety of fish including Florida bass, Florida bluegill, black crappie, crawdads, rainbow trout, and catfish. CMWD supplements this stock with additional fish as budget permits. A bait and tackle shop is located at the Marina. Two fish cleaning stations are located within the Park.

3.9.2.3 Trails

Trails and bike paths are important elements of the recreational environment at Lake Casitas. The improved hiking and biking Shoreline Lake Trail follows Santa Ana Creek and then the shoreline on the lake's east side along the Saddle Dam. Off-highway motor vehicles are prohibited in the Plan Area.

3.9.2.4 Day Use and Other Recreation

As mentioned above, each campsite is equipped with a picnic table and a fire ring. Many picnic sites along the north shore of the Park are intermixed with campgrounds. Most of the developed picnic areas feature shaded tables with pedestal barbecues and nearby restrooms. The large covered picnic areas were especially designed to accommodate group gatherings and special occasions.

Swimming/Water Sports

Lake Casitas is a domestic water supply, and historically swimming, waterskiing, windsurfing, or any other body contact with the water has been prohibited. However, children and adults can use two water playgrounds at the water park. Children up to age 12 can play in a multilevel jungle gym with wheels, waterfalls, bridges and slides in water up to 18 inches deep. Older family members can float on a 1,200-foot winding waterway featuring waterfalls, bridges, and jet sprays. Water activities are supervised by trained staff. Shaded decks and lounge chairs are offered as well as a snack bar, showers, and bathrooms.

Biking

Bikes are allowed in the Park and riding areas are available along the paved roads as well as along the Shoreline Trail to Saddle Dam, as previously mentioned. Bicycle rentals are available during the summer months.

Disc Golf

Although a relatively new sport, disc golfing is growing fast in popularity. The Park has implemented a pilot program to accommodate both new and experienced players. The course has been designed in collaboration with a professional course designer and is open to the public year-round, with the exception of tournament days and some major holidays. The course is located between Campgrounds M and K with the first hole near the Coyote boat launch, as shown in Figure 3.9-1.

Radio-Controlled Airplanes

A radio-controlled airplane strip is located along the northwest shore near Campground O and Coyote Creek. Radio-controlled airplane enthusiasts gather for events sponsored by the Comets radio-controlled airplane club each year, including fly-ins in late April and mid-October.

Open Space Lands

The Open Space Lands above the north shore of Lake Casitas are closed to recreational use other than limited day-use hiking on existing improved roads.

3.9.2.5 Special Events and Educational Opportunities

Lake Casitas hosts annual events at the Special Events area at the east end of the north shore. This area is rented to public and private parties for events that are too large for Lake Casitas' group day-use facilities. The annual events and groups that normally use the Park include:

- Kid's Fishing Day in March. Along with a live fish plant in the lake, learning stations are set up with fish for the children to catch.
- Renaissance Festival in mid-April
- Annual Ojai Wine Festival in June
- Pirate Faire and Fall Renaissance Festival in September

In addition, the Audubon Society recognizes Lake Casitas as part of a global network of places with outstanding value to bird conservation. Bird counts in the past have identified over 160 different species. Dozens of species of birds including bald eagles, peregrine falcons and other raptors, Canada geese, woodpeckers, and five types of grebes spend the winter at Lake Casitas.

3.9.2.6 Facilities

Lake Casitas offers the following facilities:

- Marina
- Boat launch facilities
- Park store
- Boat and trailer storage
- Marina Cafe
- Campsites
- Barbecue pits / picnic tables
- Restrooms
- Fish cleaning stations
- Showers
- RV wastewater dump stations
- Bait and tackle store
- Playgrounds
- Fishing piers
- Water park
- RV hookups
- Special events area
- Group picnic areas

The Park offers a variety of concessions including a camp store; the Marina Cafe, which serves breakfast and lunch; Water Park snack bar and shop; bike rentals; and a Bait and Tackle shop where poles, tackle, and fishing licenses can be purchased. Marine repair services and trailer rentals are available in addition to boat rentals, boat slips, and a fuel dock.

3.9.2.7 Overall Natural Experience

The Santa Ynez and the San Rafael Mountains flank the north side of the lake, providing spectacular views of rugged cliffs and chaparral vegetation. Oak woodlands and grassland border the perimeter of the lake. Lake Casitas is located at an elevation of about 650 feet in the Santa

Ana Valley. It has 2,700 surface acres that are fed by Coyote Creek. The closest town is the City of Ojai about 5 miles to the east. The location gives the lake a removed and natural sense but offers the convenience of a short drive into town.

3.9.3 Local Recreational and User Group Interests

During the public scoping process, a large number of local recreational groups and user groups have voiced their loyalties, concerns, and interests regarding the Plan Area (Reclamation 2007). Most groups and individuals concerned about recreation at Lake Casitas recognize that recreation is an indirect benefit of the lake, and that recreation should be compatible with water supply needs and natural resource protection. There is a strong desire to keep recreation limited to outdoor activities and to not build another Six Flags-style amusement park.

A number of the agencies, groups, and members of the general public have voiced support for increased recreation at and around Lake Casitas, mainly in the form of man-powered and wind-powered boating, hiking, biking, and horseback riding. Some have also expressed a significant interest in the possibility of body contact at the lake, including waterskiing and swimming in designated areas. It was also emphasized that additional recreational opportunities may increase revenue as well. However, a considerable amount of the public expressed opposition to water and body contact. Despite expressed interest in water recreation, the general consensus seems to be against noise-polluting and high-speed activities. All issues raised by these groups are summarized below.

3.9.3.1 Open Space Lands

Several homes and ranches have been removed so that the watershed of the lake (and thus lake water quality) would be protected. Allowing recreational development in the Open Space Lands is seen by some as defeating that purpose. However, while there seems to be relatively strong public support to protect the Open Space Lands from human impact by restricting intense recreation, people should not be prohibited from “walking the land.” Many supported the development of a trail system. It was suggested that access to the Open Space Lands should be by permit and from trails only that might link the Conservancy and LPNF. Commenters stated that passive, low-impact recreation, such as hiking, should be the only recreation allowed and that the Open Space Lands should not become an extension of the Park. Passive, low-impact recreation would exclude bicycles because they are seen as a cause of erosion. Many commenters supported sharing hiking trails with equestrians. Another use supported by many was for conservation and education purposes. One of the remaining houses, possibly the Voyce House, could be converted to a museum, nature center, and environmental education facility due to its location and the manner of its construction.

3.9.3.2 Lake Casitas

Many people expressed concern about activities that would disturb the peaceful, pristine nature of the lake. Bird- and wildlife-watching bring many visitors to the lake each year who feel that higher-impact activities will be too disruptive to rookeries and propose closure of specific areas during the breeding/nesting season and prevent the expansion of water activities. A large number of public comments proposed to lower speed limits on the lake and opposed high-speed boats due to their incompatibility with fishing and canoes/kayaks. Some suggested possibly prohibiting

motorized boats, especially personal water craft, citing that they disturb wildlife and they pollute. A limit was recommended on the types and numbers of boating user groups such as fishing, general boating, etc. Many would like to see fishing opportunities enhanced.

Others support expanded use of the lake and believe that the current allowable uses are too restrictive. Some believe that "something could be done to allow body contact and waterskiing while still preserving the lake's tranquility." This may be addressed by limiting body contact either by restricting permitted areas, season, time of day, or day of week. Many people expressed an interest in allowing body contact and water sports such as waterskiing because of the high-quality family fun these activities provide. They also commented that they prefer not to travel greater distances to visit a lake that allows body contact. There was support for closure of back bays as "no ski" areas, thus protecting breeding, nesting, fishing and spawning areas.

Main Island

The Main Island is currently closed to public use. Many comments support some recreational use of the Main Island including the development of boat-in primitive camping and picnicking as well as the development of hiking trails.

Radio-Controlled Airplanes

Lake Casitas is a popular destination for radio-controlled airplane enthusiasts who hold well-attended events throughout the year at the airstrip facility on the northwest shore near Coyote Creek. Public comments expressed concern about the noise issues and terrain hazards associated with radio-controlled planes. Suggestions included imposing restrictions on the amount of planes and relocating the airstrip to reduce the disturbance to campers and the impacts to birds.

Park

Camping, hiking, biking, and equestrian use are main interests. Overall comments supported building more trails and creating more user-friendly and family-oriented facilities. The potential for expanding primitive/low-intensity camping opportunities near Lake Casitas, possibly across SR 150, is an interest. Another suggestion is offering remote "boat camping," or campsites only reachable by boat on the Main Island. People also suggested providing more campsites with electric hookups, especially close to the water, in anticipation of more RV camping in the future. Since body contact is a key issue, it is recommended that an alternative may be to build a swimming pool near the campgrounds.

Several interested groups and individuals support more hiking and biking paths in the Lake Casitas area. The enthusiasts point out that these are great family activities that may not disturb eagles or other sensitive resources if managed well. They are nonpolluting sports, and the potential impacts of trail enhancements or erosion can be analyzed and mitigated. A desire to see the existing trail system at Lake Casitas increased, while still preventing contamination of the water and protecting the natural resources, was also expressed.

It is suggested that special events be given greater attention at the lake, so as to encourage more public participation. As many special events are held on the northeast shore, some individuals stress the need to improve the grounds and facilities there by building a new amphitheater.

The east, west, and south shores of Lake Casitas are a valuable natural resource. The general consensus is that public access to these areas should continue to be carefully managed. Many

letters and public comments encourage that new passive uses should be considered, and their compatibility and potential impacts should be analyzed.

3.9.4 Visitation

3.9.4.1 Visitor Use

Visitor use varies due to many factors, including time of day, day of the week, season, and holiday or vacation times. Typically, fishing activities occur early in the morning or later in the afternoon. Day use activities occur during the middle of the day, and camping involves overnight use.

Use is also likely to change based on whether body contact is allowed in the lake. Demand would increase if body contact were allowed; however, demand appears to be constant for camping and boating.

Lake Casitas is most popular during the spring and summer seasons, and daytime and overnight use begins to increase as the weather warms. Daytime and overnight use is higher in the spring and summer and lower in fall and winter. The percentage of daytime use on weekends (versus weekdays) increases in all seasons. Overnight use is much greater in spring and summer, particularly on the weekends.

Historic use data exist for Park visitors from 1959 through 2006. The highest use during this period was in 1981 when a total of 1,786,480 visitors came to the Park. In 2006, that total dropped to 773,925 or about 43 percent of the 1981 total. Boater use statistics are available from 1960 through 2002. The highest use during this period was in 1988 with a total of 59,043 launched into the lake. In 2002, that total dropped to 29,073 or about 49 percent of the 1988 total. Therefore, if the 1981 visitor use and 1988 boat use could be considered at or near capacity, then it would follow that the current visitor and boat use statistics are less than half.

3.9.5 Recreation Situation

Demand and supply analyses are important tools for recreation forecasting decision making. Because people and circumstances change (e.g., personal tastes, fads, new technology, energy costs, and disposable income), using demand and supply analyses provides a variety of pieces of information for decision making (Haas 2002). Demand assumes current use patterns.

3.9.5.1 Recreation Demand

The measure of recreation demand should consider four types of data:

- Regional and state-level recreation activity participation rates
- Unmet or latent demand expressed by local or state residents
- Recreation participation trend projections at the local, state, or federal level
- Historic visitor use data for the area in question

3.9.5.2 Recreation Supply

Recreation supply is the measurement of the type and number of opportunities that are available for the recreating public. Supply can be measured in a variety of ways, such as by the number of parking spaces, miles of trails, number of developed campsites, boat slips, boat launches per time period, or the acres of closure due to security or resource concerns. Agencies can manipulate recreation opportunity supply by changing facilities, services, programs, or regulations (Haas 2002).

A comparison of recreation demand and supply identifies disconnects to help respond to public preference and desire. In other words, is the agency providing recreation opportunities (supply) compatible and responsive with public desires (demand). Table 3.9-4 summarizes the supply of recreational opportunities.

Table 3.9-4
Recreation Supply

Trailer Rentals	Picnic Areas	Trails (miles)	Boat launches	Boat Slips	Boat Rentals	Event Areas
18	12	1.5	2	144	52	1

Camping				
Group Campgrounds	**Individual Campgrounds**	**Developed Campsites**	**Undeveloped Campsites**	**Multi use-RV Campsites**
2	13	154	259	144

3.9.5.3 Demographics

According to the Census 2000 data, the population in Ventura County in 2000 was 753,197. The 2000 population of Los Angeles County was 9,559,635. Total population in California was 33,871,648 (Census 2000 Internet site). The US Census forecasted population for 2005 in Ventura County was up 5.7 percent to 796,106. For Los Angeles County, the forecasted population for 2005 was up by 4.4 percent to 9,935,475. The State of California estimated population for 2005 increased by 6.7 percent to 36,132,147.

3.9.5.4 Recreation Projections

Recreation demand and supply analyses depict the current situation. When these analyses are coupled with trends in the demographics of the Park, projected recreation use can be assessed. Both the state average and the forecasted growth rate for Los Angeles County is projected to be lower than that for Ventura County. Ventura County is projected to have a growth rate of 37 percent between 2000 and 2020. Table 3.9-5 summarizes the projected population changes that would occur statewide as well as in Orange, Ventura, and Los Angeles Counties. A more detailed discussion of visitation trends can be found in Section 3.10.

Table 3.9-5
State and County Population Projections

Place	2000 Population	Percent Population changes from 1980-1990	Percent Population changes from 1990-2000	Projected population 2010	Projected percent population change between 2000-2010	Project population 2020	Projected percent population change between 2000-2020
California (according to U.S. Census Bureau)	33,871,648[1]	25.7	13.8	37,644,000[2]	11.1	45,278,000[2]	33.7
California (according to 2001 report from State Department of Finance)[3]	34,480,300[4]			40,262,400[3]	16.8	45,821,900[3]	32.9
Ventura County[3]	753,197[1]	26.4	11.2	877,400[3]	19.3	1,007,200[3]	37
Los Angeles County[3]	9,559,635	16.9	8.2	10,461,007	9.4	10,885,092	13.9

[1] Source: Census 2000 internet site
[2] Source: U.S. Department of Commerce. *Population Projections: States, 1995-2025.* U.S. Bureau of the Census, Population Division, PPL-47. Current Population Reports. May 1997.
[3] Source: Department of Finance. *Interim County Population Projections: Estimated July 1, 2000 and Projections for 2005, 2010, 2015, and 2020.* Demographic Research Unit. June 2001. http://www.dof.ca.gov/HTML/DEMOGRAP/P1.doc

Demographics alone do not forecast future use. The populations of Los Angeles, Orange, and Ventura Counties were greater by as much as 27 percent, 47 percent, and 42 percent, respectively, in 2000 than in 1980, when visitor use was more than double the total for 2006. Without body contact, boating demand at Lake Casitas would be met. With body contact demand would at least be met up to the 1981 levels. In addition, the Park accommodates an increasing number of RVs as a result of the changing camping style of its visitors.

3.9.6 Water Recreation Opportunity Spectrum Planning Tool

Reclamation's Office of Policy has coordinated with Colorado State University, through Aukerman, Haas and Associates LLC, to develop the Water Recreation Opportunity Spectrum (WROS). The WROS is a planning and management tool designed to provide planners and managers with a framework and procedure to make better decisions for conserving a system of high quality and diverse water recreation opportunities. The objectives of the Casitas WROS are to inventory and map the current recreation situation for Lake Casitas and provide an expert-based recommendation for WROS zoning and the associated recreation management objectives for Lake Casitas.

In January 2004, a WROS field inventory was conducted at Lake Casitas involving a small group from Reclamation, California State Parks, CMWD, URS, and local recreation experts. WROS represents a spectrum of 6 types of water recreation opportunities:

Water Recreation Opportunities

U	S	RD	RN	SP	P
Urban	Suburban	Rural Developed	Rural Natural	Semi Primitive	Primitive

The recreation opportunities range from a highly social experience involving many diverse visitors in a highly developed urban environment (i.e., urban) to a solitude experience with few if any people in a remote primitive setting with no built structures and little management presence (i.e., primitive).

In the Lake Casitas WROS inventory, several representative sites were chosen, and a quantitative scale was assigned to the physical, social, and managerial attributes of each site. Physical attributes are features that are relatively permanent or fixed within the landscape and are not likely to change. Social attributes are those features associated with visitor's activities, behaviors, and perceptions of the area. Management attributes are those features that are provided for, managed, and can be changed by the managing agency.

In situations like the Lake Casitas setting where a finer level of assessment may be required, an 11-point scale in the Inventory Protocol offers a major advantage. An 11-point scale allows for a finer level of assessment than a 6-point scale and identifies areas where there are transitions, gradations, or "leanings" toward one WROS class versus another. The 11-point scale allows for a higher level of accuracy during the inventory stage and helps managers to consider alternative ways to manage the area in the future. Depending on the rating for an area (e.g., RN6, RN7, or RN8), the greater the probability that a small shift in one or more of the physical, social, or managerial attributes will cause a shift in the WROS class. In effect, an 11-point scale gives the expert team the option to indicate up to 16 gradations of recreating opportunities depicted as follows:

WROS Inventory Scale

1 **U**		2	**3** **S**		4	**5** **RD**		6	**7** **RN**		8	**9** **SP**		10	**11** **P**
U1	U2	S2	**S3**	S4	RD4	**RD5**	RD6	RN6	**RN7**	RN8	SP8	**SP9**	SP10	P10	**P11**

The six primary WROS classes are U1, S3, RD5, RN7, SP9, and P11. The other ratings reflect a transition or leaning between two primary WROS classes. For example, RD6 is a score to the right of the primary Rural Developed WROS class (RD5), suggesting that some attributes in this area are more typical of a Rural Natural (RN) setting and pull the overall rating from RD5 to RD6. Likewise, RN6 indicates that some attributes at the site are more typical of a RD WROS class and pull the overall rating from the primary RN WROS class of RN7 to RN6.

A major advantage of using an 11-point scale in the inventory stage is that it conveys more detail and suggests the feasibility of altering the management of an area from one WROS class to another.

A recreation opportunity map was developed, Figure 2-1, based on the physical, managerial, and social setting attributes of the lake. Examples of the attributes used to conduct the inventory include the degree of development, natural resource modification, public access, management presence, socialization and solitude, recreation diversity, visitor concentration, and natural ambience.

Based on the 11-point scale described above, it was determined that Lake Casitas is currently providing various gradations of RD and RN water recreation opportunities. The inventory revealed that some of the RD zone is approaching a suburban-type opportunity and thus was

labeled RD4, while other portions are approaching a RN-type opportunity and thus was labeled RD6, Figure 2-1. The WROS definitions are offered as a starting place for the lake planners, managers, and stakeholders to define their desired recreation opportunity and to reflect the special circumstances at the lake. The WROS classifications applicable to Lake Casitas are described below.

Rural Developed

The area provides occasional or periodic opportunities to see, hear, or smell the natural resources due to the common and frequent level of development, human activity, and natural resource modification. The area is less developed and more tranquil than an urban/suburban setting, and the opportunity to experience brief periods of solitude and change from everyday sights and sounds is important. The area is likely attractive for day-use and weekend visitors from local metropolitan areas or nearby communities, young families, large groups, and mass and adventure tourists within a day's drive or less.

Rural Natural

The area provides prevalent frequent opportunities to see, hear, or smell the natural resources due to the occasional or periodic level of development, human activity, and natural resource modification. The area is noticeably more natural, less developed, and tranquil than an urban setting. The opportunity to relieve stress and to get away from a built environment is important. Moments of solitude, tranquility, and nature appreciation are important. The area attracts extended weekend and longer-term visitors desiring to experience the outdoors and be away from large groups of people.

3.10 VISITOR ACCESS AND CIRCULATION

3.10.1 Regional Setting

The Park and Open Space Lands (Plan Area) is located in Ventura County, within a relatively rural environment, approximately 13 miles from the City of Ventura and 5 miles from the City of Ojai.

The Plan Area can be accessed from the nearby cities of Ventura (southeast of the Lake), Ojai (northeast of the Lake), and Carpinteria (southwest of the Lake) by SR 150, SR 33, and US 101. Primary access to the Park is via US 101 (both North and South), connecting one to SR 33 North, then SR 150 West, turning left onto Santa Ana Road, and then turning right into the Park entrance (Figure 3.9-1). Another popular access route is SR 33 North existing near Casitas Springs and then north on Santa Ana Road to the Park entrance. An alternative access to Ojai and, therefore, to the Park, is from SR 126 to the Santa Paula-Ojai Road.

The County of Ventura Transportation Department (part of the County of Ventura Public Works Agency) is responsible for the design, construction, and maintenance of county roads. For SR 150, SR 33, and US 101, Caltrans assumes this responsibility, as does the CMWD for the thoroughfares within the Park.

Currently, no ongoing public transportation to Lake Casitas is offered from the City of Ventura or City of Ojai. For special events, the Ojai trolley is contracted out for shuttling between the Park and the City of Ojai. In the City of Ojai and City of Ventura, public transportation is

managed by private, public, and quasi-governmental agencies at the local level. The County of Ventura is served by an Amtrak route and two county airports, the Oxnard and Camarillo Airports, which are the main public and air transit in the immediate area.

3.10.2 Plan Area Existing Conditions

Park usage and the level of visitor access and circulation are seasonal. Visitation has averaged approximately 738,000 visitors per year over the past 10 years. Table 3.10-1 shows the number of visitors from 1997 to 2006. The number of visitors to the Park is expected to increase somewhat due to forecasted ongoing population increases in the three counties with the greatest amount of visitation: Los Angeles, Ventura, and Santa Barbara Counties. Table 3.10-2 shows the percentage of 2005 visitors to the Park by County. These numbers are considered generally reflective of the visitation for the past 10 years. A 2004 population study by the State of California, Department of Finance, projects a 22, 14, and 16 percent increase in population for the Ventura, Los Angeles, and Santa Barbara Counties, respectively, between the years 2000 and 2020 (Department of Finance 2004). Furthermore, visitation is expected to increase from areas outside these three counties due to marketing efforts targeting RVs from more distant locales (Isles 2007).

The total number of vehicles and boats that entered the Park from 1997 to 2006 is shown in Table 3.10-1. The number of vehicles has averaged approximately 184,000 in the last 10 years, but has shown a slight increase over the past few years from 171,763 vehicles in 2004 to 192,518 vehicles in 2006. The number of paying boats per year over the past 10 years has generally decreased from 40,499 boats in 1997 to 26,680 boats in 2006, with an approximate average of 31,000 boats over that span (Isles 2007).

Table 3.10-1
Number of Visitors, Vehicles, and Boats to the Lake Casitas Recreation Area from 1997-2006

Year	Number of Visitors	Number of Vehicles	Number of Boats
1997	762,710	190,461	40,499
1998	729,512	182,393	39,024
1999	767,449	192,810	36,181
2000	721,931	180,482	31,262
2001	704,728	176,185	28,558
2002	737,428	184,267	29,073
2003	727,766	181,851	28,561
2004	691,148	171,763	24,117
2005	766,876	191,719	26,533
2006	773,925	192,518	26,680

Source: Carol Isles, Lake Casitas Recreation Area Administrator/Record-keeper

Table 3.10-2
2005 Visitors to Lake Casitas Recreation Area by County and Use

County	% Day Use	% Camping	% Average
Kern	0.28	0.24	0.26
Los Angeles	33.63	32.50	33.07
Orange	1.72	4.06	2.89
Riverside	0.19	0.33	0.26
San Diego	0.18	0.35	0.26
San Luis Obispo	0.53	0.51	0.52
Santa Barbara	6.72	5.36	6.04
Ventura—Inside District	17.00	8.20	12.60
Ventura—Outside District	39.18	44.80	41.99
Outside California	0.55	3.65	2.10

Source: Carol Isles, Lake Casitas Recreation Area Administrator/Record-keeper

3.10.2.1 Roadways

The southern end of SR 33 connects to US 101 on the western end of the City of Ventura limits. From the US 101 intersection, SR 33 runs north through the small unincorporated communities of Casitas Springs, Oak View, and Live Oak Acres, and then intersects SR 150 after approximately 11 miles, in the community of Mira Monte. Proceeding east on SR 150, the City of Ojai is located approximately 2 miles from this last intersection.

