



Legal Framework

Laws, regulations, guidelines, and governmental policies comprise the legal framework of California's forests and rangelands. The legal framework affects land ownership and use, the flow of goods and services among consumers, and sets the context of operation for government agencies. Conservatively, there are at least 90 State and federal laws that govern forest and range resources. Additionally, there are at least 25 executive orders (EOs) or other initiatives relevant in the last decade.

Like natural systems, laws, guidelines, policies, and institutions follow a cycle (Johnson et al., 1999). Policies, recently thought of as new, tend to become more stable, inflexible, and resistant to significant change over time. At some point, policies stop working and result in a period of crisis that involves reorganization and creation of new institutional structures. The new structures assess reasons for the failure of the old policies and subsequently present new approaches to formal decision-makers, such as the U.S. Congress or the California Legislature. New formal policies are then implemented and the cycle begins anew.

Historically, agencies and laws have been organized around specific resources, resource protection functions, or land designations. For a variety of reason, cooperation of legal mandates in light of new scientific input or changing public values has been slow. This has led to substantial institutional unrest and experimentation of governance mechanisms.

The following topics in this section describe the multiple aspects and many variations to the legal framework surrounding forests and rangelands in California:

- significant federal laws and policies affecting forest and range resources;
- agencies implementing the laws and policies;
- methods used to conserve cultural values;
- private land legal frameworks;
- State agencies regulating best management practices; and
- institutions and laws on public forests and rangelands.

These topics provide information relevant to Montreal Process indicators 48 through 52 that cover how the legal framework addresses sustainability. Specific focus is on the indicators that address legal frameworks relating to protection of property rights, best management codes, and protection of cultural values.

Findings on laws, policies, and agencies implementing governing forest and rangelands

Laws and policies

There are at least 50 federal laws, 20 EOs or other federal policy statements, and nearly 40 state laws that affect forest and rangelands in California (Tables 1, 2, and 3). Several of the laws focus specifically on forests or rangelands. However, most address a broader range of landscapes and many are implemented through rules and enforcement provisions.

Table 1. Federal laws

Federal laws	Primary focus	
	Forest or range	Multiple resource
Cooperative Forestry Assistance Act of 1978 (Forestry Incentives, Forest Stewardship, Stewardship Incentives, Forest Legacy)	X	
Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974	X	
Multiple Use and Sustained Yield Act of 1974	X	
National Forest System Drug Control Act of 1986	X	
Renewable Resource Extension Act of 1978	X	
National Forest Management Act of 1976 (NFMA)	X	
Administrative Procedures Act of 1946		X
Archeological Resources Protection Act of 1979		X
Bald and Golden Eagle Protection Act of 1940		X
California Desert Protection Act of 1994		X
Clarke-McNary Act of 1924	X	
Clean Air Act of 1990		X
Clean Water Act of 1987		X
Coastal Zone Management Act of 1972		X
Conservation Reserve Program (Farm Bill 1995)		X
Cooperative Forestry Assistance Act of 1990	X	
Endangered Species Act (ESA) of 1973		X
Environmental Quality Incentives Program (Farm Bill 1996)		X
Federal Advisory Committee Act		X
Wildlife Habitat Incentives Program (Federal Agricultural Improvement and Reform Act of 1996)		X
Federal Land Policy and Management Act of 1976 (FLPMA)	X	
Federal Insecticide, Fungicide and Rodenticide Act (as amended in 1996)		X
Federal Noxious Weed Act of 1974		X
Fish and Wildlife Conservation Act of 1980		X
Governmental Performance and Results Act of 1993 (federal agencies only)		X
Historic Preservation Act of 1966		X
Magnuson Fishery and Conservation Act of 1972		X
Marine Mammal Protection Act of 1972 and amendments		X
Migratory Bird Treaty Act of 1918		X
Minerals Leasing Act of 1920		X
National Environmental Education Act of 1990		X
National Environmental Policy Act of 1969		
National Environmental Quality Act of 1969		X
National Trails System Act of 1968		X
National Wildlife Refuge System Administration Act of 1966 (1997)		X
National Wildlife Refuge System Improvement Act of 1997		X
Native American Graves Protection and Repatriation Act (1990)		X
Native American Tribal Laws		X
Organic Act of the National Park Service (including amendments)		X
Preservation of American Antiquities Act of 1906		X
Public Rangelands Improvement Act of 1978	X	
Public Utility Regulatory Policies Act of 1978		X
Refuge Recreation Act of 1998		X
Renewable Resources Extension Act of 1978	X	
Safe Drinking Water Act (1996 Amendments)		X
Soil and Water Conservation Act of 1986		X
Solid Waste Disposal Act of 1986		X
Surface Mining and Reclamation Act of 1977		X
Tahoe Regional Planning Compact (Public Law 96-551, 1980)		X
Taylor Grazing Act of 1934	X	
Toxic Substances Control Act of 1989		X
Wilderness Act of 1964		X
Wild and Scenic Rivers Act of 1968		X
Fish and Wildlife Coordination Act of 1934		X
Wild Horses and Burros Protection Act of 1971	X	