Proceeding west on SR 150 from the intersection of SR 33 and SR 150, the turnoff for the Park at Santa Ana Road is located approximately 3 miles away. Proceeding further west past the Santa Ana turnoff, SR 150 will intersect US 101 after approximately 12 miles, in Carpinteria. The US 101/SR 150/Santa Ana Road route is an alternative access the Park, but it is not as frequently used as the US 101/SR 33/SR 150/Santa Ana Road route. Another alternative route to the Park is exiting SR 33 at Casitas Vista Road, crossing the Ventura River and turning right onto Santa Ana Road, which connects to the Park entrance.

Heading north on SR 33 from US 101, SR 33 is a 4-lane freeway known as the Ojai Freeway. After approximately 2 miles the freeway turns into a 2-lane road, except for a small section of 4-lane road in Oak View. At its southern terminus SR 33 is also called the Ojai Freeway for 2 miles and continuing further north is also known as Ventura Avenue until the SR 150 intersection. SR 150 is a 2-lane road between US 101 and the City of Ojai. SR 150 is also called Casitas Pass Road, west of Santa Ana Road, and Baldwin Road, east of Santa Ana Road. Figure 3.9-1 shows the main roadways in the Park vicinity.

The sections of SR 150 and SR 33 leading to the Lake from the 101 and coastal areas are classified as state scenic highways. Caltrans is responsible for the upkeep of SR 150 and SR 33. SR 150 is a very mountainous, windy, and curvy road that is well maintained. SR 33 is not as mountainous or curvy as the SR 150, is well maintained, and is the more commonly used road to

get to the Lake. SR 33 goes through the Ventura River Valley. The Santa Ana Road route from the SR 33, is hilly and curvy, has no shoulders, and is kept in good condition by Ventura County.

Levels of Service (LOSs) on SR 150 and SR 33 vary seasonally and at different times of the day. Both routes are used for commuting to and from areas in the Santa Barbara and Ventura Counties. During commute hours, SR 33 is commonly congested and is currently operating at LOS E between Casitas Springs (approximately 2 miles north of US 101) and SR 150. The average daily traffic is 23,000 to 30,000 vehicles along this portion of SR 33. SR 150 is operating at LOS B and C in the segment between US 101 and SR 33, with an average daily traffic of 3,000 to 8,000 vehicles. Santa Ana Road is operating at LOS A and B, with an average daily traffic of 1,000 to 1,900 vehicles. (VCGP 2005b; Ventura County Public Works Agency 2007).

The main thoroughfares within the Park are paved and in good condition, but some of the paved arterial thoroughfares are deteriorating due to lack of funds for maintenance. Prior to FY 2007-2008, the Park was allocated annual funds for thoroughfare improvements by the CMWD that were repaid through long-term low lease loan agreements . These annual funds were typically between $50,000 and $75,000. The Park now funds its own improvements through grants and other sources of funding. In the past 2 years, no funding has been allocated (Weinerth 2007).

3.10.2.2 Pedestrian/Bicycle Connections

Currently one pedestrian trail and bike path exists within the Park. It is approximately 1.5 miles long and runs along the eastern side of the Park. An unofficial cross-country running path also goes through campsites and other parts of the Park (Weinerth 2007).

3.10.2.3 Parking

There are designated visitor parking lots throughout the Park, as well as two parking spots per campsite. Additional parking is nondesignated and typically anywhere along the main and arterial thoroughfares, provided it is out of the way of the Park general traffic (Roney 2007).

If additional parking is anticipated due to special events, an encroachment permit can be obtained to allow spillover parking on the Open Space Lands, just outside the Park boundaries (Roney 2007).

The Environmental Consequences section describes the impact of implementing each of the action alternatives (Alternatives 2 and 3) as well as the No Action Alternative (Alternative 1). The section is organized by resource topics with each of the alternatives as subtopics.

Future actions that might result in site-specific impacts will be addressed in project specific plans and environmental documentation as they arise.

Before presentation of the impacts, impact thresholds are identified and, where applicable, impact methodology is also discussed. Thresholds are expressed as having a beneficial impact, no impact, a minor adverse impact, or a major adverse impact. Then, the impacts of actions common to all alternatives are discussed, followed by impacts unique to each alternative, and then an impact summary and mitigation measures if applicable. Cumulative impacts are discussed at the end of each resource topic where applicable.

The impacts of each alternative on each resource are summarized in Table 4.11-1, which appears at the end of Section 4. In some cases, a range of impact thresholds is indicated. The Lake Casitas RMP is a program document and, therefore, not site-specific. Additionally, some impacts may vary depending on season. One example is for visitor access, where the effects of increased visitation on circulation depend on the season and time of travel to and from the park, resulting in a range of impacts. All mitigation measures reduce impact threshold ranges from minor adverse impact to no impact, with the exception of body contact water sports under Alternative 3.

4.1 WATER RESOURCES

4.1.1 Introduction

In this section, the potential impacts to water quality from each of the alternatives are described.

4.1.2 Impact Thresholds

- **Beneficial Impact:** Impacts that are detectable and significantly and positively alter historical or desired water quality conditions. These impacts would contribute to the enhancement of Park water resources, the public's enjoyment of water resources, or would advance Park goals for water quality.
- **No Impact:** Water quality impacts that cannot be detected.
- **Minor Adverse Impact:** Impacts are detectable and are within or below regulatory standards or thresholds for water quality, and do not interfere with Park goals.
- **Major Adverse Impact:** Water quality impacts that are detectable and substantially and negatively alter historical baseline or desired water quality conditions. These impacts would contribute to the deterioration of water quality in the Study Area, the public's enjoyment of Park resources, or would interfere with Park goals for water quality.

4.1.3 Impacts Common to All Alternatives

4.1.3.1 Open Space Lands

All of the alternatives seek to preserve the quality of the Lake Casitas Watershed including the Open Space Lands, and, therefore, the quality of the lake itself. The removal of abandoned residences and septic tanks from the Open Space Lands will return the area to a more natural state in the coming years. There would be potential minor adverse impacts related to demolition and tank removal, soil erosion, and sediment transport. All of these impacts can be mitigated through the implementation of BMPs.

4.1.3.2 Lake Recreation

Shoreline access and related activities (fishing, picnicking, bird watching, etc.) will continue to be allowed under all alternatives.

Off-highway motor vehicles will continue to be prohibited under all alternatives as well. The southwest end of the lake, including Casitas Dam, will also remain off limits. Overall, since no change in current use will occur, there will be no impact to water quality from those activities.

4.1.3.3 Infrastructure, Services/Facility Upgrades

Under all of the alternatives, the physical facilities will be improved to comply with laws and regulatory requirements, such as ADA, security measures, and law enforcement. There are plans to relocate a few buildings, including RV storage and the administrative building. Any construction and/or relocation will cause temporary minor adverse impacts to the water supply due to erosion and sediment transport. This can be mitigated through the use of approved BMPs.

4.1.3.4 Motorized Vessel Emissions

Motorized vessel emissions would have minor adverse impacts on water quality in the Plan Area under all three alternatives. Motorized personal watercrafts are not allowed under any of the alternatives, which reduces the number of motorized vehicles on the lake that have older two-stroke engines. The lake patrol boats and marina rentals are all four-stroke engines, and the only remaining two-stroke engines on the lake are on the older boats, and likely will decrease in numbers as they wear out and are replaced with cleaner four-stroke engines or newer two-stroke engines meeting new regulations.

4.1.3.5 Natural and Cultural Resource Management and Protection

Under all alternatives, federal and state regulations will be adhered to for natural and cultural resource protection. These measures will seek to maintain and/or improve water quality without encroaching on public enjoyment of the Plan Area and, therefore, no adverse impacts to Lake Casitas water quality are anticipated.

4.1.3.6 Health and Safety

Under all alternatives, activities and building management in flood prone areas will be restricted according to FEMA guidelines or other federal regulations. Also, all alternatives will adhere to current federal and state regulations for handling, transporting and storing hazardous materials.

Since these actions are implemented to preserve the quality of the watershed, no adverse impacts to water quality are expected.

4.1.3.7 Visitor Services

All alternatives include construction (educational displays, relocation and/or improvement of some buildings, etc.), but approved BMP use would mitigate negative impacts. The alternatives will also add new and improve existing educational activities and services to inform the public on the importance of maintaining a clean and healthy Plan Area.

4.1.4 Impacts Specific to Alternative 1

4.1.4.1 Open Space Lands

The impacts involved with Open Space Lands were discussed in Section 4.1.3. Under this specific alternative, no additional changes to the Plan Area are proposed.

4.1.4.2 Lake Recreation

The water quality impacts concerning lake recreation are discussed in Section 4.1.3. Alternative 1 also entails the preservation of Main Island as a watershed area with limited boat-in access. The number of campsites will remain at 413. The radio-controlled airplane strip (located north of the lake) may be moved in this option. Any relocation will cause temporary minor adverse impacts to the water supply due to erosion and sediment transport. No additional adverse impacts to water quality are expected (other than those associated with all alternatives).

4.1.4.3 Infrastructure, Services/Facility Upgrades

Other than the upgrades common to all alternatives, Alternative 1 proposes an upgrade to the existing water park as opposed to the expansion proposed in Alternatives 2 and 3. Since the Park will continue to operate a wastewater disposal system independent of the lake, no significant adverse impacts are expected. This alternative will also enforce the current use of Lake Shore Trail without offering trail improvement. Again, no further impacts to water quality, other than those currently experienced are anticipated.

4.1.5 Impacts Specific to Alternative 2

4.1.5.1 Open Space Lands

Alternative 2 differs from Alternative 1 by offering new joint use trails for hiking and biking. Alternative 2 also seeks to expand recreational opportunities in portions of the Open Space Lands south of SR 150 by offering camping and parking. This alternative will also relocate the fire station and helipad, and will offer a nature interpretive center. The expanded use of trails in the Open Space Lands could cause major impacts to water quality, including soil erosion. The construction and use of trails and other new facilities could increase impacts when compared to Alternative 1, but can be mitigated with proper BMPs. An additional mitigation measure would be to designate a buffer surrounding all drainages in the Open Space Lands water shed. A 50- or 100-foot buffered zone surrounding new trails or other new facilities in Open Space Lands should reduce impacts caused by erosion and sediment transport.

Beneficial impacts may result from moving the fire hand crew training and incident command activities away from its current location adjacent to the lake. Finally, this alternative will implement a program to evaluate habitat restoration in the watershed. Water quality would be improved by stabilization of soils through vegetation restoration programs.

4.1.5.2 Lake Recreation

Alternative 2 differs from Alternative 1 in several ways. First, boating regulations, including speed and traffic patterns, would be evaluated and guidelines established in a boating management plan. Second, this alternative offers new uses for Main Island. Alternative 2 allows limited day use of the island for hiking and biking. Also, an outdoor environmental education facility would be allowed on the island. Third, some existing campsites would be upgraded to RV sites with associated road improvements.

Minor impacts involving construction, as stated previously, can be mitigated through the proper use of BMPs. The new uses on Main Island could cause additional minor impacts to water quality in the form of soil erosion and runoff to the lake.

4.1.5.3 Infrastructure, Services/Facility Upgrades

Several construction projects and facility upgrades are proposed in Alternative 2 that will temporarily affect water quality. Expansion of the water park, relocation of the RV storage area, construction of an amphitheater, campsite modification, relocation or removal of the radio-controlled airplane strip, and expansion of the floating restrooms on the lake will all require extensive construction, and could therefore cause minor to major impacts. Alternative 2 would also expand the marina and boat ramp capacities. The additional motorized watercraft could cause additional emission impacts adverse to water quality. An expanded water-testing program could monitor changes in quality to detect adverse impacts. Alternative 2 proposes upgrades to some campsites. These upgrades may include installation of septic systems. Septic systems would require constant monitoring to ensure future water quality standards.

4.1.5.4 Natural and Cultural Resource Management and Protection

Alternative 2 would develop a formal storm water management plan with an emphasis on managing runoff from pavement and parking areas. This would result in improved water quality in the lake due to the reduction of uncontrolled runoff of potentially contaminated water. This would be a beneficial impact.

4.1.6 Impacts Specific to Alternative 3

4.1.6.1 Open Space Lands

The provisions under Alternative 3 are similar to Alternative 2 except that day use will be provided on a new trail system consisting of separate trails for hikers, cyclists, and equestrian users. The additional activity, especially with equestrian presence, raises the potential for increased lake contamination from trail runoff. Additional construction for new trails would also increase the construction impacts. Mitigation can be provided through the use of approved BMPs and the buffer zone described for Alternative 2.

4.1.6.2 Lake Recreation

In regard to lake recreation, Alternative 3 offers most of the same provisions as Alternative 2 with a few notable exceptions. Foremost is that Alternative 3 offers body contact water sports including swimming and waterskiing (see Section 4.1.6.4 for more detail). Full day use and group camping would be allowed on Main Island, as well as in the Borrow Area located in the uplands of Long Valley between Ayers Creek and Chismahoo Creek. Increased area use and boating population would increase the potential for minor to major impacts to water quality. These impacts, particularly those associated with body contact, could cause major impacts by increasing the risk of introducing *Cryptosporidium* and giardia into the water supply.

4.1.6.3 Infrastructure, Services/Facility Upgrades

As stated previously, Alternative 3 uses are similar to Alternative 2 but generally progress in intensity. Where Alternative 2 provides for limited day use hiking and biking on designated joint use trails in the Open Space area, Alternative 3 proposes a new trail system consisting of separate trails for hikers, bikers, and equestrian users. Similarly, Alternative 2 proposes the conditional limited day use of the Main Island for hiking and biking, by permit, where Alternative 3 allows full day use. Examples of allowable uses under this alternative include group events, picnicking, and group tent camping, shoreline access for boat docking and fishing, and public access for hiking and bicycling on primitive or well-developed trails. The upgrade of campsites is proposed under Alternatives 2 and 3. Alternative 2 proposes *some* sites to be improved to be compatible with multiple uses (RVs, yurts, and tents), while Alternative 3 proposes the *majority* of campsites to be similarly upgraded.

The proposed uses that are unique to Alternative 3 include group camping in the Borrow Area, a complete loop lake perimeter trail, and swim beaches within designated areas along the north shore. The managing partner(s), through planning, design, and permitting processes, would develop the location, layout and intensity of development to support all of the above mentioned uses. The extent of the upgrades to the existing system will determine how much water quality impact is to be expected.

4.1.6.4 Body Contact

Alternative 3 management actions include body contact with the lake water. As per the California Health and Safety Code (body contact rule), body contact recreation is not allowed in any reservoir that supplies municipal drinking water, such as Lake Casitas. In some instances, the state legislative body has granted an exception. For Lake Casitas to initiate a body contact policy, the CMWD as the water right holder would need to draft a code legislation action to allow exemption from the body contact ban. Exemption will only be granted in cases where the state, often under the guidance of the CDPH, can be assured that the water, once treated, will continue to meet state and federal water quality standards.

The Marion Walker Pressure Filtration Plant currently treats all raw water leaving the lake to make it potable before it enters the distribution system. Existing treatment employs high-pressure filtration processes as opposed to complete conventional treatment. The current treatment may not be adequate to mitigate body contact with the lake and, therefore, Lake Casitas may not be granted exception to the body contact rule without upgrading the treatment plant. A conventional treatment upgrade could be expensive. Several alternatives to conventional treatment have been

deemed acceptable, such as membrane filtration, and O_3 and UV light treatments. The Marion Walker Plant was configured to eventually implement pressure contact filtration clarification, which may be a viable alternative.

The exemption code should be written with the assistance of a CDPH official to best analyze the current situation (the existing plant, as well as the body contact specifics such as location and duration), and offer the most viable and efficient compromise to ensure clean drinking water in conjunction with enjoyable recreation activities.

Note that the CDPH does not have authority to grant exemptions from the body contact rule. Any upgrades to the system mentioned in this section are only strong suggestions, but not requirements. But, since the CDPH is often sought for advice by legislators in these exemption cases, it is recommended that the exemption code be written under the guidance of a CDPH official.

4.1.7 Impacts Summary

The three alternatives would have minor to major adverse impacts on water quality due to the impacts of motorized vessel emissions, construction, human waste disposal, human body contact, storm water runoff, and erosion.

Impact WQ-1

Motorized vehicle emissions would have minor adverse impacts to water quality under all three alternatives.

Mitigation Measure WQ-1

To monitor for adverse impacts, the existing water quality testing program for raw water from Lake Casitas would be used. Testing for various constituents including VOCs is currently performed once every 3 years. This overall monitoring program would be used to verify that benzene, toluene, ethylbenzene, and xylenes remain below MCL standards. No mitigation is required assuming these compounds remain below MCL standards.

Impact WQ-2

Construction, maintenance and use associated with facilities, roads and trails would potentially have a minor adverse impact on water quality due to storm water runoff, erosion, and temporary increases in turbidity at localized areas.

Mitigation Measure WQ-2

The implementation of BMPs during construction, maintenance and use periods would reduce storm water runoff and erosion. Mitigation beyond BMPs may be necessary and would include the following measures:

- Develop and implement a storm water management plan and incorporate plan elements in the design of project facilities to reduce storm water runoff and erosion.
- Scheduling construction during periods of low water or the dry season, thereby increasing the distance to the shoreline
- Use of silt fencing, water bars, or straw bales and wattles to prevent erosion runoff

- Development and implementation of Storm Water Pollution Prevention Plans for individual construction projects

Also, the creation of a buffer zone surrounding all drainages in Open Space Lands and the Park would reduce negative impacts related to construction maintenance and use of proposed facilities or trails by reducing incidents of erosion, sediment transport and localized turbidity.

Impact WQ-3

If portable restrooms (including floating restrooms) and vault toilets are not pumped and cleaned properly, they could have minor adverse impacts on water quality.

Mitigation Measure WQ-3

Proper waste disposal would mitigate for these impacts. Minor impacts could remain. Park personnel and contract restroom suppliers will be trained in proper cleaning and disposal. Waste disposal stations will provide educational materials to the public on proper disposal.

Impact WQ-4

If a swim beach/area and other water sports body contact is approved under Alternative 3, human body contact would pose a major adverse impact to water quality for users.

Mitigation Measure WQ-4

An upgrade to the existing water treatment facility may be required to properly handle potential exposure to *Cryptosporidium* and giardia. The CMWD should consider collaboration with the CDPH to determine the best-fit solution to deal with the increased risk of water contamination. This measure will reduce impacts from major to minor for Park users and the CMWD.

Impact WQ-5

In all alternatives, the removal of remaining private residences and subsequent septic systems in Open Space Lands would pose a long-term beneficial impact to water quality, coupled with the temporary minor impact associated with demolition and septic tank removal.

Mitigation Measure WQ-5

No mitigation required.

4.2 AIR QUALITY

4.2.1 Introduction

Three factors have the potential to impact air quality in association with the Lake Casitas RMP:

- Emissions from motorized vehicles traveling to Lake Casita or vessels operating in the Lake
- Dust emissions generated by motorized vehicles, construction, or recreation activities
- Short-term combustion emissions due to prescribed burning

4.2.2 Impact Thresholds

- **Beneficial Impact:** Impacts that are detectable and significantly and positively alter historical or desired air quality conditions. These impacts would contribute to the enhancement of Park air quality, the public's enjoyment of Park resources, or advancement of Park goals for air quality.
- **No Impact:** Air quality impacts that cannot be detected.
- **Minor Adverse Impact:** Impacts are detectable and are within or below regulatory standards or thresholds for air quality, and do not interfere with Park goals.
- **Major Adverse Impact:** Air quality impacts that are detectable and significantly and negatively alter historical baseline or desired air quality conditions. These impacts would contribute to the deterioration of air quality in the Study Area, the public's enjoyment of Park resources, or would interfere with Park goals for air quality.

4.2.3 Impacts Common to All Alternatives

4.2.3.1 Motorized Vessel and Vehicle Emissions

Vehicle emissions, including automotive and boat traffic, would have minor adverse impacts on air quality in the Plan Area under Alternative 1 and the two action alternatives. Although automotive and boat traffic would vary among the three alternatives, none of the alternatives would result in levels of Park visitation high enough to create heavy and sustained traffic patterns that would produce major air quality issues.

4.2.3.2 Particulate (PM_{10}) Emissions

Under all three alternatives, particulate emissions would potentially cause minor adverse impacts on air quality due to motor vehicle traffic. Particulate matter in the Plan Area is potentially generated via three sources. The first particulate source is automobile traffic on dirt roads and unpaved areas. The second particulate source is recreational trail use, including hiking, horseback riding, and mountain biking. The third particulate source is grading disturbance from potential facilities construction.

Particulates generated by motor vehicles driving on dirt roads and unpaved areas would result in minor adverse impacts to air quality in the Plan Area. Vehicles could create dust clouds in localized areas. These minor adverse impacts would be similar under all three alternatives. Dust clouds would be created by vehicles traveling across unpaved areas, which may include dirt roads as well as nonvegetated areas near the water's edge that are sometimes used for parking. Such unpaved areas are only accessible late in the season (late summer and fall) when water levels in the lake are at their lowest point for the year. The timing of low water levels corresponds with low visitor levels. Therefore, the number of vehicles driving on unpaved areas is unlikely to vary substantially among the three plan alternatives later in the year.

The dust generated by recreational trail use, including hiking, horseback riding, and mountain biking, would have no impact on air quality in the Plan Area. These types of recreational trail use are not usually fast enough or dense enough to create substantial dust clouds. Currently the Park does not allow recreational use by off-highway motor vehicles, such as three- and four-wheelers,

dune buggies, and dirt bikes. Off-highway motor vehicles can result in substantial dust clouds, and their use will not be allowed in the Park under any of the alternatives. The impacts of trail use on erosion are addressed in Section 4.1.

All three alternatives may include some degree of site maintenance and facilities construction, which may include ground-disturbing activities that could generate dust. Maintenance and construction activities would potentially result in minor adverse impacts to air quality due to dust. When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts to air quality would occur. Although the VCAPCD currently has no quantitative significance criteria for construction-generated PM_{10} emissions, the VCAPCD recommends that such emissions be minimized. Dust mitigation measures are required for all discretionary construction activities regardless of the impact significance based on policies in the County's Air Quality Assessment Guidelines Document. Overall, particulate emissions would have no impact with the implementation of Mitigation Measure AQ-1.

4.2.3.3 Short-term Combustion Emissions From Prescribed Burning

All three alternatives include the potential for short-term and localized minor adverse impacts from wildfires and prescribed burning. Fires, whether accidental or prescribed, would result in temporary, localized increases in combustion emissions that would have minor adverse impacts on air quality. Prescribed burns could be timed to minimize impacts to air quality, as specified in Mitigation Measure AQ-2.

4.2.4 Impacts Specific to Alternative 1

The impacts of vehicle emissions, dust emissions, and combustion emissions under Alternative 1 are discussed in Section 4.2.3.

4.2.5 Impacts Specific to Alternative 2

The impacts of vehicle emissions, dust emissions, and combustion emissions are discussed in Section 4.2.3.

4.2.6 Impacts Specific to Alternative 3

The impacts of vehicle emissions, dust emissions, and combustion emissions are discussed in Section 4.2.3.

4.2.7 Impacts Summary

On balance, Alternatives 1, 2, and 3 have similar impacts on air quality. Minor adverse impacts would be created by three components of Park management:

- Dust would generated by vehicle traffic on unpaved areas;
- Construction activities would have the potential to create dust; and
- Prescribed burning or wildfires would release combustion emissions.

All of these impacts would be minor, localized, and temporary. Implementation of mitigation measures would mitigate some of these impacts.

Impact AQ-1

Under all three alternatives, site maintenance and facilities construction would include ground-disturbing activities that could generate dust. Maintenance and construction activities would potentially result in minor adverse impacts to air quality due to dust.

Mitigation Measure AQ-1

When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts to air quality would occur. The Lake Casitas RMP would be modified or mitigation measures would be implemented to reduce these impacts to no-impact levels. For example, dust generated by construction could be kept to a minimum by following the example dust control measures listed below:

- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
- Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
- Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities:
  - All trucks shall be required to cover their loads as required by California Vehicle Code §23114.
  - All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, could be treated to prevent fugitive dust. Treatment could include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll-compaction as appropriate.
- Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over 4 days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.
- Signs shall be posted on-site limiting traffic to 15 mph or less.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site.

- Adjacent roadways shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
- Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

Impact AQ-2

Fires, whether accidental or prescribed, would result in temporary, localized increases in combustion emissions that would have minor adverse impacts on air quality.

Mitigation Measure AQ-2

Prescribed burns could be timed to minimize impacts to air quality and recreational users. For example, burning should not be conducted on days when air quality is already unhealthful.

4.2.8 Cumulative Impacts

In general, the management activities associated with the three alternatives would have minor adverse impacts on air quality in the region. The overall contribution of the Lake Casitas RMP impacts to the region's air quality is minimal. Air quality in the Plan Area and air basin will be affected by ongoing and future development activities, such as increased residential development.

4.3 SOILS AND GEOLOGY

4.3.1 Introduction

Three factors have the potential to impact soils and geology in the Plan Area:

- Construction and maintenance of Park facilities, camping sites, and thoroughfares
- Recreational trails, including construction and use
- Prescribed burning to reduce fire-fuel

Construction and maintenance includes, but is not limited to, new construction as well as expansion, remodeling, and relocation of existing facilities. Impacts of the RMP that result in erosion are more thoroughly addressed in Section 4.1, Water Quality.

4.3.2 Impact Thresholds

- **Beneficial Impact:** Impacts to soils or geology that are detectable and significantly and positively alter historical or desired conditions. These impacts would contribute to the enhancement of Park resources, the public's enjoyment of Park resources, or would advance Park goals.
- **No Impact:** Impacts to soils and geology that cannot be detected.
- **Minor Adverse Impact:** Impacts to soils and geology that are detectable and are within or below regulatory standards or thresholds, and do not interfere with Park goals.

- **Major Adverse Impact:** Impacts to soils or geology that are detectable and significantly and negatively alter historical baseline or desired air quality conditions. These impacts would contribute to the deterioration of soils in the Study Area, the public's enjoyment of Park resources, or would interfere with Park goals.

4.3.3 Impacts Common to All Alternatives

4.3.3.1 Construction and Maintenance

All three alternatives include some degree of construction and maintenance of facilities, camping sites, and thoroughfares. The amount of construction and maintenance increases for each alternative, with Alternative 1 having the least to Alternative 3 proposing the most new construction.

Areas of geological hazards, unstable soils, or potential erosion hazards could affect location of facilities, including campsites, roads, and buildings. Depending on where these facilities are sited, construction and maintenance activities could have minor to major adverse impacts on soils resources. When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. If major impacts to soils were identified, a proposed project would be moved, modified, or mitigation measures would be implemented to reduce these impacts to minor adverse impact levels or no impact (Mitigation Measure SG-1). If avoidance of unstable soils is not possible, impacts could create major adverse impacts under Alternative 3. This is discussed in greater detail for each alternative.

4.3.3.2 Recreational Trails

Areas of geological hazards, unstable soils, or potential erosion hazards could affect the location of recreational trails. Trail use and construction could have minor adverse impacts on soil resources through compaction or erosion. New trails shall be sited away from steep slopes, unstable soils, or potential erosion hazards (Mitigation Measure SG-2). If avoidance of unstable soils is not possible, impacts could create minor to major adverse impacts. This will be discussed in greater detail for each alternative.

4.3.3.3 Land Management

The feasibility of prescribed burning to reduce fire-fuel buildup would be evaluated annually for all three alternatives. Not managing fire-fuel buildup could lead to larger wildfires that can leave soil without protective vegetation. This increases the possibility of soil erosion and loss of topsoil during heavy rains or high winds. This has the potential to result in minor to major adverse impacts, depending on the timing and severity of the fire and rain events following the fires. Implementation of a fire management plan would minimize the impacts on soil from wild fires to minor adverse impact (Mitigation Measure SG-2).

4.3.4 Impacts Specific to Alternative 1

4.3.4.1 Construction and Maintenance

Alternative 1 proposes the least amount of construction and maintenance of facilities, camping sites, and thoroughfares. When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. Under Alternative 1, major to minor adverse impacts to soils could occur.

4.3.4.2 Recreational Trails

No new or expanded recreational trails are proposed under Alternative 1, thus no impact would result from this alternative.

4.3.4.3 Land Management

The feasibility of prescribed burning to reduce fire-fuel buildup would be evaluated under Alternative 1. Not managing fire-fuel buildup could lead to larger wildfires that can leave soil without protective vegetation. This increases the possibility of soil erosion and loss of topsoil during heavy rains or high winds. This has the potential to result in minor to major adverse impacts, depending on the timing and severity of the fire and rain events following the fires.

4.3.5 Impacts Specific to Alternative 2

4.3.5.1 Construction and Maintenance

Alternative 2 proposes a moderate level of construction and maintenance activities. Areas of geological hazards, unstable soils, or potential erosion hazards could affect where work is sited and dependent on siting, construction and maintenance activities could have minor to major impacts on soils resources. When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. Figure 3.3-4 shows areas of potential earthquake-induced landslide susceptibility within the Plan Area.

Under Alternative 2, if major to minor impacts to soils were to be identified, a proposed project would be moved, modified, or mitigation measures would be implemented to reduce these impacts to no-impact levels (Mitigation Measure SG-1). If avoidance of unstable soils is not possible, impacts could create minor adverse impacts. Because Alternative 2 proposes only low-impact, limited day use, construction activities would likely be small and it is expected that any new construction could be located where soils are stable.

4.3.5.2 Recreational Trails

Trail use and construction could have major impacts on soil resources through compaction or erosion under Alternative 2. Areas of geological hazards, unstable soils, or potential erosion hazards could affect the location of these recreational trails.

Construction activities associated with primitive trails under Alternative 2 would be minimal (minor clearing of brush and low branches and slope stabilization with native rock, small

signage). Because a permit or guide would be required to use these trails, the use of these trails can be closely managed to reduce impacts from over use and misuse (cutting switchbacks, going off-trail). Very little construction and maintenance would be associated with this type of use, but would create more impact than Alternative 1, which would not include additional trail uses.

Trails will be sited away from steep slopes, unstable soils or potential erosion hazards (Mitigation Measure SG-3). If avoidance of unstable soils is not possible, impacts could create minor adverse impacts. Because Alternative 2 proposes only limited trail development, construction activities would likely be small and it is expected that any new construction could be located where soils are stable.

4.3.5.3 Land Management

The feasibility of prescribed burning to reduce fire-fuel buildup would be evaluated under Alternative 2. Not managing fire-fuel buildup could lead to larger wildfires that can leave soil without protective vegetation. This increases the possibility of soil erosion and loss of topsoil during heavy rains or high winds. This has the potential to result in minor to major adverse impacts, depending on the timing and severity of the fire and rain events following the fires. Fire and Vegetation Management Plans would be implemented under Alternative 2, which would reduce any impacts on soil from wild fires to no impact.

4.3.6 Impacts Specific to Alternative 3

4.3.6.1 Construction and Maintenance

Alternative 3 proposes the most construction and maintenance activities. Areas of geological hazards, unstable soils, or potential erosion hazards could affect where work is sited and dependent on siting, construction and maintenance activities could have major impacts on soils resources under Alternative 3. When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. Figure 3.3-4 shows areas of potential earthquake-induced landslide susceptibility within the Plan Area. Alternative 3 allows for the most proposed construction and maintenance activities, and the associated expanded recreational opportunities (i.e., waterskiing, swim areas, and hiking/biking/equestrian trails) under Alternative 3 would also likely require additional supporting infrastructure and buildings. This would create potentially more impacts to soil resources than Alternatives 1 or 2.

Under Alternative 3, if major to minor impacts to soils were to be identified, a proposed project would be moved, modified, or mitigation measures would be implemented to reduce these impacts to no-impact levels (Mitigation Measure SG-1). If avoidance of unstable soils is not possible, and mitigation measures are not completely effective, impacts could create minor adverse impacts.

4.3.6.2 Recreational Trails

Trail use and construction could have major adverse impacts on soil resources through compaction or erosion under Alternative 3. Construction activities associated with these trails under Alternative 3 would be more intensive (grading, engineered slope stabilization, clearing of brush, signage, trail head construction). Areas of geological hazards, unstable soils, or potential

erosion hazards could affect the location of these recreational trails, and avoidance of these unstable soils may not be possible.

New trails will be sited away from steep slopes, unstable soils or potential erosion hazards (Mitigation Measure SG-3). If avoidance of unstable soils is not possible, impacts could create minor adverse impacts depending on the effectiveness of the mitigation. Construction activities under Alternative 3 would be greater than for the other alternatives, and locating all new construction where soils are stable, or stabilizing unstable soils to minor adverse impact levels may not be feasible.

4.3.6.3 Land Management

The feasibility of prescribed burning to reduce fire-fuel buildup would be evaluated under Alternative 3. Not managing fire-fuel buildup could lead to larger wildfires that can leave soil without protective vegetation. This increases the possibility of soil erosion and loss of topsoil during heavy rains or high winds. This has the potential to result in minor to major adverse impacts, depending on the timing and severity of the fire and rain events following the fires. Fire and Vegetation Management Plans would be implemented under Alternative 3, which would reduce any impacts on soil from wild fires to no impact.

4.3.7 Impacts Summary

Alternative 1 would have the least impacts and Alternative 3 would have the greatest potential for having major adverse impacts on soils and geology in the Plan Area. Implementation of mitigation measures would likely reduce the minor and major adverse impacts that the Casitas RMP may have on soils and geologic resources to minor impact or no impact levels.

Impact SG-1

Construction and maintenance activities could have minor to major adverse impacts on soils resources.

Mitigation Measure SG-1

When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. If major to minor impacts to soils were to be identified, a proposed project would be modified and/or mitigation measures would be implemented to reduce these impacts to minor adverse or no-impact levels. Typical mitigation measures that would be implemented for Alternatives 2 and 3 during construction to prevent erosion and therefore provide mitigation for erosion impacts may include the following:

- Scheduling construction during periods of low water, thereby increasing the distance to the shoreline
- Scheduling construction during the dry season
- Use of silt fencing, water bars, or straw bales and wattles to prevent erosion runoff
- Development and implementation of Storm Water Pollution Prevention Plans for individual construction projects

Impact SG-2

Prescribed burning to reduce fuel-fire and/or wildfires could have major adverse impacts on soils resources through erosion by leaving soil without protective vegetation.

Mitigation Measure SG-2

The Fire Management Plan and the Vegetation Management Plan, which are part of Alternatives 2 and 3, will be coordinated to include recommendations to minimize negative impacts to soils from erosion. Impacts would be mitigated to a level of minor adverse or no impact.

The Fire Management Plan and Vegetation Management Plan will consider and incorporate the following:

- Use prescribed burns to manage fuels, as feasible.
- Ensure that fuel management, fire suppression, and fire response are consistent with Federal Wildland Fire Management Policy, and with the RMP water quality and natural resource objectives.
- Plans for the prescribed burns will be submitted to Reclamation for review and approval.
- Partnerships will be sought with adjacent private landowners on fuel management, including the use of prescribed burns. Ensure that prescribed burns on adjacent private lands do not adversely affect water quality and sediment conditions in Lake Casitas through such coordination and partnerships.
- Coordination will be made with the LPNF on the planning of prescribed burns and other watershed management actions related to fuel and fire management in the Forest, and ensure that Forest actions do not have adverse effects on water quality and sedimentation at Lake Casitas.
- All plans for prescribed burns within the Park will be reviewed to ensure that water quality is protected.

Impact SG-3

Trail use and construction could have minor to major adverse impacts on soil resources.

Mitigation Measure SG-3

New trails (under the action alternatives) will be sited away from steep slopes, unstable soils, or potential landslide hazards (Figure 3.3-4). If major impacts to soils were to be identified, a proposed project would be modified and/or mitigation measures would be implemented to reduce these impacts to minor adverse impact or no-impact levels. Impacts from Alternative 3 may only be reduced to minor adverse impacts. Typical mitigation measures that would be implemented for Alternatives 2 and 3 during construction to prevent erosion and therefore provide mitigation for erosion impacts may include the following:

- Scheduling construction during periods of low water, thereby increasing the distance to the shoreline.
- Scheduling construction during the dry season.
- Use of silt fencing, water bars, or straw bales and wattles to prevent erosion runoff.

- Development and implementation of Storm Water Pollution Prevention Plans for individual construction projects.

4.3.8 Cumulative Impacts

In general, the management activities associated with the three alternatives would have minor adverse impacts on soils and geology in the region, which could be mitigated to no-impact levels. The overall contribution of the Casitas RMP to the region's soils and geology is minimal.

4.4 BIOLOGICAL RESOURCES

4.4.1 Introduction

Four categories of biological resources exist in the Plan Area:

- Vegetation
- Wildlife
- Fisheries and Aquatic Communities
- Special-Status Species

Each of these biological resources is evaluated to determine the impacts associated with each RMP alternative (No Action, Enhanced Recreation, and Recreation Expansion). Specific biological resources potentially subject to impacts include:

- Waterfowl, specifically breeding Clark's and western grebes
- Sensitive habitats—wetlands, riparian corridors, oak woodlands, black walnut woodlands, and native grasslands
- Bald eagle, golden eagle, peregrine falcon, white-tailed kite, and grasshopper sparrow
- Other rare and sensitive plant and wildlife species

4.4.2 Impact Thresholds

The biology impact analysis focuses on the potential for impacts on vegetation, wildlife, fisheries and aquatic communities, and special-status species or their habitat from four potential impacts that may vary among the alternatives:

- Camping and recreation, including maintenance or expansion of camping and/or recreation facilities within the Park.
- Trail use, including the construction of additional trails.
- Boat use, including density, speed, type of boats, and access on the lake.
- Several types of natural resource management, including invasive weeds, fire, and fisheries management.

The terms used to assess the degree of impact on biological resources are defined below:

- **Beneficial Impact:** Impacts to biological resources that are detectable and significantly and positively alter historical or desired conditions. These impacts would contribute to the enhancement of vegetation, wildlife, fisheries and aquatic communities, or special-status species.
- **No Impact:** Impacts to biological resources that cannot be detected.
- **Minor Adverse Impact:** Impacts to biological resources that are detectable and are within or below regulatory standards or thresholds, and do not interfere with Park goals.
- **Major Adverse Impact:** Impacts that are detectable and significantly and negatively alter historical baseline or desired conditions of biological resources. These impacts would contribute to the deterioration of vegetation, wildlife, fisheries and aquatic communities, or special-status species.

For purposes of this discussion, special-status species are defined as those with legal status, either federal or state listed endangered or threatened, state species of concern or fully protected species, plants listed as rare or sensitive by the CNPS, or species of local concern that do not yet have legal status such as the grasshopper sparrow.

4.4.3 Impacts Common to All Alternatives

4.4.3.1 Camping and Recreation

The existing camping and recreation in the north end of the Park would be continued under all alternatives. Table 2-2 lists the camping and recreation uses in these areas. Although visitation has been relatively constant over the last decade, with population growth increases in the county over the next 20 years, there may be some increase in visitor use of these areas and thus increased impacts to biological resources. Potential minor adverse impacts include impacts to fisheries due to motorized vessel emissions causing impacts to water quality, as well as impacts to vegetation, wildlife, and special-status species due to increased trampling, disturbance, trash and polluted runoff associated trail use and camping.

Under all alternatives, the physical facilities will be improved to comply with laws and regulatory requirements, such as ADA, security measures, and law enforcement. The Park's Capital Improvement Plan will be implemented, dependent on funding, under all the alternatives, including Park road improvement, restroom remodeling, and RV storage relocation. These activities would have impacts to vegetation and wildlife.

When specific projects are developed, a site-specific environmental study would be conducted and a more focused analysis of the proposed project's impacts to biological resources would occur. At that time, more clearly defined biological impacts may be identified. If significant impacts to biological resources were to be identified, the proposed project would be modified to minimize biological impacts. Any new facilities would be designed or located in such a way as to avoid sensitive biological resources. Mitigation measures would also be developed to compensate for biological impacts. All state and federal environmental regulations would apply.

4.4.3.2 Natural Resource Management

Natural resource management activities that would continue under all alternatives include protection of the watershed and water quality, implementation of fire management, continuation of the Fisheries Management Plan, and education of visitors. In addition, improved measures for protecting special-status species would be implemented. This would have a beneficial impact to special-status species.

Watershed and Water Quality

The protection of Lake Casitas Watershed will remain a core component of all alternatives. Safeguarding water quality will continue to remain a high priority for lake operations under all the alternatives, and water quality testing will continue. These actions will have beneficial impacts to the watershed and water quality in the Plan Area.

Special-Status Species and Wetlands

Access will be restricted in areas with special-status species and wetland/riparian vegetation. The public will be educated about these sensitive resources. This will have beneficial impacts to special-status species and wetlands in the Plan Area.

Fire Management

Fire suppression has decreased the abundance of certain native plants, including some special-status plants that have evolved in California's fire-dependent ecosystems. Fire suppression favors climax vegetation communities such as woodlands and shrub lands rather than grasslands, and overall the lack of fire decreases habitat diversity. In addition, fire suppression increases the risk of a disastrous wildfire. Prescribed burning is often used to reduce these negative impacts of fire suppression; however, prescribed burning creates a disturbance that could increase the cover of invasive exotic plants.

Under all alternatives, prescribed burns will be evaluated annually to address the feasibility of reducing vegetative fuel for fire. These actions would have beneficial impacts to vegetation and wildlife if implemented in a way that would minimize negative impacts, such as spreading of noxious invasive plants.

Under Alternatives 2 and 3, the fire hand crew training and incident command activities would be relocated to reduce congestion and potential for accidental lake contamination. This would have beneficial impacts to water quality; however, impacts to vegetation and wildlife would result from the relocation. Biological impacts would be evaluated separately prior to implementation of the relocation project.

Fisheries and Aquatic Resources

The Fisheries Management Plan will continue to be implemented at Lake Casitas. This will have beneficial impacts to wildlife under all alternatives.

Additionally, all boats not already moored in Lake Casitas will be restricted from entering the lake effective March 4, 2008 (see Section 2.5.2). CMWD established this temporary ban to prevent the spread of invasive mollusks from other waterbodies. The ban will in place for 1 year or until adequate procedures to protect the lake from invasive species can be implemented (Casitas Municipal Water District 2008).

Education

Under all alternatives, the public will be educated about the lake's natural resources through interpretive programs and interpretive signage that will be installed in the Park. Educational displays would be set up around the Park and other measures taken to increase visitors' awareness to reduce their impacts on water quality and other components of the natural resource environment. Interpretive signs would be installed to educate the public about native vegetation. This would have beneficial impacts to the natural resources of the Plan Area.

4.4.4 Impacts Specific to Alternative 1

Biological impacts associated with maintaining habitat at the current level of management with Alternative 1 are discussed below. Currently, all camping and day use is confined to the north end of the lake. The existing number of campsites would remain the same. Limited day use hiking would continue on improved and unimproved roads in the Open Space Lands and along the 2-mile Lake Shore Trail. Some infrastructure improvements would be implemented as listed in Section 2.5.

4.4.4.1 Vegetation

Camping and Recreation

Under Alternative 1, there would be minor adverse impacts to vegetation as described in Section 4.4.3.1.

Trail Use

Alternative 1 does not include the construction of additional trails; however, trail use may increase slightly so there could be minor adverse impacts to vegetation as discussed in Section 4.4.3.1.

Boat Use

Under Alternative 1, boat use would have no impact on vegetation. Impacts of Alternative 1 on aquatic resources, including littoral zone plant communities, are discussed below in Section 4.4.4.3.

Natural Resource Management

Alternative 1 would have beneficial impacts to vegetation as discussed in Section 4.4.3.2.

4.4.4.2 Wildlife

Camping and Recreation

Under Alternative 1, camping and recreation would not be expanded; however, minor adverse impacts to wildlife associated with any increases visitor use would occur as discussed in Section 4.4.3.1.

Trail Use

Alternative 1 does not include the construction of additional trails. Trail use, as proposed by Alternative 1, would have minor adverse impacts on wildlife as described in Section 4.4.3.1.

Boat Use

Under Alternative 1 there could be small increases in boat use due to potential increases in visitors. Currently some of the important waterfowl and grebe breeding areas such as Wadleigh, Coyote Creek, Station Canyon, and Indian Mesa are not protected from boaters. Therefore, any increases in boat use would have minor adverse impacts to wildlife in the Plan Area.

Natural Resource Management

Alternative 1 would not have a trails management plan, vegetation management plan, or boating management plan. Since wildlife may be impacted by an increase in boat use as discussed under boat use above, lack of these management plans under Alternative 1 would have minor adverse impacts to wildlife in the Plan Area.

4.4.4.3 Fisheries and Aquatic Communities

Camping and Recreation

Under Alternative 1, the only changes in camping would be upgrading existing facilities. Improving facilities could attract more visitors, which may result in increasing fishing. This could cause a decrease in the fisheries. Thus Alternative 1 would have minor adverse impacts to fisheries and aquatic communities.

Trail Use

Alternative 1 does not include the construction of additional trails. Trail use, as proposed by Alternative 1, would have no impacts on fisheries and aquatic communities in the Plan Area.

Boat Use

Alternative 1 does include the possibility for increases in boat use on the lake as discussed in Section 4.4.4.2. Boat use, as proposed by Alternative 1, would have minor adverse impacts on fisheries and aquatic communities in the Plan Area.

Natural Resource Management

No impacts to fisheries and aquatic communities would occur from maintaining natural resource management at the current level under Alternative 1.

4.4.4.4 Special-Status Species

Camping and Recreation

Under Alternative 1, the only changes in camping would be upgrading existing facilities. As discussed in the previous section, small increase in visitors may result. No adverse impacts are expected.

Trail Use

Alternative 1 does not include the construction of additional trails; however, it does not include a trails management plan as does Alternatives 2 and 3. The lack of a trails management plan with any increases in visitor use would result in minor adverse impacts to special-status species.

Boat Use

Alternative 1 may include some increases in boat use on the lake as discussed in Section 4.4.4.2. Boat use, as proposed by Alternative 1, could have minor human disturbance impacts on special-status species in the Plan Area.

Natural Resource Management

The impacts of maintaining natural resource management at the current level under Alternative 1 are discussed in Section 4.4.4.2. Alternative 1 would have minor adverse impacts on wildlife in the Park due to lack of a boating management plan.

4.4.5 Impacts Specific to Alternative 2

Impacts to biological resources associated with Alternative 2 are discussed below.

4.4.5.1 Vegetation

Camping and Recreation

Alternative 2 proposes expansion of camping and recreational activities including low-impact, recreational use (limited tent camping, parking) in portions of the Open Space Lands south of SR 150, converting tent campsites to RV sites with road improvements, modifying some campsites to be compatible with multiple uses, expanding the water park, relocating the storage area, relocation of the radio-controlled airplane strip, and a new design and relocation plan for the Park entrance. These activities may cause minor adverse impacts to vegetation as a result of human trampling, disturbance of native vegetation for new facilities, and increased potential to spread weeds. If any of these actions would disturb oak trees or other sensitive habitats the impacts would be major. The proposed amphitheatre near the special event area would have minor adverse impacts to native vegetation. These impacts would be similar to, but greater than, those impacts resulting from Alternative 1.