Table 2. Federal Executive Orders (EOs) and other policy statements

Subject of EO	Order number	Year
Actions to expedite energy-related projects	13212	2001
Greening government through environmental management leadership	13148	2000
Invasive species federal action directive (authorities addressing invasive species)	13112	1999
Federal Interagency Partnership on Lake Tahoe Ecosystem	13057	1997
Indian sacred sites (protect and preserve native American sites and religious practices)	13007	1996
Federal agency standards for content of recycled paper	12995	1996
Management and use on National Wildlife Refuge (NWR) System	12996	1996
International Union for Conservation of Nature and Natural Resources (legal immunity)	12986	1996
Commission on Environmental Cooperation (establishment)	12904	1994
Advisory Committee on Trade and the Environment	12915	1994
Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations	12898	1994
President's Council on Sustainable Development (establishment)	12852	1993
Grazing fees on federal lands	12548	1986
President's Commission on Americans Outdoors (establishment)	12503	1985
Animal Damage Control on Federal Lands (environmental safeguards for actions)	12114	1982
Environmental evaluation functions (transfer of some functions)	12040	1978
Off-road vehicle use on federal public lands	11989	1977
Preservation and enhancement of environmental quality	11991	1977
Protection of Wetlands ("No-Net Loss" of Wetlands)	11990	1976
Preservation of Endangered Species (responsibility and standards for protection)	15683	1976
Other		
Clean Water Action Plan	Initiative	1998
Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management	MOU	2000
From Congress -protecting people and sustaining resources in fire-adapted ecosystems- a cohesive strategy (National Fire Plan)		2000

Source: National Archives and Records Administration, 2002

Table 3. State laws

	Primary focus	
	Forest or range	Multiple Resource
State laws		
Significant Natural Areas Program		X
California Riparian Habitat Conservation Program		X
Inland Wetlands Conservation Program		X
California Administrative Procedures Act		X
California ESA		X
California Environmental Quality Act		X
California Forest Legacy Act of 2000		
California Land Conservation Act (Williamson Act)		X
California Open Meetings Act		X
California Wilderness Act		X
Fish and Game Code Sections Related to Stream alteration		X
Fish and Game Code Sections Related to regulation of hunting and fishing		X
Fish and Game Code Sections Related to Management of Wildlife Areas, Ecological Reserves, and Fish Hatcheries		X
Forest Resource Improvement Act		X
Forest Taxation Reform Act	X	
Geologist and Geophysicists Act		X
Natural Community Conservation Planning Act (1991, as amended by SB 107, Sher, Statutes 2001)		X
Oak Woodlands Conservation Act (2001)	X	
Porter Cologne Water Quality Control Act		X
Professional Foresters Law	X	
Public Resource Code Sections Related to Management of State Forests	X	
Public Resource Code Sections Related to Control of Forest Insects and Disease		X
Public Resource Code Sections Related to Control of Wildfire	X	
Public Resource Code Sections Related to Fire Hazard Reduction, Fire Safe Planning and Construction, and Arson		X
Public Resource Code Sections Related to establishment of Native American Heritage Commission and Protection of Native American historical and cultural sites.		X
Reliable Electric Service Investments Act (2000)		X
Native Plant Protection Act (FGC 1900-1913)		X
Waste Management Reduction Act of 1989		X
Z'Berg-Nejedly Forest Practice Act	X	
Ballot initiatives and bond measures		
Proposition 117, Mountain Lion Initiative (1990)		X
Proposition 197 Amendment of the California Wildlife Protection Act of 1990 (1996) (Failed)		X
Proposition 4, Trapping Practices. Bans Use of Specified Traps and Animal Poisons. Initiative Statute, 1998		X
California Coastal Act		X
Proposition 12, Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000, The Villaraigosa-Keeley Act		X
Proposition 13, Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act of 2000		X
Interagency agreements		
State Water Resources Control Board Decision 1631 (limits water diversions by City of LA from Mono Lake)		X
Bay Delta Accord and SWRCB Order WR 95-06 (Increases CVP and SWRCB protection for Bay-Delta water quality)		X
Coordinated Operation Agreement for the State Water Project and the Central Valley Project		X