Trail Use

Alternative 2 proposes to develop new connector trails in the Open Space Lands to existing adjacent trailheads (LPNF and Conservancy trails) and allowing limited day use hiking and biking only on designated joint use new trails and implementation of a trail system management plan to manage trail usage. Guided day hikes would also be permitted with organized groups from the Park as part of an education/interpretation program. Primitive trails for hiking and biking with a permit on the Main Island would also be permitted. The bike path within the Park will be improved and realigned to expand the trail south from Santa Ana boat ramp area to connect to Lake Shore Trail. The expansion of the trail system proposed by Alternative 2 would have minor adverse impacts and potentially major adverse impacts on vegetation in the Open Space Lands and Park. Some possible impacts associated with expanding trails include:

- Native plant species could be removed during construction of new trails.
- Oak trees or other sensitive habitats may be removed or impacted by construction of new trails.
- Seeds of invasive weed species may spread due to trail use and disturbance from construction.
- Concern exists about the spread of serious pathogens, such as *Phytophthora ramorum,* a water mold that causes sudden oak death. Although sudden oak death is not known in the Lake Casitas area, it is expected to become much more widespread in California and could spread to this area. Increased recreation use and expansion of trails has the potential to facilitate the spread of sudden oak death should this pathogen reach the Plan Area.

Boat Use

Minor adverse impacts to the emergent vegetation along the lakeshore could result from any increases in boat traffic and wave action. Impacts associated with Alternative 2 on aquatic plant communities are discussed below in Section 4.4.5.3.

Natural Resources Management

Under Alternative 2, several new natural resource management actions would be implemented including a Nature Center, a measure to protect riparian areas where not affected by annual lake level fluctuations, an integrated pest management /invasive species management program to include expanded annual weed eradication efforts, evaluation of a habitat restoration program, a fire management plan, a vegetation management plan, a trail management plan, a boating management plan, and a storm water management plan. In addition, educational displays, interpretive signs and programs would be installed around the Park, and public education emphasizing water quality and other components of the natural resource environment would be improved.

Under Alternative 2, as long as the nature center, educational displays, and environmental education center on the Main Island are located in disturbed areas dominated by nonnative vegetation and are not located in sensitive habitats, these natural resource management measures would have beneficial impacts to native vegetation in the Plan Area. Some minor impacts to vegetation may occur as a result of the Nature Center and environmental education center, but these impacts would be offset by the benefits of these new facilities in educating the public about sensitive resources in the Plan Area.

Under the vegetation management plan and habitat restoration program, native plant species would be incorporated into restoration and landscape plantings. Such plantings would be used for erosion control following facilities construction, for trail enhancement, and for ecosystem restoration projects. Special efforts would be made to install native vegetation in the less traveled areas in the Park. The use of native vegetation under Alternative 2 would have beneficial impacts on vegetation in the Plan Area.

Actively protecting riparian areas would minimize potential impacts to riparian vegetation associated with increased visitors due to increased recreational opportunities. An increase in education offered to visitors would result from establishing a nature center and expanding the interpretive boat program with additional natural, cultural and/or historic resource themes. An

improvement in educating visitors about sensitive environmental issues and how to reduce their impacts could aide in minimizing impacts to vegetation associated with increased recreation in areas not presently disturbed.

4.4.5.2 Wildlife

Camping and Recreation

Expansion of camping and recreational activities, as proposed by Alternative 2, could overall have major adverse impacts to wildlife. There would be minor impacts to raptors as a result of new campsites in the Open Space Lands south of SR 150 by reducing the quality of marginal raptor foraging habitat with increased human presence in the area. In addition, the proposed amphitheatre near the special event area could have minor to major adverse impacts depending on the location. If the amphitheatre is located near the shoreline, major impacts to waterfowl, breeding grebes, and great blue heron rookeries would occur from noise, lighting, and increased human presence in the area, which may contribute to nest abandonment and degradation of habitat. If the amphitheatre is further from the shoreline and in the grassland area north of Santa Ana Road, there would be minor impacts to raptor foraging habitat including displacing some habitat and degradation of habitat due to noise, lighting and increased human presence. If the radio-controlled airplane strip is relocated it would be in the same general location and thus the impact would be equal to baseline conditions unless it is relocated further from sensitive shoreline habitat for waterfowl.

Trail Use

A larger trail system, as proposed by Alternative 2, would have minor adverse impacts on wildlife. Potential impacts include increased human disturbance in wildlife areas including trampling, harassment, increased litter, loss of habitat, and degradation of habitat due to spreading of weeds. In addition, there is potential for minor to major adverse impacts to waterfowl and breeding grebes in the Wadleigh area associated with the new bike path connecting the Santa Ana boat ramp area to the Lake Shore Trail. Impacts would be associated with increased human presence in the area, which may cause waterfowl or nesting grebes to abandon the area and their nests depending on the location of the trail and the distance it is from wetland vegetation along the shoreline.

Boat Use

Under Alternative 2, boat use could increase as a result of expanding the marina and boat ramp capacity. An increase in boat use under Alternative 2 is not expected to be a major increase, so impacts to wildlife using the lakeshore habitat including waterfowl and breeding grebes would be minor as a result of increased human presence, wave action, and noise, which may result in abandoning nesting areas.

Natural Resources Management

Natural resource management as described in Section 4.4.5.1 would have beneficial impacts to wildlife in the Plan Area. Removing invasive species and restoring native habitat would improve habitat for wildlife, while educating the public would aide in reducing visitors' impacts to wildlife, and managing boat use would reduce impacts of boaters to waterfowl and breeding grebes.

4.4.5.3 Fisheries and Aquatic Communities

Camping and Recreation

Increasing camping and recreation opportunities, as proposed by Alternative 2, could cause an increase in runoff from campgrounds and day use areas, which would have minor adverse impacts on fisheries and aquatic communities in the Plan Area. With implementation of the natural resource protection measures under this alternative, these minor adverse impacts to fisheries and aquatic communities would be reduced.

Trail Use

Trail construction activities would remain outside of riparian/wetland areas and must adhere to all state and local requirements for erosion control and storm water pollution, therefore increased trail use, as proposed by Alternative 2, would not adversely impact fisheries and aquatic communities.

Boat Use

Under Alternative 2, boat use may increase, as described in Section 4.4.4.2, resulting in a minor adverse impact to fisheries and aquatic communities.

Natural Resources Management

The natural resource management improvements associated with Alternative 2 as described in Sections 4.4.5.1 would have beneficial impacts to fisheries and aquatic communities in the Plan Area. Educating the public would reduce impacts from visitors to these resources, while the Storm Water Management Plan would minimize pollution runoff, and the boating management plan would reduce boaters' impacts to fish spawning areas. In addition, protection of riparian areas and potentially restoring habitat in these areas would have beneficial impacts to aquatic species in riparian areas.

4.4.5.4 Special-Status Species

Camping and Recreation

Expansion of camping and recreational activities, as proposed by Alternative 2, would have minor adverse impacts to special-status species as a result of increased human presence and noise resulting in a disruption to the prey base and degradation of wildlife habitats. New low-impact limited campsites in the Open Space Lands south of SR 150 would at times temporarily reduce the quality of marginal foraging habitat for white-tailed kites and marginal habitat for grasshopper sparrows. In addition, noise impacts from the amphitheatre would reduce the quality of nearby grassland habitats for these two species.

Trail Use

A larger trail system, as proposed by Alternative 2, could have minor adverse impacts on special-status species. Several populations of rare or uncommon plants in the Plan Area could be affected by new trails, particularly the Catalina mariposa lily. In addition, trails in the Open Space Lands near the known locations where white-tailed kites and grasshopper sparrows may occur and breed would cause negative impacts to these species, potentially resulting in

unsuccessful breeding and/or a reduction in the quality of foraging habitat. Several special-status amphibians have the potential to occur in the riparian areas of the Open Space Lands. Several of these species are known to travel on upland areas, so there is potential for human trampling or harassment. For example, the California red-legged frog is known to travel up to approximately 1 mile on upland areas. Potential for these species to occur would be evaluated further during the environmental review of each trail project. The trail management plan would place trails in areas to avoid and minimize impacts to special-status species; however, minor adverse impacts to these species may occur due to increased human disturbance.

Boat Use

Under Alternative 2, small increases in boat use could have minor adverse impacts to special-status species, particularly the bald eagle and peregrine falcon by disturbing foraging habitat.

Natural Resources Management

The natural resource management improvements associated with Alternative 2 as described in Sections 4.4.5.1 would have beneficial impacts to special-status species in the Plan Area. Removing invasive species and restoring native habitat would improve habitat for special-status species; educating the public would aide in reducing visitors' impacts to special-status species; protecting riparian areas would benefit any potentially occurring special-status species in these areas, such as California red-legged frog; and managing boat use would reduce impacts of boaters on foraging habitat for special-status species such as the bald eagle and peregrine falcon.

4.4.6 Impacts Specific to Alternative 3

Impacts to biological resources associated with Alternative 3 are discussed below. An expansion of recreational and natural resource management activities associated with this alternative could include the activities listed in Table 2-2 in Section 2.

4.4.6.1 Vegetation

Camping and Recreation

Under Alternative 3, the expansion of camping and recreational facilities, modified or improved campsites to be compatible with multiple uses, swim beaches within designated areas along the north shore of the lake, and corresponding increase in visitor use and access would have minor to major adverse impacts to vegetation. Full day use and group tent camping on the Main Island, including public access for hiking/bicycling on primitive and/or well developed trails, picnicking, bird watching, group events, shoreline access, shoreline and dock fishing would have impacts to wetland vegetation along the shoreline and upland vegetation consisting of coastal sage scrub and chaparral. Group camping at the Borrow Area could impact native coastal sage scrub, chaparral, and/or native grassland vegetation planted as part of the restoration for the Borrow Area associated with the Casitas Dam Modernization Project. The Borrow Area is located in the uplands of Long Valley between Ayers Creek and Chismahoo Creek. (A borrow area is an area where soil, rock and/or gravel material has been excavated—borrowed—and taken to another area for use.) In this case, the Borrow Area provided fill material used in the Casitas Dam Modernization Project. Swim beaches could have minor adverse impacts to emergent wetland vegetation along the north shore of the lake.

Trail Use

Under Alternative 3, impacts of increased trails and trail use would be similar to, but greater than, Alternative 2. Trail expansion as proposed under Alternative 3 would provide separate trails within the trail system for hikers/bikers and equestrian users in the Open Space Lands and a lake perimeter trail. Trail use, as proposed by Alternative 3, would have minor to major adverse impacts to native vegetation in the Plan Area depending on whether or not sensitive habitats can be avoided. Impacts could include vegetation removal, human trampling, and/or increased potential to spread weeds.

Boat Use

Under Alternative 3, impacts as a result of boat use would be greater than Alternative 2 and could have minor to major adverse impacts depending on access restrictions of the boating management plan (see Section 4.4.5.1). Impacts would consist of increased wave action due to higher-speed boats, and more boats in the area resulting in disturbance to wetland vegetation along the shoreline, and possibly reducing this habitat type throughout the lake. Impacts of Alternative 3 on aquatic plant communities are discussed below in Section 4.4.6.3.

Natural Resource Management

Under Alternative 3, natural resource management actions are as described in Section 4.4.5.1. Habitat restoration and landscape plantings as described in the vegetation management plan would continue to be a key component of this Alternative. Beneficial impacts to vegetation in the Plan Area would be similar to Alternative 2.

4.4.6.2 Wildlife

Camping and Recreation

Impacts to wildlife due to increased camping and recreational opportunities under Alternative 3 would be similar but greater than Alternative 2 (see Section 4.4.5.2). One main difference in Alternative 3 is that swimming and body contact water sports, including waterskiing with possible seasonal, time of day, location or other restrictions may impact waterfowl and grebe breeding areas. Impacts may include increased human presence, noise, and decreases in shoreline wetland vegetation due to human trampling or disturbance to vegetation growth from increased wave action, which may contribute to decreased grebe breeding and waterfowl use of the lake. The proposed group camp in the Borrow Area is located in one of the more remote areas where there is a greater risk of human and wildlife encounters, particularly dangerous wildlife such as black bear and mountain lion, which are known to occur in the area. This poses a greater risk of harm to wildlife and humans. Also, Indian Mesa, which is along the lakeshore near the Borrow Area, is one of the major grebe breeding sites. Increased human presence in the area could cause the grebes to reduce or abandon their breeding activity in this area depending on the level of human use in the area. All of these activities combined under Alternative 3 would have major adverse impacts to wildlife.

Trail Use

Increased trail use, as proposed by Alternative 3, would have a major adverse impact on wildlife. The construction of additional trails may remove some wildlife habitat, and edge effects could result in small-scale degradation of habitat quality. Increases in trail use can result in increased

encounters between humans and wildlife, which can be detrimental to wildlife populations and pose safety hazards to humans. The south west portion of the lake perimeter trail would have the most impacts to wildlife since it is the most remote, and black bears and mountain lions have been documented recently in this area. The perimeter trail would also impact grebe breeding areas, particularly near Indian Mesa.

Boat Use

Boat use under Alternative 3 would increase due to increased visitor use and expansion of recreational opportunities, resulting in major adverse impacts to wildlife. Impacts may include increased human presence, noise, and decreases in shoreline wetland vegetation from wave action. The disturbance to shoreline vegetation may contribute to decreased grebe breeding and waterfowl use of the lake.

Natural Resource Management

Along with the vegetation management plan and Fisheries Management Plan as described in Sections 4.4.5.1, riparian areas would be protected and there would be an increase in educational opportunities as discussed in Section 4.4.6.1. Implementing these natural resource management measures under Alternative 3 would provide beneficial impacts to wildlife.

4.4.6.3 Fisheries and Aquatic Communities

Camping and Recreation

Under Alternative 3, an increase in recreational opportunities and specifically more fishing opportunities would occur with increased shore access and fishing docks in the Plan Area. The Fisheries Management Plan would include measures to balance any increases in fishing pressure. In addition, an increase in runoff from campgrounds and day use areas would likely occur that could impact water quality for fish and aquatic communities. However, with implementation of the natural resource protection measures (storm water management plan) under this alternative these minor adverse impacts to fisheries and aquatic communities would be reduced.

Trail Use

Trail construction activities must adhere to all state and local requirements for erosion control and storm water pollution. A Storm Water Management Plan would be in place, therefore increased trail use, as proposed by Alternative 3, would not adversely impact fisheries and aquatic communities.

Boat Use

As compared with the baseline (Alternative 1), boat use under Alternative 3 would increase due to the introduction of body contact water sports and higher-speed boat use. More boats and higher-speed boats may cause declines in fish spawning due to increased noise, wave action, and turbidity. In addition, more boats on the lake may result in increased motorized vessel emissions causing concentrations in localized areas that would result in minor adverse impacts to fisheries and aquatic communities. Under Alternative 3, increases in boat use would have minor adverse impacts on fisheries and aquatic communities.

Natural Resources Management

Natural resource management measures as described in Section 4.4.5.1 would have beneficial impacts to fisheries and aquatic communities in the Plan Area. The Boating Management Plan would aide in setting measures to reduce boater impacts to fisheries and aquatic communities. Creating an education program to inform the public about fisheries and aquatic communities would help to reduce visitor's impacts to these resources.

4.4.6.4 Special-Status Species

Camping and Recreation

Expansion of camping facilities and recreational opportunities under Alternative 3 could have adverse impacts on special-status species. These impacts would be similar to, but greater than, those impacts resulting from Alternative 2 (see Section 4.4.5.4). Additional impacts associated with increased camping and recreation under Alternative 3 includes the group camp in the Borrow Area. This is a known foraging habitat for white-tailed kites that breed in this area. It is also a likely foraging and potential breeding location for Cooper's hawk, a California species of special concern. Nearby grassland habitat is also a possible foraging and breeding habitat for the grasshopper sparrow, a species of local concern. Increased human disturbance associated with expanded recreational opportunities in this area could cause major adverse impacts to these species by preventing them from breeding in these areas. In addition, a known population of Catalina mariposa lily nearby may be impacted by human trampling.

Trail Use

A larger trail system, as proposed by Alternative 3, would have minor adverse impacts on special-status species. Additional trails near areas where special-status species occur could result in habitat degradation and human related disturbances to these species. Impacts would be similar to, but greater than, those associated with Alternative 2 (see Section 4.4.5.4). Additionally, the perimeter trail would impact white-tailed kite foraging/nesting areas, potential Cooper's hawk and grasshopper sparrow breeding/foraging habitat, and possibly unknown populations of rare plants such as Catalina mariposa lily.

Boat Use

Compared with Alternatives 1 and 2, boat use under Alternative 3 would have greater impacts to special-status species, particularly the bald eagle and peregrine falcon, by disturbing foraging habitat. Several coves on the lake provide good foraging habitat for the bald eagle and peregrine falcon. Bald eagles are uncommon winter visitors in the region of the Plan Area. Currently, the bald eagle is listed as a federally threatened species. High levels of disturbance or a decline in prey base could impact foraging opportunities and cause the bald eagle to abandon the lake as a winter roost site. The American peregrine falcon is a state listed species that is known to occur on the lake and feeds primarily on waterfowl and other birds. With increased boat use in these areas, greater human presence, noise, and increased wave action could result in less fish and waterfowl, thus reducing foraging habitat and increasing human disturbance in the foraging habitats for these special-status species. Since the lake is used infrequently by these species for foraging and roosting and not for nesting, this would be a minor adverse impact.

Natural Resources Management

The natural resource management improvements associated with Alternative 3 as described in Sections 4.4.5.1 would have beneficial impacts to special-status species in the Plan Area. The benefits of these measures would be similar to those described in Section 4.4.5.4.

4.4.7 Impacts Summary

Overall, the three alternatives range from greatest impact on biological resources (Alternative 3) to least impact (Alternative 2). The impacts of Alternative 3 are greatest because this alternative includes increases in land-based recreational uses and major increases in high-speed boating and body contact water sports. Alternative 2 would impact natural resources the least because although it would enhance land-based recreational activities and result in additional impacts to natural resources, the resource management measures included in the plan would off-set these new impacts and result in fewer impacts compared to Alternative 1.

As described above, the three alternatives include several minor and some possible major adverse impacts to biological resources. Using appropriate mitigation measures described below, the adverse impacts from the action alternatives would be reduced to either no impacts or minor residual impacts.

Impact BI-1

The expansion and recreation opportunities, along with increased visitor use, would have major adverse impacts to vegetation, wildlife, and special-status species, and major adverse impacts to fisheries and aquatic communities under Alternative 3. Alternative 2 would have minor adverse impacts to vegetation, fisheries, and aquatic communities. In addition, Alternative 2 would have major adverse impacts to wildlife and special-status species, and a potential for major adverse impacts to sensitive habitats. Under Alternative 1, camping and recreation would not be expanded; however, the predicted increase in visitor use may result in minor adverse impacts to vegetation, wildlife, fisheries and aquatic communities, and special-status species. Impacts as a result of increased camping and recreation include increased human trampling, disturbance to wildlife due to increased human presence, removal of habitat, trash and polluted runoff, increased fishing, increased potential to spread weeds, and increased noise and lighting. These impacts would be reduced through the beneficial impacts of increased education programs and natural resource management that will be implemented under all alternatives. Any remaining impacts would be reduced by applying the mitigation measures described below, resulting in either minor or no overall residual impacts.

Mitigation Measure BI-1

The following are potential mitigation measures that would be implemented to reduce major adverse impacts to vegetation, wildlife, and special-status species. Residual impacts would be minor.

- Under Alternatives 2 and 3, mitigation measures would be included if impacts to vegetation are still present after avoidance and minimization measures are implemented. For example, before new facilities are located, surveys would be conducted prior to installation to determine if rare plants, sensitive habitats, or oak trees occur at the project site. If rare plants, sensitive habitats, or oak trees occur, the site would be relocated to a location where rare

plants, sensitive habitats, and oak trees are not present. If avoidance and minimization of impacts to a rare plant, oak tree, or sensitive habitat is not possible, the following are some examples of mitigation measures that could be implemented to reduce the impacts.

- If a sensitive habitat were damaged or destroyed during installation, the same type and amount of habitat destroyed would be restored in a suitable location.
- If native grassland were removed, several suitable mitigation sites are available in the Open Space Lands and the grassland area near Indian Mesa, and a site within the campground area on the north shore where existing native grassland habitats could be enhanced or restored. Enhancement or restoration would include weed management and planting and/or seeding of native plants collected from the local watershed. Potential mitigation sites for oak woodland and black walnut woodland restoration/enhancement are available throughout the Plan Area, particularly in the Open Space Lands and along the Lake Shore Trail.
- Implement intensive weed control and habitat restoration in the Open Space Lands.
- Replace oak trees at a ratio that assures a 2:1 target replacement

- Implement additional patrols in new camping and day use areas to ensure that visitors comply with Park regulations under all alternatives.
- Concession stands could be operated so that trash and food products are inaccessible to animals at all times under all alternatives.
- Potential mitigation for impacts to grebe breeding habitat or bald eagle foraging habitat include:
  - Only allow motorized boats in the major grebe breeding cove locations of India Mesa, Station Canyon, Coyote Creek, and Wadleigh Arm during the nonbreeding season (September through April) under all alternatives.
  - Or, monitor grebe breeding to determine if human activity is impacting their breeding under all alternatives. If there are measurable impacts, no-wake zones (<5 mph) would be enforced to reduce human and boat activities in the vicinity of the grebe nesting sites.
- Under Alternatives 2 and 3, expansion of facilities, including camping, recreation, and parking, would include site-specific environmental studies to assess biological impacts and determine mitigation measures that will reduce these impacts. More detailed surveys should be conducted to determine the presence or absence and breeding of special-status species with potential to occur in the Plan Area during the environmental review process for new facilities.

Impact BI-2

Under Alternatives 2 and 3, the radio-controlled airplane strip could have minor to major impacts to breeding raptors and grebes unless it is removed, depending on the specific relocation site.

Mitigation Measure BI-2

To prevent impacts to nesting raptors and grebes, the radio-controlled airplane strip should be limited to use only during the nonbreeding season (September 1 through February 1) or the noise levels should remain at less that 60 decibels from any raptor nest. Noise limits could be

implemented by locating the strip at some distance (e.g., ¼ mile) from potential nest sites. If limited during the breeding season, this would also reduce conflicts with campers near the radio-controlled airplane strip, since most of the camping occurs during the summer. This would reduce impacts to minor.

Impact BI-3

The expansion of the trail system proposed by Alternative 2 and Alternative 3 would have minor adverse impacts on vegetation, wildlife, and special-status species. The potential impacts associated with increased trails and trail use include the following:

- Native plant species could be removed during construction of new trails.
- Increased trampling of native vegetation along and near trails.
- Seeds of invasive weed species may spread due to trail use and disturbance from construction.
- Increased recreation use and expansion of trails has the potential to facilitate the spread of pathogens such as sudden oak death should this pathogen reach the Plan Area.
- Trail construction could result in small-scale removal of wildlife and special-status species habitat and increased edge effects that would degrade habitat quality.

The implementation of the following mitigation measures would result in no residual impact to native vegetation, wildlife, or special-status species due to trail construction or trail use.

Mitigation Measure BI-3

Under Alternatives 2 and 3, the trail management plan will provide measures to avoid and minimize impacts to native plant species, particularly rare plants such as Catalina mariposa lily during trail construction, address noxious weed control, and assess the potential for plant pathogens to become introduced to the Plan Area. Additional mitigation may be required beyond avoidance measures. Some examples of additional mitigation measures would include:

- The known populations of rare and uncommon plants that occur near trails should be monitored to ensure their protection. If rare plants occur near trail edges and are subject to trampling, fencing and educational signs should be installed to prevent people from entering these areas.
- If there is a noticeable increase in weeds along trails, the weed control should be expanded to reduce weeds from spreading into natural areas.
- Apply Mitigation Measure SG-2 in Section 4.3.7 to reduce erosion impacts.

Impact BI-4

Increased boat use and access would have minor adverse impacts to vegetation, wildlife, fisheries, and aquatic communities, and special-status species to various degrees under all alternatives, except under Alternative 3, and major adverse impacts would occur to wildlife, particularly waterfowl in restricted areas. Impacts as a result of increased fishing include potential declines in fish spawning and decreases in foraging habitat for the bald eagle and peregrine falcon. Impacts as a result of more boats and water sports include decreases in shoreline wetland vegetation, and disturbance to wildlife in general due to a greater human

presence and noise. By applying the mitigation measures below, the residual impact would be either minor or no impact.

Mitigation Measure BI-4

- Under Alternatives 2 and 3, where avoidance and minimization measures to reduce impacts to fisheries and aquatic communities as included in the Fisheries Management Plan could not reduce impacts to minor, Mitigation Measure BI-5 would be implemented.
- Mitigation to reduce impacts to waterfowl and fisheries associated with boating and water sports would be to restrict access in certain coves that have the highest number of waterfowl in the winter, such as Wadleigh and important grebe breeding areas during the spring and summer breeding season (May through August). These include Wadleigh, Coyote Creek, Station Canyon, Indian Mesa, and the peninsula near the Casitas Dam buoy line. This would involve setting up buoys or markers. Alternatively, access would be allowed in these coves, but the 5 mph speed limit in all coves and areas where waterfowl congregate such as South Island, Wadleigh, Chismahoo Creek, Willow Creek, Chumash Bay, and Dead Horse Canyon, and a 40 mph or lower speed limit in all other areas would be strongly enforced year round. East Island should be included as a 5 mph speed limit restricted area when the lake level is low and the mud flat island is present.
- Mitigation for impacts to riparian and wetland vegetation in Alternative 3 could include reducing boat speeds throughout the lake and along the lake shore, setting a maximum number of boats allowed on the lake at once, and restricting boat access in coves with good wetland vegetation such as Indian Mesa, Wadleigh, Coyote Creek, and Station Canyon.

To allow flexibility, all of these mitigation measures would be evaluated and those carried forward would be specified in the Boating Management Plan and updates.

Impact BI-5

Under Alternative 3, an increase in fishing and or increased high speed boating near the shoreline could have minor to major adverse impact to fisheries and aquatic communities and special-status species. Currently, seasonal or year-round closures occur in bass spawning areas including Ayers Creek (year-round), Indian Mesa, and Grindstone Canyon from February 15 to May 31. Other important fish spawning areas such as Wadleigh, Station Canyon, and Dead Horse Canyon could be impacted by increased boating disturbance and fisherman taking fish from their nests. Where adverse impacts are not reduced under the Fisheries Management Plan, additional mitigation measures will be included in the plan to mitigate for impacts. If Mitigation Measure BI-5 were implemented, there would be minor or no residual impact to fisheries and aquatic communities and special-status species.

Mitigation Measure BI-5

As mitigation to reduce impacts to fisheries, the trout and warm water fisheries population would be monitored under the Fisheries Management Plan and if there were noticeable declines, actions to stabilize fisheries would be implemented. Measures such as seasonal closure (February 15 to May 31) of important fish spawning areas such as Wadleigh Arm, Station Canyon, and Dead Horse Canyon would be evaluated in a revised Fisheries Management Plan.

Impact BI-6

Alternatives 2 and 3 would have potential water quality impacts, resulting in impacts to fisheries and aquatic communities due to an increase in runoff associated with an increase in camping, day use, and trail use. By applying the mitigation measure below, the residual impact would be minor.

Mitigation Measure BI-6

Mitigation to reduce impacts to fisheries and aquatic communities due to increased runoff would be to avoid expanding campgrounds and trails near the lakeshore and riparian habitats. Buffer zones of approximately 50-100 feet or as specified in a Vegetative Management Plan would be feasible mitigation. In addition, Mitigation Measures SG-1 and SG-2 in Section 4.3.7 (Soils and Geology) and Mitigation Measures WQ-3 and WQ-4 in Section 4.1.7 (Water Quality) would reduce impacts to water quality associated with construction of new camp/day use sites and trails, and trail use.

4.4.8 Cumulative Impacts

Biological resources in the Plan Area and adjacent vicinity will be affected by ongoing and future development activities in the vicinity, such as continued recreation and facilities expansion outside the Park, increased agricultural development, and some residential development. Cumulative impacts to vegetation would include continued decreases in native plant species, and increases in invasive weeds. Cumulative impacts to wildlife and special-status species would result from continued removal of habitat and increased habitat fragmentation.

Although Alternatives 2 and 3 have increased recreational use and impacts to biological resources, they include a framework in which to better manage these resources, so cumulative impacts could be managed under this framework. However, under Alternative 1 the existing framework to manage biological resources would not be sufficient to properly manage the resources with increase pressure on biological resources from population growth and development in the area. Therefore, minor cumulative impacts would be associated with Alternative 1, but not with Alternatives 2 and 3.

The Lake Casitas RMP would have no residual long-term impact on biological resources in the region because although the Plan would provide for increased recreational opportunities, there would be an increase in management of natural resources and implementation of mitigation measures to reduce impacts.

4.5 CULTURAL RESOURCES

4.5.1 Introduction

New facilities, routine maintenance of existing facilities, permitted land-use activities (e.g., hiking, biking, prescribed burns, etc.), and recreation pursuits all have the potential of causing impacts to archaeological resources. Within the following section, the potential impacts to cultural resources from each of these possible sources are presented.

Potential cultural resource impacts would be related to:

- Ground-disturbing activities associated with new facilities/utilities installation or improvements
- Increased lake margin erosion at archaeological sites caused by increased boat wakes
- Increased visitor use (associated with new trail construction and new camping/RV areas), which could result in the increase of unauthorized collection of artifacts, or vandalism to cultural resources sites
- Fuel management
- Erosion control
- Weed eradication efforts (mowing and weed whacking)

Because the RMP is a programmatic document, the cultural resource mitigation measures provided herein are necessarily generic in their application, because specific actions at specific locations that would have potential adverse effect on specific cultural resources have not been identified.

There are three classes of resources that could be affected by the actions carried out under the RMP. These include:

- Built environment resources (buildings, structures, and other above-ground built features).
- Archaeological sites (prehistoric, historical, or mixed component).
- Traditional Cultural Properties (areas traditionally used by Native Americans, such as places for gathering grasses or acorns or places for religious worship).

The kinds of activities that could affect the resource classes described above include:

- Ground-disturbing activity caused by construction, maintenance, or wake-induced erosion.
- Vandalism and/or looting of archaeological or built environmental resources as a result of increased visitor use and/or improved visitor access.
- Willful or unintentional disturbance to a Traditional Cultural Property through direct physical disturbance, installation of facilities or infrastructure in an inappropriate area, or visitor use of an area leading to vandalism or looting.

4.5.2 Impact Thresholds

The purpose of assessing cultural resources within a study area is to determine the potential for impacts by the proposed project on the region's cultural resources. For the purposes of evaluating impacts, a four-tiered classification system has been developed (which is similar to other resource categories) to assess the impacts on cultural resources. The four impact categories are:

- **Beneficial Impact:** This impact category would occur when a planning element could result in enhanced visitor awareness regarding the fragile and irreplaceable nature of cultural resources. A beneficial impact would also occur when opportunities for public interpretation of cultural resource sites are implemented.

- **No Impact:** This impact category would occur if any proposed activity would result in no change over existing cultural resources conditions.
- **Minor Adverse Impact:** This impact category would occur if any proposed activity would result in a direct or indirect effect to a mitigable cultural resource that has been determined to be eligible for inclusion on the NRHP and/or CRHR. Mitigation would be required for this type of impact to reduce impacts on a resource to a less than significant level.
- **Major Adverse Impact:** This impact category would occur if an activity would result in a direct or indirect effect to a nonmitigable cultural resource determined to be eligible for inclusion on the NRHP and/or CRHR. Nonmitigable cultural resources (i.e., Traditional Cultural Properties, burial sites, or sacred sites) cannot be mitigated to reduce impacts to a less than significant level.

For the purposes of this document, impacts to cultural resources have been projected as either "no impact" or "major adverse impact." In the event a significant cultural resource, as defined by the NRHP and CRHR criteria, is identified that may be affected by future projects, the potential for impact will be taken into consideration, and measures to avoid the resource will be considered. In the event the resource cannot be avoided, it will be subject to mitigation measures such as data recovery, further study, enhanced recordation, interpretation, physical protection, or some combination of these measures to reduce impacts to a less than significant level, which would result in a minor adverse impact. However, because it was the practice of local Native Americans to bury their dead in middens (burials constituting a nonmitigable cultural resource), should treatment of such a site be required, then it could not be mitigated to a less than significant level and the residual impact would be major.

4.5.3 Impacts Common to All Alternatives

Within the RMP elements for all three alternatives, there are identified actions or improvements that are common to all alternatives. Any specific improvements that would result in ground-disturbing activities or increased visitor use would be subject to project-specific environmental review that would include an assessment of potential impacts to cultural resources. When specific projects are developed, a site-specific environmental analysis would be conducted and a more focused analysis of the proposed project's impacts to cultural resources would occur. At that time, more clearly defined cultural resource impacts may be identified. If significant cultural resource impacts were to be identified, the proposed project would be modified or mitigation measures, as described under NEPA, would be implemented to reduce these impacts.

The following actions/activities would occur under all of the alternatives, and could adversely impact cultural resources.

Boating

Boating and fishing will only be allowed in accordance with local and state laws. Additionally, Casitas nature boat cruises will be allowed. Kayaks, canoes, and motorized boats that meet the minimum length of 6 feet (with special use permit) and a maximum length of 35 feet will be permitted. Regulated night boating will be allowed. No personal watercraft use will be permitted and Ayers Creek access will be closed to boaters. The local county populations are projected to increase during the planning horizon. It is assumed that increased populations may result in some increases in recreation and boat usages. The potential increase in the number of visitors to the

Park could increase the amount of wake-induced erosion, which could expose previously unknown archaeological sites, or further erode currently exposed sites.

Recreation

On the north end of the lake (Santa Ana Boat Ramp area), day use will be permitted, including full public access for hiking and bicycling on primitive and/or well-developed trails. Picnicking, bird watching, group events, shoreline access, and shoreline fishing will also be permitted. In the Lakeside Group camp area, full day and camping uses will continue, including the availability and maintenance of the store, bathrooms, the marina, shoreline fishing, paved trails for bikes, RVs, and special events. Existing services, such as primitive camping, hiking, and day-use sites could impact both known and unknown cultural resources in the Park.

Infrastructure, Services/Facility Upgrades

All alternatives will provide appropriate improvements to Park infrastructure to accommodate future growth, ensure public safety and comply with laws and regulatory requirements including but not limited to ADA, emergency response, security measures, and law enforcement. Improvements include: repair damaged access area and install traffic safety controls, improve the entrance structure and widen the entrance/exit road at Santa Ana Road, upgrade the marina docks, boat launch and nearby signage, relocate or expand the Park store, and installation of interpretive signs. The existing facilities currently impact known archaeological sites. The proposed improvements at these locations could impact both known and unknown cultural resources in the Park by increasing the number of visitors to these locations. Potential expansion or improvements to existing facilities (via ground disturbance) could also potentially impact cultural resources.

4.5.4 Impacts Specific to Alternative 1

Potential impacts to cultural resources under this alternative include:

Open Space Lands

This alternative would allow continued limited day-use hiking on existing improved roads. This activity could provide increased visitor access to cultural resources sites that could be subject to looting and/or vandalism.

Lake Recreation—Main Island

Main Island will be preserved as a watershed area with limited boat-in access. Activity on the island will be limited to vegetative/fuel management only. This proposed vegetative/fuel management activity has the potential to impact archaeological sites due to erosion.

Infrastructure, Services/Facility Upgrades

Upgrades to the water park under this alternative could disturb previously unidentified archaeological sites during any ground disturbing construction.

4.5.5 Impacts Specific to Alternative 2

Potential impacts to cultural resources under this alternative include:

Recreation—Open Space Lands

Under this alternative the trail system in the Open Space Lands would be expanded by building new connector trails to existing adjacent trailheads (LPNF and Ojai Conservancy trails) and allowing limited day use hiking and biking only on designated joint use new trails. Low-impact, recreational use (limited tent camping, parking) in portions of the Open Space Lands south of Highway 150 would also be permitted. These activities could provide increased visitor access to cultural resource sites that could be subject to looting and/or vandalism.

Fire Management—Open Space Lands

The US Forest Fire Station, helipads, and fire-crew training and Incident Command locations will be relocated. Ground disturbing activities associated with the relocation and construction of these aforementioned facilities could disturb previously unidentified archaeological sites.

Invasive Species/Pest Management—Open Space Lands

An integrated Pest Management/Invasive Species management program would be implemented to include expanded annual weed eradication efforts (mowing and weed whacking) and selective use of herbicides. These proposed Pest Management/Invasive Species have the potential to impact archaeological sites due to erosion.

Education/Interpretation—Open Space Lands

A nature interpretive center is also proposed under this alternative. Ground disturbing activities associated with the construction of this facility could disturb previously unidentified archaeological sites.

Lake Recreation—Main Island

Limited day use on Main Island would be allowed under Alternative 2; this would include access to hiking and biking on primitive trails with a permit, and in accordance with restrictions. An outdoor environmental education facility on the Main Island would also be allowed. All hiking and biking would be restricted to daylight hours. These activities could provide increased visitor access to cultural resource sites that could be subject to looting and/or vandalism.

Lake Recreation—Lakeside Group Camp/Radio-Controlled Airplane Strip

Tent campsites could be converted to RV sites with associated road improvements and relocation or removal of the radio-controlled airplane strip. Ground disturbing activities associated with this alternative could disturb previously unidentified archaeological sites. Increased visitor access to cultural resource sites (via these facilities) could subject these sites to looting and/or vandalism.

Infrastructure, Services/Facility Upgrades—Marina and Boating Support

Under this alternative the marina and boat ramp capacity will be expanded, as well as the interpretive boat program will be expanded with additional natural, cultural, and/or historic resources themes. Ground disturbing activities associated with this alternative could disturb previously unidentified archaeological sites; however, expansion of the interpretive boat program should result in a beneficial impact by increasing public awareness and knowledge of the cultural resources within the Park.

Infrastructure, Services/Facility Upgrades (Facility Upgrades)

Under this alternative the water park will be expanded, the storage area will be relocated, a new amphitheater and parking area will be constructed within or near the special event area, the parking and storage areas will be landscaped, and some campsites will be modified to be compatible with multiple uses (e.g., RVs, yurts, tents). Ground disturbing activities associated with these facility upgrades could disturb previously unidentified archaeological sites. Increased visitor access to cultural resources (via these facilities) could subject these sites to looting and/or vandalism.

Trails (Biking)

The bike path within the park will be improved and realigned to expand the trail south from Santa Ana boat ramp area to connect to Lake Shore Trail. Biking could provide increased visitor access to cultural resource sites that could be subject to looting and/or vandalism.

Health and Safety (Park Entrance Access)

The Park entrance access will be improved. Ground disturbing activities associated with construction of the entrance could disturb previously unidentified archaeological sites.

Visitor Services (Education Opportunities)

Education displays would be set up around the park to emphasize water quality and other components of the natural resources environment. Ground disturbing activities associated with construction of these displays could disturb previously unidentified archaeological sites. These displays could provide increased visitor access to cultural resource sites that could be subject to looting and/or vandalism. However, if cultural resources are emphasized on the educational displays, it should result in a beneficial impact by increasing public awareness and knowledge of the cultural resources within the Park.

4.5.6 Impacts Specific to Alternative 3

Potential impacts to cultural resources under this alternative include impacts that are common to the other alternatives as well as the following:

Recreation—Open Space Lands

The provisions under Alternative 3 are similar to Alternative 2 except that day use will be allowed on a new trail system consisting of separate trails for hikers, cyclists, and equestrian users. These activities could provide increased visitor access to cultural resource sites that could be subject to looting and/or vandalism.

Lake Recreation—Main Lake

Under Alternative 3, body contact water sports would be allowed. This would include waterskiing. This would likely result in increased motorized boat usage on the main lake area that would cause more wake-induced erosion of exposed or buried archaeological sites than Alternative 2.

Camping—Main Lake

Full day use and group tent camping on the Main Island would be allowed, including public access for hiking and bicycling on primitive and/or well developed trails, picnicking, bird watching, group events, shoreline access, and shoreline and dock fishing. A new camping area would be opened in the Borrow Area located in the uplands of Long Valley between Ayers Creek and Chismahoo Creek. Also, the majority of the campsites would be modified or improved to be compatible with multiple uses (e.g., RVs, yurts, tents). These activities in and around the main lake area could provide increased visitor access to cultural resource sites that could be subject to looting and/or vandalism. Also, ground disturbing activities associated with new construction of some of these activities could disturb previously unidentified archaeological sites.

Trails

The 2-mile perimeter Lake Shore Trail would be extended to surround to perimeter of the lake. This activity could provide increased visitor access to cultural resource sites that could be subject to looting and/or vandalism.

4.5.7 Impacts Summary

In general, many agencies have resorted to developing education programs that include the production of pamphlets and/or interpretive exhibits aimed at educating the public on the prehistory and history of the vicinity and the importance of protecting cultural resources. Most pamphlets and interpretive exhibits or signage also warn against the illegal removal of artifacts. It is recommended that a similar strategy be adopted at the Park, producing an educational pamphlet and/or interpretive exhibits and signage placed in high visitor use areas, in particular the Nature Center vicinity.

A summary of the mitigation measures for cultural resources within the Park are identified below and are keyed to the impacts discussed above. The summary of the impacts to cultural resources within the Park is provided below.

Impact CU-1

Both prehistoric and historic cultural resources are known to exist throughout the Park; known sites are located within the Open Space Lands, along the Santa Ana Valley Drainage, Coyote Creek, and have been inundated with the construction of Casitas Dam and Lake Casitas. Construction of proposed facilities and trails at some of these locations would require ground-disturbing activities during the course of development. As a result, cultural resources could be disturbed.

Alternative 1: Under this alternative, the current resource and recreation management direction and practices at Lake Casitas would continue unchanged. However, the managing partner(s) would implement infrastructure improvements such as road improvements, restroom remodeling, RV storage relocation, repairs of damaged access areas, and installation of traffic safety controls. Other improvements include: improving the entrance structure and widening the entrance/exit road at Santa Ana road, relocating the maintenance building and making improvements to the administrative buildings, providing ADA compliant improvements and upgrades to Park facilities, upgrading marina docks, boat launch and nearby signage, relocating or expanding the

Park store, and installing interpretive signs. This would be a major impact if significant cultural resources would be affected. These impacts and appropriate mitigation would have to be addressed in subsequent environmental documents.

Alternative 2: Under this alternative, recreational uses would increase on the Main Island, Open Space Lands, and along the bike path (located within the park and trail south from the Santa Ana boat ramp area connecting to the Lake Shore Trail). Improvements and additions to facilities would include expansion of the water park, relocation of the storage area, a new amphitheater and parking, landscaping of parking and storage areas, a new nature interpretive center in the Open Space Lands area, and modification of some campsites for multiple uses. This would be a major impact if significant cultural resources would be affected.

Alternative 3: This alternative proposes a greater number of recreational uses and facility improvements throughout the Park. A new trail system consisting of separate trails for hikers, cyclists, and equestrians would be constructed in the Open Space Lands. The 2-mile Lake Shore Trail would be extended to surround the perimeter of the lake. The construction of numerous facilities mentioned in Alternative 2, as well as a new camping area in the Borrow Area as well as modification or improvement of the majority of Park campsites, would result in a higher volume of ground disturbance and, therefore, a higher likelihood for major adverse impacts with this alternative than Alternative 2.

Mitigation Measure CU-1

Alternatives 2 and 3: Prior to any specific proposed undertaking with potential ground disturbance activities, qualified personnel would conduct a cultural resources inventory for the area of potential effects. This effort should be conducted in conjunction with consultation with members of the local Native American community and other interested members of the public as appropriate. This inventory would identify the cultural resources that would be impacted by the proposed project(s). The cultural resources would then be evaluated for their eligibility for the NRHP and/or CRHR. If the affected resource is significant and the impacts are mitigable (Section 4.5.2), it is possible to reduce the potential impacts to cultural resources to a minor adverse impact level. If the resource is nonmitigable, the project would be modified to avoid affecting the resource.

Impact CU-2

Currently, public access to the shoreline of Lake Casitas and outlying areas of the Park is fairly limited. Various trails (hiking and biking) are located throughout the Park. Certain elements of the RMP will increase visitor activity along these trails and other portions of the Park, therefore potentially exposing archaeological sites to higher volumes of visitor activity.

Alternative 1: There are no improvements or additions identified under this alternative. Though the continued and potential increase in the use of these trails could impact archaeological sites, this is a no-impact alternative.

Alternative 2: Under this alternative, access to the trail system in the Open Space Lands would be expanded by building new connector trails to existing adjacent trailheads (LPNF and Ojai Conservancy trails) and allowing limited day use hiking and biking only on designated joint use new trails. On the Main Island hiking and biking would be allowed on primitive trails with a special use permit. Also, the bike path within the park would be improved and realigned to

expand the trail south from Santa Ana boat ramp area to connect to Lake Shore Trail. Due to the potential increase in visitor activity (as compared to Alternative 1), this is a major adverse impact.

Alternative 3: Proposed improvements under this alternative are more intense than those outlined in Alternative 2. Day use would be allowed on a new trail system consisting of separate trails for hikers, cyclists, and equestrian users. Also, the 2-mile perimeter Lake Shore Trail would be extended to surround to perimeter of the lake. With the higher volume of proposed projects, along with higher probability for visitor activity, there is a higher likelihood for major adverse impacts with this alternative than with Alternative 2.

Mitigation Measure CU-2

Alternative 2: Due to the potential increase in visitor activity, the following mitigation measures are recommended:

- Surveys of areas sensitive for cultural resources should be conducted to determine what, if any impacts increased visitor access would have upon known or unknown cultural resources.
- Once the surveys of an affected area have been conducted, a management plan for known cultural resource sites that would be exposed to visitor activity should be implemented. This plan would include the treatment of those sites that will potentially be exposed to increased visitor activity and might include: disguising and/or hiding the site(s) from view, putting protective fencing around the site(s) to restrict visitor access, or education and outreach in the form of information boards or pamphlets to make visitors aware of the site(s). Residual impacts would be minor.

Alternative 3: Due to the potential increase in visitor activity, multiple mitigation measures are recommended:

- Surveys of areas sensitive for cultural resources should be conducted to determine what, if any impacts increased visitor access would have upon known cultural resources,
- Once the surveys of an affected area have been conducted, a management plan for known cultural resource sites that would be exposed to visitor activity should be implemented. This plan would include the treatment of those sites that will potentially be exposed to increased visitor activity and might include: disguising and/or hiding the site(s) from view, putting protective fencing around the site(s) to restrict visitor access, or education and outreach in the form of information boards or pamphlets to make visitors aware of the site(s). Residual impacts would be minor.
- It is important to note that due to the higher volume of proposed projects with Alternative 3, there is a higher probability of visitors encountering cultural resources. Overall, more work (i.e., surveys, monitoring by patrol staff, public outreach) would be required of this alternative.

Impact CU-3

Prescribed burns, a Pest Management Program, annual weed eradication efforts (mowing and weed whacking), and selective use of herbicides on invasive species are proposed in Open Space Lands. There are over 10 previously identified cultural resource sites that fall within the Open

Space Lands area. It is probable that other unidentified cultural resource sites occur within the Open Space Lands.

Alternative 1: There are no proposed programs identified under this alternative. However, the continued use of prescribed burns is considered a minor adverse impact.

Alternative 2: Under this alternative a new Fire Management Plan would be implemented, as well as annual weed eradication efforts, and a Pest Management Program.

Alternative 3: As with Alternative 2, a new Fire Management Plan would be implemented, as well as annual weed eradication efforts, and a Pest Management Program.

Mitigation Measure CU-3

Alternative 2: Prescribed burn areas and areas where weed eradication and pest management would take place should be monitored and/or surveyed as appropriate for early detection and evaluation, if required, of previously unknown cultural resources. A management plan should be implemented for those known cultural resources sites that will be exposed to burning, mowing and weed whacking, and pest eradication. These preventative measures should occur seasonally, in the known prescribed burn areas that are frequented by visitors. Residual impacts would be minor.

Alternative 3: As with Alternative 2, prescribed burn areas, areas where weed eradication, and pest management will take place should be monitored and/or surveyed, as appropriate, for early detection and evaluation if required, of previously unknown cultural resources. A management plan should be implemented for those known cultural resources sites that will be exposed to burning, mowing and weed whacking, and pest eradication. These preventative measures should occur seasonally, in the known prescribed burn areas that are frequented by visitors. Residual impacts would be minor.