Agencies implementing forest and range laws in California

Agencies that oversee forests and rangelands operate at the local, regional, state, and federal levels of government. Additionally, many forest values are supervised by more than one governmental agency. Historically, administrative boundaries have tended to follow resource or geographic definitions rather than ecological considerations. The result is a complex overlap of jurisdictions relating to the

conservation and management of forests and rangelands. Agencies with significant influence over forest and rangeland resources in California are summarized by significant resource focus in Table 4.

Similarly, several state EOs exist that deal with several resource-based issues. An example includes EO D-28-01, which calls on the California Energy Commission (CEC) and all other reviewing agencies to modify their procedural requirements for State energy projects in order to speed up the process of producing more energy for California (California Office of the Governor, 2000).

Agencies by resource focus

Multiple agencies often have authority over a specific resource type on private or public land. Federal and State agencies may also have parallel authority over resources in private and public ownerships (Table 4).

Table 4. Agencies with historical authority and/or substantial influence on forest and range resources in California

Significant resource focus	State	Federal	Regional	Local
Forest management	CDF	USFS, BLM	RWQCBs	Local zoning ordinances
Rangeland practices	CDF, SWRCB	USFS, BLM, NPS, EPA, NRCS	RWQCBs	RCDs, UC Agricultural Extension, local zoning ordinances
Forest and range health	CDFA, CDF, DFG, DPR	USFS, BLM, NPS, DOD, and other agencies		County Agricultural Commissioner, RCDs
Soil resources	CGS	USGS, NRCS		RCDs
Wildlife and wildlife habitat	DFG, WCB	FWS, USFS, BLM, NPS	Various State conservancies	Local conservancies
Fire protection/fuels management	CDF	USFS, BLM, NPS		County, city fire departments, local fire districts
Fish and fish habitat	DFG	NMFS		
Wilderness/reserves	DFG, DPR, UCANR	USFS, BLM	Various State conservancies	
Outdoor recreation	DPR, DBW	NPS, BLM, USFS, FWS	Regional parks, open space districts	Local parks, open space districts
Open space and urban forest values	DPR, CDF, ARB, CEC	NPS, BLM, USFS	Regional parks; open space districts	County general plans, local parks, local ordinances, non-profits and conservancies
Cultural and historical resources	DPR, CNAHC	NPS, BLM, USFS, DOD	Regional parks and museums	Local parks and museums,
Water quality	SWRCB, RWQCBs, DHS	EPA, USACE	BCDC	RCDs, local water districts
Water quantity	DWR, SWRCB (water rights)	USBR, BCDC	Regional water districts	Local water and irrigation districts
Coastal resources	CCC, SCC	EPA		Local coastal plans
Energy	CEC, CPUC	FERC, DOE	PG&E, SCE, others	Local energy districts
Air quality	ARB, AQMDs	EPA	AQMDs	
Special places	DPR, DFG, CDF, CCC	NPS, USFS, BLM	TRPA, East Bay regional parks	Local parks, land use ordinances
Visual/scenic	DPR, DFG, ARB	NPS, USFS, BLM	Various State conservancies	Local conservancies
Nature and public education	CDF, DOC, DPR, CDE	NPS, USFS, BLM, FWS, NMFS, EPA	Regional park and open space districts	County, city governments, local school districts
Public health and safety including wildfire and flood risk	CDPR, SWRCB, RWQCBs, ARB and local air boards, CDF	CDF, DFG, EPA, CDFA, USFS, BLM, OES, FEMA, DOD		County and city health officials, local fire, and law enforcement agencies