4.6 HAZARDOUS MATERIALS

4.6.1 Introduction

Various releases could result in exposure to hazardous materials:

- Release of gasoline/diesel from storage tanks
- Release of chlorine at the water treatment plant
- Release of sewage
- Known hazardous materials sites

4.6.2 Impact Thresholds

- **Beneficial Impact:** Impacts that are detectable and significantly and positively alter historical or desired hazardous conditions.
- **No Impact**: Exposure to hazardous materials cannot be detected.

- **Minor Adverse Impact:** Impacts are detectable and are within or below regulatory standards or thresholds for exposure to hazardous materials, and do not interfere with Park goals.
- **Major Adverse Impact:** Exposure to hazardous materials is detectable and significantly and negatively alter historical baseline or desired air quality conditions. These impacts would contribute to the deterioration of safe conditions in the Study Area, the public's enjoyment of Park resources, or would interfere with Park goals for exposure to hazardous materials.

4.6.3 Impacts Common to All Alternatives

4.6.3.1 Release of Gasoline/Diesel at the Lake Casitas Recreation Center

The Park maintenance facility has two 1,000-gallon-capacity underground storage tanks, one carrying gasoline and one carrying diesel. Next to the Bait and Tackle Shop in the Santa Ana parking lot is one 500-gallon-capacity gasoline aboveground tank. The 1,000-gallon-capacity tanks are constructed of double-walled fiberglass, and the 500-gallon-capacity tank is constructed of steel and is triple-contained.

Release of gasoline or diesel at the Park could have minor impacts in the Plan Area under all three alternatives, since the tanks would remain active. The accidental release of gasoline in the Park could expose boaters, fish, and wildlife to hazardous materials found in gasoline and diesel. These tanks are checked for annual monitoring certification by the Ventura County Environmental Health Division. The certification requires, but is not limited to the examination of sensors and alarms, specialized employee training, a permit for vapor emissions (from the VCAPCD), the correct secondary containment, up-to-date emergency procedures, and an emergency response plan to be in place. There are no known or documented notices of violation for the Park for these three tanks. Continued compliance with regulations and certification, including maintaining inspections and records, would reduce potential impacts to a no-impact level.

4.6.3.2 Release of Chlorine at the Water Treatment Plant

Chlorine is used at the water treatment plant located at Lake Casitas Dam. The treatment plant's storage and use of chlorine is regulated under California Department of Public Health (CDPH) and California Occupational Safety & Health Administration guidelines, which includes but is not limited to having a risk management plan, a contingency plan, alarms, and proper notification processes. Access to areas near the treatment plant is restricted. No additional impacts would occur from different uses and changes under all three alternatives. No impacts are expected.

4.6.3.3 Release of Sewage

Throughout the Park a number of underground tanks store sewage waste from bathrooms, showers, and RVs. This sewage is treated with a disinfectant and deodorizer called Chemitol Pine. The managing partner is charged with removal and proper disposal of these wastes. If water quality issues arise, CMWD water quality experts and CDPH will be notified. Only one instance of problems with these tanks is known, and that was a minor overflow at Camp C.

An increase in visitation and Park usage would create the need for increased servicing and emptying of these tanks, dependent on the timing and amount of increase. Vacuum trucks are used for transporting wastes out of the Park to be disposed and would be able to handle any increased need. No additional impacts would occur from different uses and changes in the Park under all three alternatives, and thus release of sewage would be considered at a no impact level.

4.6.3.4 Known Hazardous Materials Sites

No hazardous materials sites are known within the Park and Open Space Lands. No new hazardous material sites would result from any of the alternatives. Therefore, no effect from known hazardous sites would occur under any of the three alternatives.

Five cases of leaking underground fuel tanks were found in the vicinity of Lake Casitas, but all cases were closed and only one was near the Plan Area. This case (Case # 87051) was at the Forest Service Casitas Fire Station located at 3333 Casitas Pass Road. The leak was discovered and reported in May 1987, began remediation in February 1991, and was closed in June 1991.

4.6.4 Impacts Summary

Alternatives 1, 2, and 3 would have no impacts related to hazardous materials.

4.6.4.1 Cumulative Impacts

No cumulative impacts are related to hazardous materials.

4.7 VISUAL RESOURCES

4.7.1 Introduction

Impacts to visual resources in the Park could occur due to changes in view sheds caused by increased boat use on the lake, as well as future development activities within the recreational areas and along the perimeter of the main body of the lake.

4.7.2 Impact Thresholds

- **Beneficial Impact:** This impact category would occur if the visual quality or the visual character of an existing viewshed were improved by a specific RMP element or group of elements. In addition, the creation of a new viewshed would result in a beneficial impact.
- **No Impact:** This impact category would occur if a specific element or group of elements does not result in a change in the quality or visual character of a viewshed.
- **Minor Adverse Impact:** This impact category would occur if a specific element or group of elements results in a decrease in the visual quality or visual character of a viewshed. This impact would be minimal or temporary, but detectable.
- **Major Adverse Impact:** This impact category would occur if a specific element or group of elements results in a permanent, highly noticeable, and substantial decrease in the visual quality or visual character of a viewshed.

4.7.3 Impacts Common to All Alternatives

All three alternatives allow various levels of maintenance activities in the vicinity of Lake Casitas. In addition, Alternatives 2 and 3 would also allow various levels of recreational development activities in the Park. The type and intensity of development and maintenance allowed under each alternative would generally have similar impacts on visual resources. However, because the future recreational development facilities would occur primarily within existing developed areas surrounding the lake, the impact would be minimal.

Development surrounding the lake is generally back dropped or within oak woodlands, which further minimizes the visual impact of future facilities, creating no impact to a minor adverse impact when designed to fit with its surroundings. Any development surrounding the lake would be designed to fit with the existing setting and use materials that blend with the natural setting of the lake and would have no impact on visual resources. Mitigation Measure VR-1 would reduce the impacts to a no impact level.

If prescribed burn activities were to occur, they could temporarily alter the view sheds throughout the Park by introducing large amounts of smoke into the area. Smoke caused by this activity could temporarily reduce the visual resources of the Park and would have an adverse impact on visual resources. Due to the temporary and infrequent occurrences of prescribed burning activities, this would be a minor adverse impact.

4.7.4 Impacts Specific to Alternative 1

Impacts to the lake side view sheds and prescribed burns for Alternative 1 are discussed above. Because Alternative 1 would not propose any new development, no additional impact to visual resources would occur on the north shore or on the lake.

4.7.5 Impacts Specific to Alternative 2

Impacts to the lake side view sheds and prescribed burns for Alternative 2 are discussed above. In general, Alternative 2 would have minor adverse impact to visual resources surrounding the lake. Alternative 2 allows for public access on the north shore of the lake, which includes low impact day use, hiking, and biking on primitive trails. These uses would not involve the construction of structures that could disrupt the view shed. Primitive trails would not involve any type of construction, slope protection, nor cut or fill that would make the trails noticeably visible from the lake or surrounding areas.

Alternative 2 includes limited day use on Main Island for hiking and biking activities on primitive trails, as well as an outdoor environmental education facility on Main Island. Any development on the Island or surrounding the lake would be designed to fit with the existing setting and use materials that blend with the natural setting of the lake to maintain minor adverse impact to no impact on visual resources (Mitigation Measure VR-1).

Alternative 2 would allow for an increase in boat density at the lake, which would result in a minor impact. The same general type of boats would be used at the lake under Alternatives 1 and 2.

Alternative 2 also includes the construction of an amphitheater within or near the special events area. Construction of the amphitheater could result in a potential impact if its location is near the

shoreline, in a highly visible area. Impacts would be reduced to minor to no impact levels if the amphitheater is located away from the shoreline viewshed.

Under Alternative 2 the storage area would be relocated from the shoreline to a less visible location. Views from the lake to the shoreline would improve with the removal of the storage area structures and boats from this site. This would result in a beneficial impact.

4.7.6 Impacts Specific to Alternative 3

Impacts to the view sheds and prescribed burns for Alternative 3 are discussed above. Alternative 3 would have minor adverse impacts to visual resources surrounding the lake. Alternative 3 allows for more intensive access and use on to the lake compared to the other alternatives. This alternative includes a lake perimeter trail, full day use and group tent camping on Main Island, including public access for hiking/biking on primitive trails and/or well-developed trails, picnicking, group events, and shoreline and dock fishing. These uses could involve the construction of structures that would impact the view shed. These uses could also include construction of wider trails for greater public access. The construction of these trails could involve brush clearing, slope protection, and cut or fill that would make the trails noticeably visible from the lake or surrounding area. Greater public access could lead to impacts to the natural vegetation from visitors creating access points to the shore, clearing vegetation for campfires, going off trail, and other misuse. Furthermore, the uses allowed under Alternative 3 would require construction of restrooms and other facilities that may be visible within the viewshed. Any development on the Island or surrounding the lake would need to be designed to fit with the existing setting and use materials that blend with the natural setting of the lake to reduce the potential major adverse impact to a minor adverse impact on visual resources (Mitigation Measure VR-1).

Alternative 3 would allow for an increase in boat density at the lake, as well as an increase in the types of boats that would be used at the lake (such as waterskiing boats), which would result in a minor impact.

Alternative 3 also includes the construction of an amphitheater within or near the special events area. Construction of the amphitheater could result in a potential impact if its location is near the shoreline, in a highly visible area. Impacts would be reduced to minor to no impact levels if the amphitheater is located away from the shoreline viewshed.

Under Alternative 3 the storage area would be relocated from the shoreline to a less visible location. Views from the lake to the shoreline would improve with the removal of the storage area structures and boats from this site. This would result in a beneficial impact.

4.7.7 Impacts Summary

4.7.7.1 Impact VR-1

No new development along the shoreline would occur under Alternative 1. Alternative 2 would allow for primitive trails that could diminish the visual resources along the shoreline and result in minor adverse impacts to visual resources. Alternatives 3 would allow for the construction of trails and structures that could diminish the visual resources along the shoreline and on the Main Island and result in major adverse impacts to visual resources.

Under Alternatives 2 and 3, an amphitheater would be built within or near the special events area. Construction of the amphitheater could result in a potential impact if its location is near the shoreline, in a highly visible area. Impacts would be reduced to minor to no impact levels if the amphitheater is located away from the shoreline viewshed.

4.7.7.2 Mitigation Measure VR-1

All development adjacent to the lake shoreline will be designed to fit in with the existing setting and use materials that blend with the natural setting of the lake to minimize visual impacts to the greatest extent possible. This effort would include, but not be limited to:

- Avoiding the cutting down of oak trees to the maximum extent possible
- Using natural materials or materials that match the natural setting
- Designing facilities to work with the terrain and foliage of the area
- Minimizing grading of slopes to the maximum extent possible.
- Revegetating all cut and fill slopes with native plants
- Using native material to the maximum extent possible to stabilize trails

Mitigation Measure VR-1 would result in no impact or minor residual impacts.

4.7.7.3 Impact VR-2

Smoke that could result from potential prescribed burn activities under all of the alternatives would be temporary and infrequent, resulting in a minor adverse impact to visual resources. No mitigation is proposed.

4.7.7.4 Impact VR-3

Under Alternatives 1 and 2, the maximum density of boats on the entire lake would stay at approximately the current density and have no impact on visual resources. The noticeable change in the boat density on the main lake would result in a minor adverse impact to visual resources for Alternative 3. Alternative 3 is expected to have a higher increase in boat density, as well as an increase in the types of boats that would be used at the lake (such as waterskiing boats).

4.7.7.5 Mitigation Measure VR-3

There is no feasible mitigation for Impact VR-3.

4.7.7.6 Impact VR-4

Under Alternatives 2 and 3 the storage area would be relocated from the shoreline to a less visible location. This would result in a beneficial impact. No mitigation is needed.

4.7.7.7 Impact VR-5, Cumulative Impacts

The proposed development of recreational facilities at Lake Casitas with Alternatives 2 and 3 could result in the loss of a small number of oak trees. The loss of oak trees associated with Alternatives 2 and 3 would be a minor adverse impact.

4.7.7.8 Mitigation Measure VR-5

Oak trees removed for the development of recreational facilities will be replaced at a 2:1 replacement ratio.

4.8 LAND USE

4.8.1 Introduction

Potential land use impacts would be related to:

- Land use conflicts between prescribed burning activities and other Plan Area land uses.
- Conflicts between different user groups on the trail system.

4.8.2 Impact Thresholds

- **Beneficial Impact:** This impact category would occur when a planning element could result in the elimination, reduction, or resolution of a conflict between existing land uses.
- **No Impact:** This impact category would occur if planning elements would result in no change over the existing condition.
- **Minor Adverse Impact:** This impact category would occur if an activity would result in deterioration in the intended use of the Plan Area or when an activity would result in a conflict between intended land uses.
- **Major Adverse Impact:** This impact category would occur if an activity would result in a dramatic deterioration of the intended use of the Plan Area or when a planning element would result in a severe conflict between intended land uses. This type of impacts would often be long term and substantial.

4.8.3 Impacts Common to All Alternatives

At a programmatic level, most of the planning elements that are common for all of the alternatives would have no impacts to land use. When specific projects are developed, a site-specific environmental analysis would be conducted and a more focused analysis of the proposed project's impacts to land use would occur. At that time, more clearly defined land use impacts may be identified. If substantial land use impacts were to be identified, the proposed project would be modified, if possible, to reduce these impacts.

Under all of the alternatives, prescribed burn activities may be allowed for vegetation management in the Plan Area. Prescribed burns would only occur when specific fuel moisture and climatic conditions have been achieved and when permission from the VCAPCD, California Department of Forestry, and Ventura County Fire has been provided. Due to these limitations, prescribed burns would likely not occur annually in the Plan Area. Prescribed burns typically occur in the fall and the spring, though the necessary climatic and fuel conditions are less common in the spring. Burning activities generally occur over a couple of days and mop-up and monitoring activities occur during the following week or two.

For prescribed burns to occur safely, areas of the Plan Area would need to be closed to Plan Area visitors during the days of the burning activities. The precise areas that would be closed would be dependent on the location of the prescribed burn. The closure of parts of the Plan Area could result in limiting public access to areas where access is generally permitted. These closures could create a land use conflict with other intended functions of the Plan Area. Depending on the location, all Plan Area users (boaters, day users, trail users, etc.) could be affected by area closures in the Plan Area. In addition, depending on prevailing winds, smoke and ash could affect areas of the Plan Area where public access would be permitted during the burning activities, making visitor use of these areas less desirable.

As described in Chapter 3, visitor use of the Plan Area is relatively low during the fall and relatively high during the spring. The land use conflicts between prescribed burning activities and access for Plan Area users would be minimized if the burns occurred in the fall. Prescribed burns that would occur in the spring have the potential to affect more Plan Area users and result in a larger land use conflict. Regardless of the season that a prescribed burn would occur, the land use impact would be minimal and temporary because area closures would only occur for a few days. Due to the temporary nature of the land use impact and the infrequency that this impact may occur, this would be a minor adverse impact.

Under all three alternatives, no land use impacts would be anticipated between grazing practices and other Plan Area land uses. There are only two grazing permits in the Lake Casitas Watershed, and no grazing is permitted in the Plan Area. Equestrian use would require specific permits and be allowed only on the trail system under Alternative 3. These activities would not result in an impact to land use.

4.8.4 Impacts Specific to Alternative 1

This alternative would result in some increase in the user demand by hikers and bikers. No equestrian use would be allowed under Alternative 1. No conflict has been identified between hikers and bikers, which would use the same trails. Therefore, no potential conflict between these user groups in the future is expected.

4.8.5 Impacts Specific to Alternative 2

Alternative 2 may result in some in the user demand by hikers and bikers compared to Alternative 1. No equestrian use would be allowed under Alternative 2. No conflict has been identified between hikers and bikers, which would use the same trails. Therefore, no potential conflict between these user groups in the future is expected. In addition, a trail system management plan would contribute to ensure that the trail system is adequate for the increased user demand.

4.8.6 Impacts Specific to Alternative 3

This alternative would result in the use of trails in the vicinity of Lake Casitas by hikers, bikers, and equestrians. Equestrians would only be allowed in a separate trail in the Open Space lands. No conflict has been identified between hikers and bikers, which would use the same trails. Therefore, no potential conflict between these user groups in the future is expected. In addition, a

trail system management plan would contribute to ensure that the trail system is adequate for the increased user demand.

4.8.7 Impacts Summary

As described above, none of the three alternatives would result in large or substantial land use impacts. Many of the RMP elements for all three alternatives have been designed to reduce land use conflicts and to clearly designate specific land uses in appropriate areas of the Plan Area.

4.8.7.1 Impact LU-1

Common to all of the alternatives, land use impacts from potential prescribed burning activities would be temporary and infrequent, resulting in a minor adverse impact to land use. No mitigation is proposed.

4.8.7.2 Impact LU-2

The use of the trail system by hikers/bikers and by equestrians under all alternatives could result in a minor adverse land use impact if conflicts with trail use arise. The proposed trail management plan proposed for Alternatives 2 and 3 will minimize these minor adverse impacts to no impacts.

4.9 RECREATION

4.9.1 Introduction

Lake Casitas is widely known for its natural, scenic qualities. It is also one of southern California's favorite bass and trout fishing lakes. No body contact sports such as swimming or water skiing are currently allowed. The Plan Area also has designated hiking and biking trails. Open Space Lands located further north of recreation facilities on the north shore of the lake are not open to general public access.

Under each of the alternatives described in Section 2 opportunities for visitors to engage in any or all of the existing and potential recreational activities depends on:

- Availability of appropriate facilities and resources,
- Quality of these resources and settings, and
- Density of recreational use and potential impacts imposed on natural resources and the setting.

Recreation goals and preferences will vary and may even conflict among users, and managers will have to make decisions that guide recreational uses.

Recommendations for management actions are included in this section, such as the seasonal closure of some coves during bird breeding and fish spawning season, and expansion of the interpretive boat program with additional natural, cultural and/or historic resource themes. A series of management plans are proposed including ones for trail system management, vegetation and pest management, fire management, storm water management for the Park with emphasis on parking areas, and for boat management that would provide guidance for speed limits, boat traffic patterns, access and launch areas, visitor use, and conflicts. These recommendations are

intended as broad guidelines, and may be altered based on actual usage. For example, management actions may be altered during holiday and high use summer weekends when recreational use is high. Management actions will influence visitor perceptions of the quality of the recreation experience.

This section presents the likely effects to recreation that would result from implementing each of the alternatives under consideration. For each alternative, impacts are characterized based on their intensity and context. The analysis of these impacts is provided to help decision-makers and the public understand the type and magnitude of the effects to recreation activities in the Plan Area.

4.9.2 Impact Thresholds

Since the primary recreational use at Lake Casitas is boating and fishing, emphasis is placed on this type of recreational use. The discussion of impacts for boat usage is quantified to the extent possible based on comparison of estimated capacity of Lake Casitas and estimated demand. Capacity is defined as the supply, or prescribed number, of appropriate visitor opportunities that will be accommodated in an area.

As described in Sections 2 and 3, WROS management zones and planning units were assigned to Lake Casitas for each alternative, based on existing use and projections for types of use, management actions, physical and social settings (see WROS Figures 2-1, 2-3, and 2-4). For recreational resources, the WROS classifications serve as a guide to understanding the type and location of the six types of recreation opportunities that make up the WROS spectrum: Urban, Suburban, Rural Developed, Rural Natural, Semi-Primitive, and Primitive. The attributes that differentiate these WROS management zones have implications on the recreational opportunities and benefits that recreationists may experience.

In this section, impacts to boating are characterized based on a comparison of existing conditions and demand to the projected capacities and for proposed management zones. A breakdown of recommended boating capacities (acres per boat) for each WROS management zone is provided in Table 4.9-1. These recommended boating capacity coefficients are based on safety, boat speeds, size, and other factors considering collaborative expert opinions, published literature, and professional judgment (Aukerman and Haas 2005).

Table 4.9-1
Reasonable Boating Capacity Coefficients

WROS Classification	Low Range	High Range
Urban	1 acre/boat	10 acres/boat
Suburban	10 acres/boat	20 acres/boat
Rural Developed	20 acres/boat	50 acres/boat
Rural Natural	50 acres/boat	110 acres/boat
Semi-Primitive	110 acres/boat	480 acres/boat
Primitive	480 acres/boat	3,200 acres/boat

Source: Aukerman and Haas 2002.

The Current Condition of the lake (see Figure 2-1) is a mix of RN and RD zones, where the bays generally exhibit a more natural setting and the main body of the lake allows more developed uses. One bay (Ayers Creek), which is closed to boat traffic, is categorized as RN, at the high-mid level of the RN spectrum (RN8). Chismahoo and Willow Creek coves, as well as the area west of the Main Island, are classified as RN 6 and 7, which corresponds to 50 and 80 acres per boat, respectively. The main body of the lake exhibits mid levels of the RD spectrum with RD 5 and 6, which correspond to 35 and 50 acres per boat, respectively.

Both Alternative 1 and Alternative 2 projected boat densities based on boat use in the main body of the lake remaining relatively unchanged. Alternative 3 may exhibit increased recreational use on and around the lake, therefore progressing into the middle Suburban category (S4) with boat densities of 15 acres per boat. These boat densities (and thus management zone capacities) will come from specific management actions that will be applied over the planning horizon. Evaluation of the different WROS classifications allows for alternative scenarios that are both reasonable and foreseeable for managing boating usage.

In the following discussion of impacts, effects other than boat usage are also quantified where possible. In the absence of quantitative data, however, best professional judgment prevails. In many cases, impacts are characterized using ranges of potential impacts or in qualitative terms, as appropriate.

Terms referring to impact intensity, context, and duration are used in the analysis of effects on recreation. Unless otherwise stated, the standard definitions for these terms are as follows:

Beneficial Impact: The impact of the action is positive.

No Impact: The impact is at the lower level of detection; there would be no measurable change.

Minor Adverse Impact: The impact is slightly adverse, but detectable; there would be a small change.

Major Adverse Impact: The impact is adverse and severe; there would be a highly noticeable, long-term or permanent change. It would indicate a marked decline in the quality or quantity of opportunities to participate in a recreation activity as a result of implementing an alternative. Therefore, to determine whether an impact is major, this discussion considers the effect of an alternative on recreational facilities, the setting and physical resources, and use density.

4.9.3 Impacts Common to All Alternatives

As discussed in Section 2.5 (Common Infrastructure, Operational Improvements and management Actions for All Alternatives), all RMP alternatives include specific infrastructure, facility, and operational improvements in the Plan Area. The managing partner(s) will have full responsibility for implementing and funding improvements by creating a Capital Improvement Program to include, but not be limited to, Park road improvement, restroom remodeling, and RV storage relocation. These improvements will provide better/more reliable public and recreational services, therefore resulting in beneficial impacts on recreation.

Under all alternatives, all applicable federal and state regulations would be followed, and appropriate actions to ensure compliance would be taken. New Reclamation guidelines would be implemented for concessionaires on federal land. No impacts will result from the continuation of these activities.

For all future growth, Reclamation and managing partner(s) will coordinate with Ventura County. Actions will be taken to the extent that they are necessary to comply with guiding plans and policies. The objective of these actions would be to have no impact on the recreational experience for visitors; however, individual actions may impact user groups differently.

4.9.3.1 Open Space Lands/Plan Area Management

Under all three alternatives (including Alternative 1), in addition to complying with guiding policies and regulations, Reclamation and the managing partner(s) will take a proactive approach to protecting the watershed in the Open Space Lands and integrating management policies. Managers will coordinate with state and local organizations to maintain recreation in the Park and preservation in the Open Space Lands and wetland areas. Off-road vehicles in the Plan Area will continue to be prohibited. Annual prescribed burns will be evaluated to reduce vegetative fuel for fire.

Safety measures would be enforced and emergency response plans would be in place under all alternatives. These measures include flood management, which would restrict activities based on current federal regulations. FEMA floodplain maps and designations would be used in the management of facilities. Wetlands and riparian areas would be protected where not affected by annual lake level fluctuations.

These planning actions will have a beneficial impact because they protect and maintain the recreation environment.

4.9.3.2 Lake Recreation

Boating and fishing will continue to be allowed including regulated night boating except in Ayers Creek, which will remain closed. A Fisheries Management Plan will be maintained to control and monitor fish stock available to fishermen. While personal watercraft would not be permitted, kayaks, canoes, and motor boats will continue to be allowed under all alternatives. Watercraft size limitations of a minimum of 6 feet long (with permit) and maximum of 35 feet will be enforced. The maximum boat speeds allowed around the Santa Ana marina and within 200 feet of docks and boarding areas will remain at 5 mph. Patrols would be increased throughout the lake during the peak season, and security patrols at the dam and visitor center would be provided as necessary. Safety-related enhancements will have beneficial impacts to recreation users.

4.9.3.3 North End Lake Recreation

The Santa Ana boat ramp and marina will remain open for full day use including public access for hiking, bicycling on primitive and/or well developed trails, picnicking, bird watching, group events, shoreline access, and fishing. The Lakeside Group Camp will also remain open for full day and camping uses. A full range of campsites, bathrooms, store, marina, shoreline fishing, paved trails for bikes, RV facilities and special events will be maintained and available for visitors under all alternatives. Seasonal events and activities would continue to be promoted. Special events will continue to be managed via special permits. These will be beneficial impacts to recreational visitors.

4.9.3.4 Service and Facility Upgrades

The existing physical facilities will be upgraded as necessary to comply with applicable laws and regulations, including but not limited to, the ADA, security measures, and law enforcement. This includes the relocation or expansion of the Park store, relocating the maintenance building and making necessary administrative building improvements. The entrance structure would be improved along with the repair of existing damaged access throughout developed areas including the installation of traffic safety controls where unsafe conditions may exist, and widening the entrance/exit road at Santa Ana Road to meet growth demand.

Recreational facilities would also be enhanced or upgraded to meet current and projected needs although specific actions will differ based on WROS goals and objectives. All of the day use facilities would be maintained or upgraded as necessary, including the marine docks, boat launch, and nearby signage. Improvements would be accompanied by expansion of utilities as necessary. At a minimum, existing facilities including campgrounds and group camps that are currently in compliance with governing laws and regulations will be maintained. Minor adverse impacts may result from construction.

Managers would study and implement additional infrastructure improvements under all alternatives. Any expansion of services, or repairs to infrastructure will result in beneficial impacts for recreational users. Regular maintenance will preserve the quality of the facilities, which would also have a beneficial impact for users.

These actions would have short-term construction effects that may restrict recreation activities; such impacts are characterized as minor due to their temporary nature. New facilities would be designed so that they do not diminish the visual character of the area. Overall, improvements, upgrades, and enhancements will have beneficial impacts to visitors.

4.9.3.5 Visitor Services

Visitors would have the educational opportunity to learn about the protection of natural and cultural resources through interpretive programs and signs. Updated maps would be provided, and visitors would be instructed to stay on trails and keep away from sensitive areas. Nature boat cruises would be allowed to enhance education opportunities and enjoyment of the lake. In addition to the accessibility and management of facilities, the availability of recreational facilities and educational information about the resources can enhance visitors' experiences, resulting in beneficial impacts for recreation.

Under all alternatives, in addition to providing updated visitor information maps and basic resource information, Reclamation and the managing partner(s) would install educational displays to reach out to the public and emphasize important characteristics of the natural resource environment emphasizing water quality. Such actions will help protect existing resources in the future, enabling staff to take a more active role in educating visitors. Therefore, these actions would have beneficial impacts on recreation groups.

4.9.4 Impacts Specific to Alternative 1

Alternative 1 largely maintains the status quo, limiting the expansion of recreational opportunities to upgrading the water park. None of the elements permit public access to areas on or around the lake that are not currently allowed.

As such, actions under this alternative are limited to the following:

- Implement the infrastructure and operational improvements specifically outlined in Section 2.5.
- Implement actions required to retain the current level of recreational opportunities through maintenance of trails, facilities, services (i.e., patrols, Park staff), and existing restrictions.

Alternative 1 is characterized by the continued provision of services and facilities, with current management practices in place. Ventura, Orange, and Los Angeles Counties (where the main user groups for Lake Casitas come from) are projected to have relatively moderate growth rates from 2000 to 2020 (averaged approximately 23 percent) in comparison to the projected state of California growth rate (approximately 33 percent). With this projected population growth, future recreational demand for Lake Casitas is somewhat unknown. Historic data show the peak visitation years to be from 1968 to 1988 when the highest number of recorded visitors was in 1981 with 1,786,480. Recent years have marked a steep decline in Park visitors. The total visitors recorded for 2006 dropped to less than half of those in 1981 to 773,925 with an average annual visitor count during the years from 2000 to 2006 of 731,972. Under Alternative 1, the annual visitor counts are expected to remain about the same with possible slight increases throughout the planning horizon. No adverse impacts are expected.

Similarly, the number of trail users would be difficult to project but are expected to remain about the same. This alternative would have no associated increase in trails or change in resource management; therefore, no impacts would result.

Some actions, such as the upgrade of infrastructure and facilities to meet regulatory requirements and the specific implementing measures defined by this RMP in Section 2.5, will take place under Alternative 1. These would be beneficial impacts to recreational users.

4.9.5 Impacts Specific to Alternative 2

Under Alternative 2, the objective is to expand current recreational uses and public access at Lake Casitas, attracting more visitors and supplying increased recreational opportunities, while protecting natural resources with new or modified land and recreation management practices. Many new plans and programs are identified and include the following:

- Park programs including habitat restoration, organized guided group day hikes, and expanded interpretive boat trips with additional cultural and historic themes.
- Management plans for fire, pest, fisheries, vegetative, storm water (parking areas), the trail system, and boating.
- Evaluation and/or implementation of sewage treatment options prior to upgrading or replacing facilities.

Improvements and additions to existing facilities would be made to accommodate the visitor demands. Types of actions that would characterize this alternative include:

1. Access to Open Space Lands for hiking/biking on a shared trail system with LPNF and Ojai Conservancy trails, and low-impact tent camping in portions south of SR 150.

2. Fire management activities to include the relocation of the Forest Service fire station, helipad, and fire hand crew training and Incident command activities to reduce congestion and potential accidental lake contamination.
3. Expanded annual weed eradication efforts (mowing and weed whacking) and pursue selective use of herbicides on invasive species.
4. A nature interpretive program that includes educational displays around the Park, a nature center in the Open Space Lands, and an outdoor environmental education facility on the Main Island.
5. Limited day use on the Main Island including hiking and biking on primitive trails.
6. Seasonal closure of some coves during bird breeding and fish spawning season(s).
7. Relocate the radio-controlled airplane strip.
8. Modify some campsites to be compatible with multiple uses and convert other tent campsites to RV sites with associated road improvements.
9. Expanded facilities including marina and boat ramp capacity, floating restrooms, and the Water Park.
10. Expanded interpretive boat program with additional natural, cultural, and/or historic resource themes.
11. Evaluate/implement sewage treatment options prior to making facility upgrades or additions.
12. Relocate the storage area to include landscape screening for it as well as for the parking area.
13. Locate the amphitheater and parking within or near the special event area.
14. Improve and realign the bike path within the Park and expand the bike trail south from the Santa Ana boat ramp area to connect to the Lake Shore Trail.
15. Implement a new design and relocation plan for the Park entrance.

4.9.5.1 Open Space Lands

Alternative 2 proposes low impact recreation south of SR 150, in the form of limited tent camping and parking. Day use hiking and biking on joint use, and new trail connectors to trail heads in the LPNF and the Conservancy would also be permitted as would guided day hikes with organized groups. Alternative 2 proposes a nature center that could be a converted former residence in the Open Space Lands that would be used as a possible raptor center, wildlife rehabilitation center or for outdoor education. The trail system management plan would include measures to minimize potential conflict between user groups. Visitors would have access to expanded recreational opportunities with these elements proposed in Alternative 2 resulting in a beneficial impact.

Pest management would implement an expanded annual weed eradication effort that may include the selective use of herbicides consistent with applicable regulations and BMPs. Relocating the Forest Service Fire Station along with the training and incident command activities and helipads will reduce congestion and the potential for accidental lake contamination. Overall, these actions will have beneficial impacts to recreation activity.

4.9.5.2 Lake Recreation

Lake recreation refers to the activity available to users surrounding the lake including the Main Island. The Main Island would be opened to more public use that is not currently allowed under existing conditions. This alternative would allow visitors to have more natural resource facilities available, including an outdoor education facility on the Main Island. Under Alternative 2, limited day use would be allowed on the Main Island (hiking and biking) with a permit. Closure of some coves during bird breeding or fish spawning seasons would protect and preserve wildlife for visitors to experience later when bird watching or fishing. These actions would result in a restriction to boaters who currently access the coves year round. However, they would be beneficial to multiple user groups, including boaters, who would have an enhanced and wider variety of activities to enjoy, especially on the Main Island.

The current location of the radio-controlled airplane strip generates a lot of noise especially on event days, which is a major adverse impact on campers in its vicinity. Concern has been raised that it also has a negative impact on water fowl in the wetlands and coves close to the airstrip. Alternative 2 proposes it be relocated with the associated costs to be paid by private interests. As discussed in the Biology Section 4.4, the noise generated by the radio-controlled airplane strip presents a potential impact to breeding raptors and grebes as well as to nearby campers. Limiting use to the nonbreeding season from September 1 through February 1 would also eliminate most conflicts with campers since most camping occurs during the summer.

Recreation facilities, a nature center, and educational displays are proposed to be upgraded under Alternative 2 to include realigning and expanding the bike path south from the Santa Ana boat ramp to connect to Lake Shore Trail. In an effort to respond to the changing patterns of Park users, tent sites would be converted to RV sites with some other campsites modified to be compatible with multiple uses. Examples could include concrete pads, electricity, TV, septic system, water, and computer access. These modifications and changes would enhance the recreational experience by providing more facilities that would better responded to visitors' evolving expectations. Construction of the upgrades may have a temporary limited minor adverse impact. However, the overall impact would be beneficial.

4.9.5.3 Boating

Just as with Alternative 1, the main body of Lake Casitas would be classified as Rural Developed (RD5-6). This means that most of the lake is within the middle of the inventory scale, therefore accommodating a similar overall boats at any one time (BAOT) density to existing conditions (see WROS Figure 2-3).

As described in Section 2, management actions would be aimed at providing facilities and services to maintain and improve the quality of visitor experiences, in accordance with the projected WROS classifications. A Boating Management Plan would be implemented and based on California Boating Law. Boat speeds and the character of the different areas of the lake would be managed based on the Boating Management Plan. The Plan would also address boat traffic and access patterns, launch areas, visitor use, satisfaction and conflicts. As common to all alternatives, boating would be restricted at the south end of the lake in Ayers Creek and around the dam area. These management actions are designed to protect waterfowl, wildlife, and natural resources, as well as to ensure the safety of the visitors to the lake. Overall, enforcing such restrictions would have a beneficial impact to recreation groups.

4.9.5.4 Services and Facility Upgrades

Supporting infrastructure would also be improved under Alternative 2, as under all alternatives. Funding for improvements would be included in the Capital Improvement Plan. A Storm Water Management Plan with an emphasis on recreation parking areas would be developed to address potential pollution of the lake due to storm water runoff. Expansion of recreation facilities is also proposed under this alternative. This includes creating more marina and boat ramp capacities as well as expanding the interpretive boat program and the Water Park. An amphitheater, privately funded and donated to the Park, is proposed to be built close to the special event area near the northeast shoreline. These upgrades will improve the recreational experience of visitors and result in beneficial impacts.

Other upgrades to facilities will accommodate the comfort and convenience of visitors. Alternative 2 provides for the relocation of the Park entrance. It also provides for the expansion of floating restroom facilities on the lake. The storage area would be relocated with landscape screening for this as well as the parking area to improve the visual character of the Park. Prior to implementation of facility upgrades or additions, sewage treatment options would be evaluated and, if necessary, implemented. Each of these upgrades would enhance service to Park visitors while enhancing their recreation experience at Lake Casitas. They would have positive impacts to visitors.

In general, beneficial impacts under Alternative 2 would be greater than those under Alternative 1. Alternative 2 aims to enhance opportunities for a wider range of users and, therefore, several of the actions under this alternative have overall beneficial impacts, despite the possible minor adverse impacts that may occur occasionally to some user groups.

4.9.6 Impacts Specific to Alternative 3

The objective of Alternative 3 is to expand recreational uses and public access to attract more visitors and increase recreational opportunities, while protecting natural resources with new or modified land and recreation management practices. This alternative is included to demonstrate a scenario in which recreational uses at Lake Casitas are substantially expanded while meeting the RMP goals related to protection of natural resources to the extent feasible. Under Alternative 3, the majority of the lake surface area would be managed as Suburban and Rural Developed. In addition to the elements included in Alternative 2, the elements of Alternative 3 include:

1. Body contact water sports, including waterskiing with possible seasonal, time of day, location, or other restrictions.
2. One or more swim beaches within designated areas along the north shore of the lake.
3. Year-round day use on a new trail system in the Open Space Lands. These activities would include separate trails for hiking and bike riding, and equestrian use.
4. Lake perimeter trail.
5. Modify or improve the majority of campsites to be compatible with multiple uses.
6. Full day use and group tent camping on the Main Island, including public access for hiking/bicycling on primitive and/or well developed trails, picnicking, bird watching, group events, shoreline access, shoreline, and dock fishing.

7. Group camping in the Borrow Area adjacent to Ayers Creek.

As outlined above, Alternative 3 would provide a number of benefits to certain recreation user groups. Camping, hiking, and biking resources for recreation users would be expanded relative to existing conditions. In contrast with Alternative 2, this alternative would provide a more varied spectrum of visitor experiences, including body contact water sports and swim beaches. It would also include separate equestrian trails in the Open Space Lands. These additional opportunities would have beneficial impacts to some user groups but allowance of body contact will adversely affect other user groups discussed below.

4.9.6.1 Open Space Lands

In addition to the Alternative 2 opportunities for trail system expansion, guided day hikes, and low-impact recreational use south of SR 150, Alternative 3 would expand the trail system by creating new and separate trails for hikers/bicyclists and equestrian users. Users would be instructed to remain on the trails only to minimize potential damage to the natural environment. Having a trail system management plan will minimize the potential for conflict between different trail user groups. Therefore, this alternative provides a beneficial impact to trail users.

4.9.6.2 Lake Recreation and Boating

Alternative 3 would allow body contact water sports for the first time and designate a small portion of the lake to swimmers. Safety is a concern when mixing swimmers with boaters, which would be addressed in the Boating Management Plan. The managing partner would also be responsible for implementing safety measures such as a seasonal lifeguard, access to the water, and delineation of the designated swimming area. Allowing body contact would drive the higher boat densities on the lake. The increased noise levels and more intense use of the lake surface resulting from larger and faster ski boats may conflict with the recreational enjoyment of other users, e.g., human powered craft and fishermen, who value the lake for its natural environment. Although this new opportunity would be a beneficial impact for recreationists desiring body contact, it could result in a major adverse impact to other user groups as described above.

As in the case of the other alternatives, guidelines would be suggested in a boating management plan to manage boating densities under Alternative 3. The majority of the main body of Lake Casitas would be reclassified as Suburban (S4). This means that most of the lake would be within the middle of the Suburban inventory scale. This alternative would include a capacity guideline of 15 acres per boat in the main body of the lake. This represents a higher boat density than the Rural Developed WROS classifications of Alternatives 1 and 2 (RD-35 acres per boat), and thus would accommodate more demand and higher densities than Alternatives 1 and 2. With the WROS Suburban management classification, this alternative can accommodate approximately 135-190 BAOT (*A Range of Reasonable Boating Capacity Coefficients*, figure 24, Aukerman and Haas 2004). This would be a significant increase over Alternatives 1 and 2 and probably accommodate the increased demand for boating involving body contact. However, updates to the boating management plan would evaluate capacity vs. new demand to determine if safety or congestion issues need to be addressed by reducing the number of boats on the lake at any one time.

The area on the west side of the Main Island will be managed as Rural Developed (RD-5, with 35 acres per boat) due to a more remote location. Alternative 3 would not allow waterskiing in the coves or in Ayers Creek, thus the RD or RN WROS classifications.

4.9.6.3 Services and Facility Upgrades

Under Alternative 3, service and facility upgrades would be expanded for recreational users. A perimeter trail would be completed surrounding the lake for hikers and bicyclists. Full day use and tent camping would be provided on the Main Island and new group camping facilities would be developed in the Borrow Area southwest of Casitas Dam above Ayers Creek. Modification of *some* campsites to be compatible with multiple uses is proposed under Alternative 2. Alternative 3 proposes to modify the majority of campsites to multiuse. These facilities and services would serve the changing needs of Park visitors, providing long-term benefits for recreational users.

Although many beneficial impacts are associated with the management actions proposed under Alternative 3, adverse impacts would also result to some user groups. Fishermen and kayakers/canoers may experience a major adverse impact by the presence of ski boats from the noise, speeds and wakes they create. These issues would be addressed in the Boating Management Plan by separating the boater groups by time of day, day of week, season, or lake zone, for example. However, minor to major residual impacts would remain. Some minor construction impacts could result from the proposed infrastructure and Park access improvements. Dust can be minimized through the use of best practices, including controlling the timing of construction activities. Construction impacts are temporary in nature, and would not have long-term impacts on recreation users.

4.9.7 Impacts Summary

As described above, the three alternatives would result in a range of beneficial and adverse impacts to recreational users. For each management action, effects may be different for different user groups. Impacts are evaluated based on recreational opportunities that exist to meet projected demand and based on the quality of visitor experiences. Recreational opportunities are determined by the physical infrastructure available to support recreational activities, access to recreational resources, and the services provided. Over time, the opportunities relative to increasing demand will decline without proportionate increases in recreational resources. Quality of visitor experiences may differ based on the user group in question. However, impacts to recreational experiences are determined by the quality of the available resources and settings provided in the Plan Area and the density of recreational use.

Actions under Alternative 3 build on what is proposed under Alternative 2. Management actions would have the objective of maximizing opportunities for visitors. Facilities would be added and expanded for various recreation user groups. Elements unique to Alternative 3 include body contact water sports allowed on the lake and swimmers permitted at a designated location. Day use and group camping would be allowed on the Main Island and the Borrow Area. The majority of campsites would be modified to be compatible with multiple uses, and a lake perimeter trail would be completed. Day use on a new trail system of separate trails for hikers/bicyclists and equestrian users would be permitted. To ensure the safety of the growing population of recreational users of the recreation facilities, some restrictions would be enforced. Boating regulations will be based on the WROS management zones and California boating laws.

With the introduction of body contact water sports and the number of available opportunities for various recreational activities, adverse effects to some users will result. Boating densities will increase compared with existing conditions. Much of the increase will result from large boats operating at higher speeds. Therefore, some boat users seeking tranquil settings may be disappointed with the quality of their experiences. Kayakers and canoers may find the lake dominated by motorized boats. Fishermen may feel that power boats carrying water skiers adversely impact the quality of their fishing experience as well as the fish population itself (see biology section for potential impacts to fish populations). The quality of the experiences for some boat users and other recreationists will decline as the demand for limited resource use rises.

Alternative 2 provides for the creation of management plans and programs to increase fire safety and Park maintenance, promote conservation and protect environmentally sensitive areas, and to enhance recreational opportunities for more varied recreational experiences. Accordingly, new recreational facilities and services would be provided as under Alternative 3, but they would be more limited to balance the quality of recreational experiences with opportunities for various user groups. For example, in the Open Space Lands above the north shore, Alternative 2 would allow low-impact, limited day use in certain areas, introducing hikers/cyclists and tent campers to existing trails with new connections to Forest Service and Ojai Conservancy trail heads. Alternative 3 would expand the trail network for separate trails used by hiking/biking and equestrian users. Therefore, although both alternatives increase the number of available recreational opportunities from existing conditions, there is a difference in degree and quality of users' experiences.

Under Alternative 1, management would basically maintain the status quo without many changes. However, the infrastructure and operational improvements discussed in Section 2.5 would be implemented, as under all alternatives, and the increase in demand/visitor use would be accommodated at a minimal level.

In summary, Alternative 1 does not open up recreational opportunities that the resources of the area offer and that many user groups would like to have, as voiced at the public meetings for this RMP (see the Public Scoping Report [Reclamation 2007]). Alternative 3 provides more infrastructure and service support to accommodate the projected demand, but the density of boat usage and users allowed in natural areas could compromise the quality of experience for many recreationists. Recreationists seeking tranquil and serene settings would have limited opportunities under this alternative. Alternative 2 provides fewer recreational opportunities than Alternative 3 and does not satisfy demand for body contact water sports. Mitigation measures discussed below help offset some adverse impacts, and this alternative provides a balance between opportunity and quality of experience for most user groups, including boaters. Therefore, Alternative 2 provides the best balance between opportunity and quality of experience for a wide spectrum of recreation user groups.

The adverse impacts summarized below are based on the relative opportunity afforded to recreation users and the quality of the recreational experiences. With appropriate mitigation measures, most of the adverse impacts can be reduced.

4.9.7.1 Impact R-1

If body contact water sports are allowed as proposed under Alternative 3, then larger, faster, louder and more boats will use the lake. This represents a potential problem for recreational users

of the lake, which could result in safety hazards and conflict between user groups. The impact is potentially major.

4.9.7.2 Mitigation Measure R-1

Regulated use could separate the different user groups, thereby reducing conflict and maintaining quality of recreational experience for each user group. Examples include limiting time of day, or day of week when high-speed ski boats would have access to the lake, allowing fishing boats and kayaks/canoes to enjoy the lake undisturbed in the off-times. Other options include restricting lake areas from ski-boats (e.g., coves), and limiting the season for when ski boats would be allowed on the lake. Additional staff may be necessary to monitor boater safety and adherence to boating regulations. Residual impacts would be minor to major.

4.9.7.3 Impact R-2

Expansion of camping, recreation, and Park infrastructure (roads) facilities would have temporary construction-related minor impacts that could affect recreational users in the vicinity of the construction activities.

4.9.7.4 Mitigation Measure R-2

Construction-related impacts such as fugitive dust and visitor circulation can be controlled with the use of BMPs. Residual impacts would remain minor.

4.9.7.5 Impact R-3

Day use and group camping on the Main Island would decrease the quality of recreation experience for those desiring retention of a natural setting. This impact is considered minor.

4.9.7.6 Mitigation Measure R-3

No feasible mitigation.

4.9.7.7 Impact R-4

Addition or expansion of new management plans including: boat, fire, trail system, fisheries, vegetative, and storm water. Installment of these plans is considered a beneficial impact.

4.9.7.8 Impact R-5

The noise associated with recreation activities could adversely impact other recreationists' enjoyment of the Park. The existing and proposed Park facilities include radio-controlled airplanes, an amphitheater, expanded waterpark, and high-powered ski boats. Temporary noise would be generated from construction equipment building the infrastructure improvements. The impacts that would result from Alternatives 2 and 3 are considered major.

4.9.7.9 Mitigation Measure R-5

Noise impacts resulting from construction would be temporary and mitigated by scheduling work for the off-season. The radio-controlled airplane landing strip and designated use area could be relocated at a site that would be safe for the airplanes and separated from campsites and other

serene areas popular to birdwatchers and visitors. One relocation option considered is west of its current location close to SR 150 between Coyote Creek Cove and Station Canyon Cove. Residual impacts would be minor.

Due to the orientation and proximity of the proposed amphitheater to the lake, noise generated from ski boats could substantially impair a spectator's ability to enjoy a concert or other event held at this facility. Scheduling events held in the amphitheater during evening hours when waterskiing is not allowed would eliminate noise impacts resulting from power boats. In addition, design features of the amphitheater and theater seating could be explored to further reduce noise impact.