AQMD – Air Quality Management District; ARB – California Air Resources Board; BCDC – San Francisco Bay Conservation and Development Commission; BLM – U.S. Bureau of Land Management; CCC – California Coastal Commission; CDE – California Department of Education; CDF – California Department of Forestry and Fire Protection; CDFA – California Department of Food and Agriculture; CEC – California Energy Commission; CGS – California Geological Survey; CNAHC – California Native American Heritage Commission; DPR – California Department of Parks and Recreation; CPUC – California Public Utilities Commission; DBW – California Department of Boating and Waterways; DFG – California Department of Fish and Game; DHS – California Department of Health Services; DOC – California Department of Conservation; DOD – U.S. Department of Defense; DOE – U.S. Department of Energy; CDPR – California Department of Pesticide Regulation; DWR – California Department of Water Resources; EPA – U.S. Environmental Protection Agency; FEMA – Federal Emergency Management Agency; FERC – Federal Energy Regulatory Commission; FWS – U.S. Fish and Wildlife Service; NMFS – National Marine Fisheries Service; NPS – National Park Service; NRCS – U.S. Natural Resources Conservation Service; OES – California Office of Emergency Services; PG&E – Pacific Gas and Electric; RCD – Resource Conservation District; RWQCB – Regional Water Quality Control Board; SCC – State of California Coastal Conservancy; SCE – Southern California Edison; SWRCB – California State Water Resources Control Board; TRPA – Tahoe Regional Planning Agency; UC – University of California; UCANR – University of California Division of Agriculture and Natural Resources; USACE – U.S. Army Corps of Engineers; USBR – U.S. Bureau of Reclamation; USFS – U.S. Forest Service; USGS – U.S. Geological Survey; WCB – California Wildlife Conservation Board.

Regulatory Jurisdictions over Management Activities

Public and private lands are currently subject to restrictions that curtail timber harvesting, grazing, and other commodities, as outlined above. Many of the laws, frameworks and polices focus on:

- Plans to protect and restore fish and fish habitat;
- landscape level environmental review such as watershed assessment or cumulative watershed effects analysis;
- Board of Forestry rules requiring consideration of sustained growth and timber harvest;
- development of plans that address threatened and endangered terrestrial and aquatic species;
- application of CEQA requirements to Fish and Game Stream Crossing Permits; and

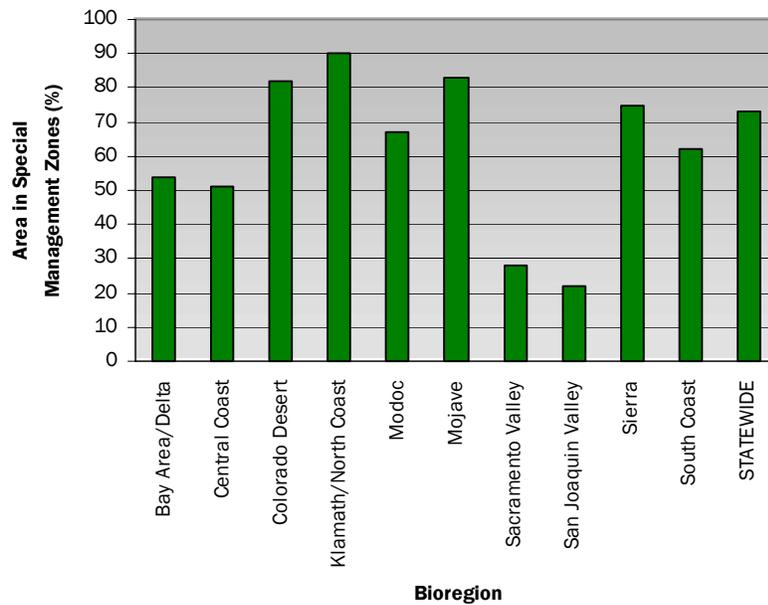
- stronger application of federal Clean Water Act requirements by Regional Water Quality Control Boards (RWQCBs).

The result has been a growing overlap of regulatory frameworks and legal requirements. These include reserve designations, watershed policies by agencies on federal lands, regulatory approaches on privately owned forest lands, and voluntary approaches on privately owned rangelands. To reflect the extensive regulatory nature of on forest and rangeland activities, FRAP ranked each bioregion to reflect the percent of forests and rangelands where specific regulatory requirements, or lands of particular concern under the Forest Practice Rules (FPRs) (steep slopes, riparian areas, and late successional forests), are likely to dictate the amount and type of land management activities permitted. These *Special Management Zones* focus on timber management, grazing, and other land use actions. Bioregions with substantial portions of land in special management zones are likely to have greater attention directed towards protection of biological diversity, ecosystem structures, and soil and water quality. The following are the regulatory or unique land formations used to identify these zones:

- California Coastal Zone designation;
- Habitat Conservation Plans and Natural Community Conservation Plans;
- public lands;
- reserves (excludes most extractive management and commodity production);
- forested lands with slopes over 40 percent;
- perennial stream riparian areas;
- late successional forests (LSF) (approximate extent as defined by Forest Practice Rules);
- watersheds with Total Maximum Daily Load (TMDL) plans; and
- voluntary or mandatory county oak ordinances on hardwood rangeland areas.

Of the over 80 million acres of forests and rangelands, 73 percent have special regulatory laws and plans, zoning ordinances, and ownership designations focusing on protection of resource values including the basic Forest Practice Rules and CDFR requirements. Profiles of each bioregion show that the highest proportions of special management zones on forests and rangelands are in the Klamath/North Coast (90 percent) and Mojave and Colorado Desert bioregions (over 80 percent) (Figure 1).

Figure 1. Percentage area of forests and rangelands in Special Management Zones, by bioregion and statewide