Noise generated from events held at the amphitheater could impact the enjoyment of nearby campers. Establishing noise curfews for these events would limit the camper's exposure to a limited time period. Additional measures to mitigate event noise could also include limiting the sound level, or type of event (ex. rock concerts). Advanced advertisement of events held at the amphitheater, and notification of persons reserving campsites would further inform campers of events that they may determine to be too intrusive to their desires.

4.9.7.10 Cumulative Impacts

The geographic boundary of the analysis area for recreational cumulative impacts is roughly 7,400 acres, which includes Lake Casitas and the lands surrounding the lake. In addition to Lake Casitas, two lakes within 60 miles to the east offer recreation opportunities: Lake Piru and Lake Castaic. Within 200 miles to the north of Lake Casitas are five lakes with recreation opportunities: Cachuma Lake, Santa Margarita Lake, Lake Lopez, Lake Nacimiento, and Lake San Antonio.

All of these lakes, with the exceptions of Santa Margarita Lake and Cachuma Lake, offer more intensive water recreation opportunities than Lake Casitas currently offers, such as swimming, kayaking, sailing, and waterskiing. These other lakes also offer more hiking and biking opportunities as well as equestrian outlets. Cachuma Lake is the closest lake to Lake Casitas (50 miles northwest) and is a similar lake in that it does not allow body contact with the water, and hiking and biking trails are limited. Therefore, currently recreationists in the area around Lake Casitas are somewhat deprived of hiking and biking opportunities around a lake, as well as water-based body contact recreation (other than fishing), unless they travel to other lakes offering body contact. This impact is considered minor because although recreationists desire water body contact, they must travel further away to lakes in the region that offer these activities.

4.10 VISITOR ACCESS AND CIRCULATION

4.10.1 Introduction

Potential impacts would be related to:

- Construction and maintenance activities
- Expanded Recreational Opportunities

Construction and maintenance includes, but is not limited to, new construction as well as expansion, remodeling, and relocation of existing facilities.

4.10.2 Impact Thresholds

- **Beneficial Impact:** This impact category would occur when visitor access to and circulation within the state recreation area is improved. An activity would not be considered to have a beneficial impact if it merely addresses an existing problem.
- **No Impact:** This impact category would occur if planning elements would result in no changes over the existing conditions.
- **Minor Adverse Impact:** This impact category would occur if an RMP element would lead to a decrease in visitor access or circulation within the state recreation area. This impact would be minimal or temporary, but detectable.
- **Major Adverse Impact:** This impact category would occur if an RMP element would result in a considerable decrease in visitor access or circulation within the state recreation area. This type of impacts would often be long term, highly noticeable, and substantial.

4.10.3 Impacts Common to All Alternatives

4.10.3.1 Construction and Maintenance

Within the Planning Area, no physical constraints exist that would hinder improvements to, maintenance of, or development of new elements of the circulation system or the facilities that provide visitor access under the proposed activities for each alternative. Expansion and maintenance to the visitor access facilities and circulation system would occur as necessary. For all alternatives, no long-term impacts from construction and maintenance activities to visitor access or circulation would be expected.

Construction and maintenance activities (including prescribed burning) would likely occur at various Park and Reclamation facilities and in the Open Space Lands under all alternatives. These activities could result in temporary closures at visitor access facilities or the circulation system. For instance, a parking lot may be temporarily closed because it is being regraded or resurfaced, which would temporarily affect visitor access to the area; a lane of a roadway could be temporarily closed for maintenance to the roadway, which could cause delays along the roadway; a trail could be temporarily closed for trail maintenance, which would affect access to the trail; or a facility, such as a restroom, could be closed for maintenance, which could affect visitor access. These activities would be temporary and would thus have a minimal effect to visitor access and circulation. These actions would result in a minor adverse impact to visitor access and circulation.

When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. The degree of impact would likely increase from Alternative 1 to Alternative 3 because of the proposed increase in the amount of construction and maintenance activities from Alternative 1 to 3. These activities would be temporary, but if they result in major or minor impacts to visitor access or circulation, mitigation would be implemented to reduce these impacts to a minor adverse impact level (Mitigation Measure TR-1).

Under all Alternatives, the Park entrance structure would be improved and the entrance/exit road at Santa Ana Road would be widened. In addition, existing damaged access throughout

developed areas would be repaired and traffic safety controls would be installed where unsafe conditions exist. These activities would improve circulation and visitor access into the Park, as well as visitor safety. This activity would result in a beneficial impact to visitor access and circulation.

4.10.3.2 Recreational Opportunities

The amount of recreational opportunities varies for each alternative, with Alternative 1 having the least to Alternative 3 having the most. The increase in recreational opportunities may result in an increase in Park visitation and could have a minor to major impact to circulation. The increase in Park visitation may affect internal Park roads, as well as routes that lead to the Park. Increases in visitation are expected to occur due to the predicted increase in population in Ventura County and surrounding counties (see Section 3.10) and to the increased number of visitors that would likely be attracted to expanded recreational opportunities within the Park. This potential increase in visitation with expanded recreational opportunities may be tempered by a likely decrease in visitors that are not attracted to the expanded recreational opportunities or changes throughout the Park. A net increase in visitation is expected. The effects of increased visitation on circulation are also dependent on the season and time of travel to and from the Park. The most congested route is on SR 33, between Casitas Springs (approximately 2 miles north of US 101) and SR 150, which is currently operating at Level of Service (LOS) E during peak commute hours (see Section 3.10). Impacts from increased visitation under Alternatives 2 and 3 could be mitigated to a minor adverse impact (Mitigation Measures TR-2a and TR-2b).

4.10.4 Impacts Specific to Alternative 1

No specific impacts are expected to occur to visitor access and circulation as a result of Alternative 1.

4.10.5 Impacts Specific to Alternative 2

No specific impacts are expected to occur to visitor access and circulation as a result of Alternative 2.

4.10.6 Impacts Specific to Alternative 3

Alternative 3 may result in more Park visitation or a change in the types of vehicles accessing the Park compared to Alternatives 1 and 2. This may result because body-contact water sports would likely attract more vehicles with larger boats. This could have a major impact to circulation on routes that lead to the Park. This potential increase in visitation with expanded recreational opportunities could be tempered by a decrease in visitors that are not attracted to body-contact water sport recreational opportunities or changes throughout the Park. However, overall, a net increase in visitation is likely under Alternative 3. This impact could be mitigated to a minor adverse impact level (Mitigation Measures TR-2a and TR-2b).

4.10.7 Impacts Summary

4.10.7.1 Impact TR-1

Construction and maintenance activities under both action alternatives would result in major to minor adverse impacts to visitor access and circulation.

4.10.7.2 Mitigation TR-1

When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. During this process, the timing of construction and maintenance activities will be planned out to minimize effects to visitor access and circulation in the Park. Activities will be scheduled to minimize interference with Park activities. This mitigation would reduce all construction and maintenance activities impacts to minor adverse impacts.

4.10.7.3 Impact TR-2

Minor impacts to visitor access are possible with Alternative 2. Major impacts may result from Alternative 3.

4.10.7.4 Mitigation TR-2a

New signs could be posted near intersections to clearly identify the SR 150 and the SR 33 to Casitas Vista Pass Road to Santa Ana Road alternative routes to the Park.

4.10.7.5 Mitigation TR-2b

The two routes that bypass all or large portions of SR 33 and the best times to travel to avoid traffic going to Lake Casitas will be incorporated into marketing and media materials (i.e., pamphlets and the website).

4.10.7.6 Cumulative Impacts

In general, the management activities associated with the three alternatives would have major to minor adverse impacts on visitor access and circulation in the region, which could be mitigated to a minor adverse impact level.

4.11 SUMMARY OF IMPACTS OF EACH ALTERNATIVE

Table 4.11-1
Impacts Summary

Impacts to Resources	Alternative 1	Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mitigation	Impact Magnitude	Impact After Mitigation
WATER RESOURCES					
WQ-1: Motorized boat emissions	Minor	Minor	Minor	Minor	Minor
WQ-2: Construction, maintenance and use of facilities	Minor	Minor	Minor	Minor	Minor
WQ-3: Portable, floating and vault toilet clearing and cleaning	Minor	Minor	Minor	Minor	Minor
WQ-4: Human body water contact	No Impact	No Impact	No Impact	Major	Minor
WQ-5: Removal of private residences from Open Space Lands	Beneficial	Beneficial	NA	Beneficial	NA
AIR QUALITY					
AQ-1: Site maintenance and facilities construction	Minor	Minor	No Impact	Minor	No Impact
AQ-2: Fires (prescribed or accidental)	Minor	Minor	Minor	Minor	Minor
SOILS AND GEOLOGY					
SG-1: Construction and Maintenance activities	Minor – Major	Minor – Major	Minor – No Impact	Minor – Major	Minor – No Impact
SG-2: Prescribed burning	Minor – Major	Major	Minor – No Impact	Major	Minor – No Impact
SG-3: Trail use and construction	No Impact	Minor – Major	Minor – No Impact	Minor – Major	Minor
BIOLOGY					
BI-1: Expansion of recreation activities and increased visitor use	Minor	Minor – Major	Minor – No Impact	Major	Minor – No Impact
BI-2: Relocation of radio-controlled airplane strip	No Impact	Minor	Minor	Minor	Minor
BI-3: Expansion of trail system	No Impact	Minor	Minor – No Impact	Minor	Minor – No Impact
BI-4: Increased boat use and access	Minor	Minor	No Impact	Major	No Impact
BI-5: Increase in fishing and/or disturbance to spawning areas	No Impact	No Impact	No Impact	Minor – Major	Minor – No Impact
BI-6: Increased runoff due to increased visitor camping activity	Minor	Major – Minor	Minor	Major – Minor	Minor

Table 4.11-1
Impacts Summary

Impacts to Resources	Alternative 1	Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mitigation	Impact Magnitude	Impact After Mitigation
CULTURAL RESOURCES					
CU-1: Construction of proposed facilities and trails	Major	Major	Minor	Major	Minor
CU-2: Increased visitor activity	No Impact	Major	Minor	Major	Minor
CU-3: Prescribed burns/pest management	Minor	Minor	Minor	Minor	Minor
HAZARDOUS MATERIALS					
NA	No Impacts	No Impacts		No Impacts	
VISUAL RESOURCES					
VR-1: Construction of trails and structures (Amphitheater)	No Impact	Minor	Minor – No Impact	Major	Minor – No Impact
VR-2: Smoke from prescribed burns	Minor	Minor	Minor	Minor	Minor
VR-3: Increased boat densities	No Impact	Minor	Minor	Minor	Minor
VR-4: Relocation of the storage area	No Impact	Beneficial	NA	Beneficial	NA
VR-5: Loss of oak trees due to facilities construction	No Impact	Minor	Minor – No Impact	Minor	Minor – No Impact
LAND USE					
LU-1: Prescribed burning	Minor	Minor	Minor	Minor	Minor
LU-2: Use of trail system: equestrian and cyclists	Minor	Minor	No Impact	Minor	No Impact
RECREATION					
R-1: Body contact water sports	No Impact	No Impact	No Impact	Major	Major – Minor
R-2: Expansion of camping and park infrastructure	No Impact	Minor	Minor	Minor	Minor
R-3: Day use and camping on the Main Island	No Impact	Minor	Minor	Minor	Minor
R-4: Addition and expansion of management plans	No Impact	Beneficial	NA	Beneficial	NA
R-5: Noise pollution from radio-controlled airplanes, construction equipment, and ski boats	Minor	Major	Minor	Major	Minor

Table 4.11-1
Impacts Summary

Impacts to Resources	Alternative 1	Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mitigation	Impact Magnitude	Impact After Mitigation
VISITOR ACCESS AND CIRCULATION					
TR-1: Construction and maintenance activities	Minor	Major – Minor	Minor	Major – Minor	Minor
TR-2: Visitor access and circulation	Minor	Major – Minor	Minor	Major – Minor	Minor

NA = Not applicable

4.12 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 1502.16 of NEPA requires this RMP to consider significant irreversible environmental changes that could result from the RMP should it be implemented. An impact would be determined to be a significant and irreversible change in the environment if implementation of the RMP would:

- Involve a large commitment of nonrenewable resources,
- Commit future generations to similar uses,
- Involve uses in which irreversible damage could result from any potential environmental accidents associated with the RMP, or
- Result in an unjustified consumption of resources.

Implementation of the proposed RMP would not involve any commitment of nonrenewable resources, use of resources that could cause irreversible damage, or an unjustified consumption of resources.

Alexander, W.E. 1912. *Historical Atlas of Ventura County, California.*

American Ornithologists' Union. 1998. Checklist of North American birds. 7th edition. Washington DC.

American Society for Testing and Materials (ASTM). 2000. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Designation E 1527.

Aukerman, Rob and Glenn Haas. 2004. *Water Resource Opportunity Spectrum User's Guidebook.* U.S. Department of the Interior, Bureau of Reclamation. July.

Breeding Bird Survey. 1991. Trend Analysis for the Grasshopper Sparrow. Breeding Bird Survey, Laurel, Maryland.

California Department of Conservation, Division of Mines and Geology (DMG). 1986. Official Map of Earthquake Fault zones, Matilija Quadrangle, scale 1:24,000.

California Geological Survey. 2003a. Seismic Hazard Zone Report for the Matilija 7.5-Minute Quadrangle, Ventura County, California. California Department of Conservation.

California Geological Survey. 2003b. State of California Seismic Hazard Zones Matilija Quadrangle. California Department of Conservation. April 17. URL: http://www.conservation.ca.gov/cgs/shzp.

California Native Plant Society (CNPS). 2007. *Inventory of Rare and Endangered Vascular Plants of California*. Database was searched within USGS 7.5-minute quadrangles: Matilija, Old Man Mountain, Wheeler Springs, Lion Canyon, Ojai, Saticoy, Ventura, and Pitas Point. Visited 2004 to 2007.

California Natural Diversity Database (CNDDB). 2007. Wildlife & Habitat Data Analysis Branch, California Department of Fish and Game. Database was searched within USGS 7.5-minute quadrangles: Matilija, Old Man Mountain, Wheeler Springs, Lion Canyon, Ojai, Saticoy, Ventura, and Pitas Point.

Casitas Municipal Water District (CMWD). 1981. Ordinance No. 81-2, Rules and Regulations for the Management of the Charles M. Teague Memorial Watershed. June 24.

Casitas Municipal Water District (CMWD). 2008. Boat Access Temporarily Restricted at Lake Casitas To Prevent Invasive Species Contamination. URL: http://www.lakecasitas.info/documents/QuaggaTempRestriction030508.pdf. Accessed April 6, 2008.

Chubb, S. 1997. Ventura watershed analysis, focused input for steelhead restoration. Los Padres National Forest, Ojai Ranger District.

Department of Finance. 2004. Population Projections by Race/Ethnicity, Gender and Age for California and its Counties 2000–2050. State of California. Sacramento, California, May. URL: http://www.dof.ca.gov/HTML/DEMOGRAP/ReportsPapers/Projections/P3/P3.asp.

Dibblee, T.W., Jr. 1987. Geologic map of the Matilija Quadrangle, Ventura County, California: Dibblee Foundation Map #DF-12, scale 1:24,000.

Dunn, Jon, and Kimball Garrett. 1997. *A Field Guide to Warblers of North America*. New York: Houghton Mifflin.

ENTRIX and Woodward-Clyde Consultants. 1997. Ventura River steelhead restoration and recovery plan. Chapter 3. Walnut Creek, CA.

Erlandson, Jon, and Roger Colten. 1991. Hunter-gatherers of early Holocene coastal California. In *Perspectives in California Archaeology*, Volume I, Jon M. Erlandson and Roger Colten, editors. Institute of Archaeology, University of California, Los Angeles.

Fish-n-Map Company. 1990. Lake Casitas, Lake Cachuma.

Frankel, A.D., M.D. Petersen, C.S. Mueller, K.M. Haller, R.C. Wheeler, E.V. Leyendecker, R.L. Wesson, S.C. Harmsen, C.H. Cramer, D.M. Perkins, and K.S. Rukstales. 2002. *Documentation for the 2002 Update of the National Seismic Hazard Maps.* U.S. Geological Survey Open File Report 02-420.

Grant, Campbell. 1978. Chumash: Introduction. In *Handbook of North American Indians, California*, Vol. 8, Robert F. Heizer, editor. Smithsonian Institution, Washington DC.

Harrison, William M. 1964. Prehistory of the Santa Barbara Coast, California. Doctoral Dissertation, University Microfilms, Ann Arbor, MI.

Hart, E.H. 1994. *Fault Rupture Hazard Zones in California.* California Department of Conservation, Division of Mines and Geology Special Publication 42 (Revised).

Hickman, J. C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley and Los Angeles, CA.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Unpublished report. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Sacramento, CA.

Isles, C. 2007. Lake Casitas Receation Area, Park Services Administrator/Record-keeper, personal communication. March.

Kaufman, Kenn. 1996. *Lives of North American Birds*. New York: Houghton Mifflin.

Kerr, P.F. and Schenck, H.G. 1928. Significance of the Matilija overturn. *Geological Society of America Bulletin* 39:1087-1101.

King, Chester. 1990. *The Evolution of Chumash Society: A Comparative Study of Artifacts Used in the Social Maintenance of the Santa Barbara Channel Islands Region Before AD 1804*. New York: Garland Publishing, Inc.

Latausek, Thomas. 1995. *The Ventura River Project (2nd Draft).* Bureau of Reclamation.

Lehman, Paul. 1994. *The Birds of Santa Barbara County, California*. Santa Barbara: Vertebrate Museum, University of California, Santa Barbara.

Maki, Mary K. 2000. Preliminary Historic Properties Resource Management Plan for Archaeological Resources, Casitas Open Space Lands, Ventura County, California. Prepared for URS Greiner Woodward Clyde, Santa Barbara, CA.

Moratto, Michael. 1984. *California Archaeology.* San Diego, CA: Academic Press.

Peeters, Hans, and Pam Peeters. 2005. *Raptors of California*. Berkeley: University of California Press.

Percy, R. Gird. 1979. The Santa Ana: Land Grant and Mountain Valley. *Ventura County Historical Society Quarterly* 24(3):1-21.

Ritsch, Massie. 1999. Cat Scan Digs, Finds No More Ice Age Bones. In *The Los Angeles Times*, Section B, Page 1, May 1, 1999.

Rogers, David Banks. 1929. *Prehistoric Man on the Santa Barbara Coast*. Santa Barbara Museum of Natural History.

Roney, B. 2007. Lake Casitas Recreation Area, Park Services Manager, personal communication. March.

Ross, S.L., D.L. Boore, M.A. Fisher, A.D. Frankel, E.L. Geist, K.W. Hudnut, R.E. Kayen, H.J. Lee, W.R. Normark, and F.L. Wong. 2004. *Comments on Potential Geologic and Seismic Hazards Affecting Coastal Ventura County, California.* Open File Report 2004-1286. United States Department of the Interior, United States Geological Survey.

San Buenaventura Research Associates. 2000. Section 106 and CEQA Historic Resources Evaluation, Casitas Resource Management Plan, Ventura County, CA. Prepared for URS Greiner Woodward Clyde, Santa Barbara, CA.

Smith, C. F. 1998. *A Flora of the Santa Barbara Region, California*. Second edition. Santa Barbara, CA: Santa Barbara Botanic Garden and Capra Press.

Sorlien, C.C., J.P. Gratier, B.P. Luyendyk, J.S. Hornafius, and T.E. Hopps. 2000. Map restoration of folded and faulted late Cenozoic strata across the Oak Ridge fault, onshore and offshore Ventura basin, California: Geological Society of America Bulletin. V. 112, no. 7, p. 1080-1090.

Terres, John K. 1991. *The Audubon Society of North American Birds*. New York: Wings Books.

United States Bureau of Reclamation (Reclamation). Ventura River Project, California. http://www.usbr.gov/dataweb/html/ventura.html.

United States Bureau of Reclamation (Reclamation). 1977. *Lake Casitas Land Use and Management Plan.* United States Department of the Interior, Ventura River Project.

United States Bureau of Reclamation (Reclamation). 2007. *Public Scoping Report. Lake Casitas Recreation Area Resource Management Plan.* United States Department of the Interior. Mid Pacific Region.

United States Department of Agriculture (USDA). 1970. *Soil Survey Ventura Area, California.* Soil Conservation Service in cooperation with University of California Agricultural Experiment Station. April.

United States Fish and Wildlife Service (USFWS). 2003. Endangered species program. At <http://endangered.fws.gov/>. Accessed February 2007.

United States Geological Survey (USGS). 2003. Earthquake Hazards Program. http://earthquake.usgs.gov/research/hazmaps/products_data/2002/2002April03/US/USpga500v4.pdf. http://earthquake.usgs.gov/regional/states/california/seismicity.php. http://earthquake.usgs.gov/research/hazmaps/products_data/images/nshm_us02.gif.

United States Geological Survey (USGS). 2006. Preliminary Geologic Map of the Matilija 7.5' Quadrangle, Ventura County, California: A Digital Database. ftp://ftp.consrv.ca.gov/pub/dmg/rgmp/Prelim_geo_pdf/Matilija_prelim.pdf.

United States National Forest Service. 2001. Los Padres National Forest, Biological Assessment/Evaluation for the Laguna Prescribed Burn. Ojai Ranger District.

URS Corporation. 2007. Lake Casitas Cultural Resources Technical Report.

Ventura County Air Pollution Control District (VCAPCD). 2004. Ventura County Triennial Plan Assessment and Update Under the California Clean Air Act.

Ventura County General Plan (VCGP). 2005a. Hazards Appendix. Adopted by the Ventura County Board of Supervisors May 24, 1988. Last Amended November 15, 2005.

Ventura County General Plan (VCGP). 2005b. Public Facilities & Services Appendix. Adopted by the Ventura County Board of Supervisors May 24, 1988. Last Amended November 15, 2005.

Ventura County Public Works Agency. 2007. Traffic Volume Table. January 29.

Wallace, William. 1955. A suggested chronology for Southern California coastal archaeology. Southwestern Journal of Anthropology 11(3):59-77.

Warren, Claude N. 1968. Cultural tradition and ecological adaptation on the Southern California coast. *Eastern New Mexico University, Contributions in Anthropology* 1(3):1-15.

Weber, Jr., F.H. and E.D. Kiessling. 1978. Historic Earthquakes: Effects in Ventura County. *California Geology* 31(5). May.

Weinerth, R. 2007. Lake Casitas Recreation Area, Park Services Officer, personal communication. March.

Bureau of Reclamation

Name	Position/Title	Area of Expertise Addressed in RMP/EIS
Bob Epperson	Chief of Lands Team/Bureau of Reclamation	Overall Project Management
Jack Collins	Resource Management Specialist/Bureau of Reclamation	Overall Project Management
Valerie Curley	Resource Management Specialist	Scheduling
Bob Wignot	Technical Consultant/REW and Associates	Water Resources Management
Kristin Emde	Intern/Bureau of Reclamation	Research Scientist
Erik Emde	Intern/Bureau of Reclamation	Research Scientist

URS Consulting Team

Name	Position/Title	Area of Expertise Addressed in RMP/EIS
Steve Kellogg	BS/MS Biology	Overall Project Management/Resource Management Plan
Sarah W. La Belle, AICP	MA Geography, Transportation Studies	Resource Management Plan, Recreation, Document Preparation
Michelle Jerman	MA Anthropology	Cultural Resources
Jason Spicer	BS Civil - Environmental Engineering	Water Resources
Johanna Kisner	MS Environmental Sciences and Management	Biology
Manisha Kothari	MS Foreign Service; B.A. Political Science and Communications	Recreation/Visual Resources
Ana Hudson, AICP	MS City Planning	Visual Resources, Land Use
Lynn McIntyre	BA Journalism	Technical Editing, Document Preparation
Corey Chan	MS Environmental Science and Management	Hazardous Materials, Soils and Geology, Traffic and Circulation
Casey Mills, AICP	MA City and Regional Planning BA Environmental Studies and Geography	Air Quality
Lisa Huntsberry	BA Geography and Anthropology	GIS