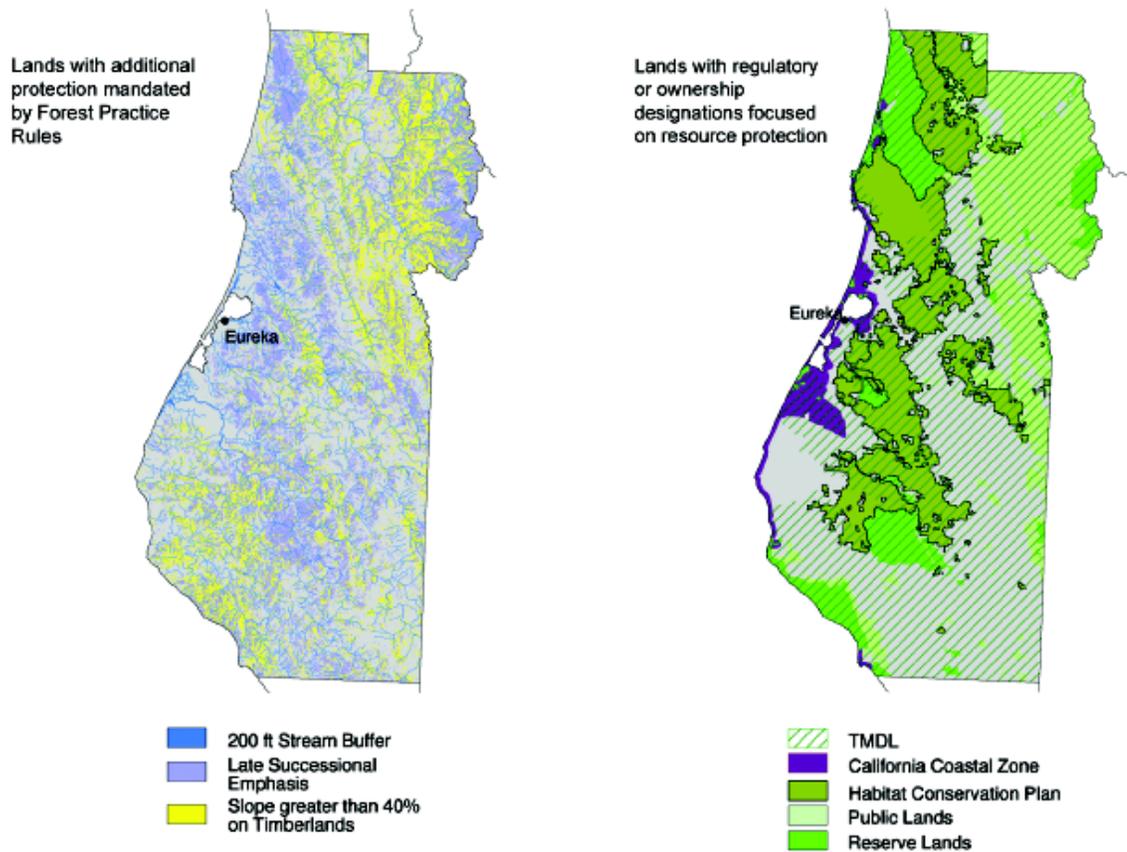


Source: FRAP, 2003

Results of the analysis suggest that most forests and rangelands where significant management activities occur have some multiple regulatory foci or designations that can contribute to the protection of unique habitats, biological diversity, soil and water quality, and aquatic systems. For example, over 90 percent of Humboldt County has a regulatory designation or a land form that can key special review for impacts from logging or grazing (Figure 2). However, the extent of government regulation does not necessarily predict the actual level of environmental stewardship and protection.

Success of sustaining ecological values will depend on good land management practices and a willingness to expend limited financial resources, both public and private. To a certain extent, investments on private forest lands are compelled by requirements of the FPRs, but more investments will likely be needed over time.

Figure 2. Special Management Zones, Humboldt County



Source: FRAP, 2003

Findings on legal framework for state and federal management of forest and rangelands to conserve special, cultural, and/or scientific values

California forests and rangelands have numerous special, cultural, and scientific values. Both federal and State laws and institutions recognize special values relating to coastal resources, wild and scenic rivers, wilderness areas, parks, wetlands, historical sites, cultural sites, Native American values, and habitat for plant, animal, and fish species. Special protection is also given to resources such as Lake Tahoe, Yosemite, and various redwood forests. Federal laws and rules also provide special protection in California through reserves, national parks, national monuments, and wildlife refuges (Table 5).

Table 5. Agencies mandated to protect special forest and range values

Special values	State	Federal	Regional	Local
Forest management and historical values	CDF, State forests, DPR	National forests, national parks and monuments	Regional parks	Local parks and museums
Rangeland management and historical values	DPR, UC reserves and field stations	BLM districts, national parks	Regional parks	Local parks and museums, local conservancies
Wildlife and wildlife habitat	DFG reserves, UC reserves and field stations, DPR	FWS wildlife refuges, national parks, national forests, BLM districts	Various State conservancies; regional parks	Local conservancies
Fish and fish habitat	DFG reserves, State forests, State parks system, UC reserves and field stations	BLM districts, national forests	Various State conservancies	Local conservancies
Wilderness/reserves	DPR	Federal wilderness and reserves, national monuments	Various State conservancies	Local parks, local conservancies
Outdoor recreation	DPR	National parks, national monuments, wild and scenic rivers system, national trails system,	Regional parks	Local parks and museums, local conservancies
Open space and urban forest values	DPR	National forests, national parks	Regional parks, open space districts, State conservancies	Local parks, local ordinances, non-profits and conservancies
Cultural and historical resources	DPR, protection of archaeological sites	National parks, national forests, BLM districts	Regional parks and museums	Local parks and museums
Water quality	Regional boards and basin plans		Regional entities such as BCDC	Local water districts, local environmental health departments
Coastal resources	CCC	EPA Coastal Zone Management Plan	SCC	Local coastal plans
Special places	DPR, State forests, DFG reserves, UC reserves and field stations	National parks, national monuments, wild and scenic rivers system, national trails system,	TRPA, CCC, East Bay regional parks	Local parks, land use ordinances
Visual/scenic	DPR, DFG, CCC	National parks, national monuments, Wild and Scenic Rivers System, National Trails System, national forests, BLM districts	CCC	Local conservancies

BCDC – San Francisco Bay Conservation and Development Commission; BLM – U.S. Bureau of Land Management; CCC – California Coastal Commission; CDF – California Department of Forestry and Fire Protection; DPR – California Department of Parks and Recreation; DFG – California Department of Fish and Game; EPA – U.S. Environmental Protection Agency; FWS – U.S. Fish and Wildlife Service; SCC – State of California Coastal Conservancy; TRPA – Tahoe Regional Planning Agency; UC – University of California

At the state level, the California Department of Parks and Recreation (DPR) is especially active in protecting cultural and related values. DPR, along with the California Department of Fish and Game (DFG) and the University of California (UC), focuses on protection of sensitive habitats for a variety of purposes including education and scientific research. Lands sensitive to the impacts of development and intensive land use are protected through several mechanisms including the [University of California Natural Reserve System](#) (1999) and [Ecological Reserves](#) (DFG, 1996a) administered by DFG.

University of California Natural Reserve System (UCNRS): Founded in 1965, the purpose of UCNRS is to ensure that natural habitats representing the ecological diversity of California are available for research and study (UCNRS, 1999). Today, the system contains 33 California reserves. The nearest UC campus manages each reserve in perpetuity to maintain its character and to serve as an outdoor classroom and laboratory.

Other lands not directly protected for their scientific values but managed to prevent activity in ecologically sensitive areas include DPR State Reserves and Natural Preserves and DFG Wildlife Management Areas (WMAs). See the online document [California Programs for Biodiversity Conservation](#) for more information (Information Center for the Environment, 1993).

Federal programs that protect special values include the U.S. Forest Service (USFS) Special Interest Areas, the U.S. Bureau of Land Management (BLM) Areas of Critical Environmental Concern and Outstanding Natural Areas, Audubon Bird Sanctuaries, and other regional and local reserves. Additional lands are protected under the U.S. Fish and Wildlife Service (FWS) National Refuge System.

Other programs focus on areas for which additional habitat types can be conserved. Examples include the USFS Research Natural Area (RNA) program and the DPR ranking system used to determine the need for natural area protection in different parts of the State. Some non-profit organizations such as The Nature Conservancy also play a significant role.

California Department of Fish and Game (DFG) Wildlife Management Areas (WMAs): DFG manages 106 WMAs on 631,000 acres scattered throughout the State. The purpose of WMAs is to protect and improve habitat for wildlife species and to provide recreational uses associated with wildlife (DFG, 1996b).

Findings on private property rights and land tenure

Private ownership of land and other assets has been a fundamental tenant of the American political and economic system. The Fifth Amendment of the United States Constitution requires that the government compensate landowners when appropriating private property. At the State level, the Forest Practice Act states “to take private property for public use without payment of just compensation is in violation of the California and United States Constitutions.” However, the Constitution and common law also provides the government with considerable police powers to protect public safety, prevent public harm and nuisances, and preserve publicly owned fish and wildlife species from over-exploitation.

Over the past few decades, there has been an increasing body of case law and court precedents further defining the balance between property rights and police powers. The equitable distribution of the social costs of increased police powers over land and resource use remains a major issue where the regulations may benefit many people, but the costs fall primarily on a few landowners with historical practices such as forestry, ranching, and agriculture.

These cases address the extent to which the government may constitutionally regulate the use of private property. Historically, the courts have interpreted the “takings” clause in the context of cases related to condemnation under eminent domain—that is, the government must provide fair compensation to a landowner if it takes land through legal condemnation. However, only in instances where government regulations have been found to remove virtually all economic property value have court decisions supported financial compensation for a “regulatory taking.”

Cases related to regulatory takings often involve things like air, sun, rainfall, wildlife, and fish that do not lend themselves to single ownership or a clearly defined market value. Ownership also may be hard to establish because resources are mobile, such as rivers, fish, or migratory wildlife. Resources such as viewsheds may have great potential value for commercial uses such as timber growing, but by social

agreement are set aside as parks or reserves. These kinds of goods are often called “commons.” Enterprises like ranching and timber production simultaneously use and affect commons goods like air and water. Because of the historically low prevalence of these activities, impacts could be absorbed by the environment and did not raise much concern. However, as California has grown, the ability of the environment to absorb impacts has decreased while the number of people interested in commons values has increased. The interests of both the media and the average California resident have continued to increase concerning the impacts of timber harvesting and ranching on water, air, traffic, views, noise, removal of vegetation, road wear, odors, and fears over chemical applications.

Water rights and the public trust doctrine

Water law in California is defined through a complex combination of statutes, regulations, judicial and administrative decisions, and local ordinances. The [Water Rights Division](#) of the SWRCB oversees the allocation and administration of State water rights (California State Water Resources Control Board (SWRCB), 2001). Surface and underground water rights are defined as the right to use water rather than own it. However, water rights are also considered as real property in the traditional sense. A riparian right to surface water is “part and parcel” of riparian land, and the right to water flow is real property. Similarly, appropriative rights to surface water and percolating rights to groundwater are interests of real property. However, if appropriative rights are an accessory to the land, then the right is considered incidental to the land. Livestock water developed through placement of water impoundment structures on streams, such as stock ponds, requires the appropriation of water through the normal application-permit-license procedure applicable to the storage of any water.

Constraining the property rights aspect of water rights is the “public trust” doctrine. The public trust doctrine asserts that certain properties should be held by the government for the benefit of its citizens and should not be owned by private parties. However, all public trust uses of water must meet the reasonable use doctrine and do not have priority over other water uses, requiring a balance between competing uses. Navigation, commerce, and fisheries are types of uses to which the doctrine was traditionally applied in California. Through court decisions, its scope expanded to ecological and aesthetic values in navigable waters and more recently to water rights. The ruling of *National Audubon Society v. Superior Court* ((1983) 33 Cal. 3d. 419) determined that public trust doctrine was applicable to water rights and that the right to use water was different than other vested property rights (Environmental Law Reporter, 1983).

In streams determined to be navigable by federal or state tests, the State of California (through the State Lands Commission) may have a sovereign interest in the bed of the river at low water marks and a public trust interest at high water marks. A public right of navigation can exist if the river supports small craft navigation. Under this right, the public may use the stream for boating, swimming, fishing, hunting and all other recreational purposes. While public policy favors public access to waterways for recreation, this use is to be balanced by the private property owner’s right against trespass. The California Constitution mandates public access rights to the State’s waterways, and the California State Lands Commission (2000) has secured public access easements to many of them.

Public safety obligations

Private property rights are bounded in part by public health and safety requirements of state and federal agencies. In the case of the range-livestock industry, one example is health restrictions imposed on

the processing and packaging of beef products. Other examples include quarantine and animal disease control procedures of the California Department of Food and Agriculture and the U.S. Department of Agriculture. A variety of laws and regulations define the nature of these restrictions and obligations.

In the case of both forests and rangelands, one large class of restrictions relates to lessening human caused wildfires and reducing the risk of wildfires. A variety of laws and regulations address human caused fires such as penalties for arson, spark arrestors on equipment, prohibitions on open burning during fire season, and power line clearance. An equally large body of law has evolved related to reducing the risk of wildfires after they start. Examples include:

- 1) building standards, such as fire-retardant roofing;
- 2) easy access for fire fighting forces, such as visible house addresses and driveways with slopes that fire trucks can ascend; and
- 3) reduction of fuels, such as mandatory clearance of vegetation around houses.

In recent years, the concept of “defensible space” has been emphasized as a means for reducing flammable vegetation around homes. This concept includes the creation of fire safe spaces around structures, which facilitates firefighting efforts and protects both people and structures.

Because of conflicts between state and local government roles, taking measures to improve fire safety of homes and subdivisions has sparked periodic political controversy over the years. As a result, State laws governing these areas and implemented by many local governments have evolved slowly. See the online document [Urban-Wildland Interface, Fire: The I-Zone Series](#) for background information (University of California Forest Products Laboratory, 2001).

Evolving zoning and roofing standards: Following the loss of over 500 structures to wildfires between 1980 and 1982, sections were added to the Public Resources Code (PRC) sections were added that required the California Department of Forestry and Fire Protection (CDF) to classify lands where they provide fire protection services, into fire hazard severity zones. These zones are related to fuel loading, slope, fire weather, and other factors. The purpose of this requirement is to identify measures that slow the rate of wildfire spread and lessen the potential wildfire intensity. Maps of geographic areas with fire hazard severity ratings were sent to local governments for use in the local planning process. Some local governments used the maps to require additional design in subdivisions that reduce wildfire threats.

In 1991, SB 1075 (Rogers) amended the PRC to establish minimum fire safety regulations for development in State Responsibility Areas (SRAs). After lengthy hearings, the California State Board of Forestry and Fire Protection (BOF or the Board) passed regulations setting standards for driveway access, visible addressing on homes, street identification, and greenbelts or fuel breaks. By law, the standards apply only to new developments. Subdivisions are still under local agency jurisdiction for the purpose of development and land use planning.

Another approach was taken for areas outside State and federal jurisdiction, called Local Responsibility Areas (LRAs). In 1992 Assembly Bill 337 (Bates) was passed in the wake of the Tunnel Fire of 1991 in the Oakland/Berkeley Hills. The bill mandated CDF to identify and classify fire hazards in the LRA, including areas of Very High Fire Hazard Severity Zones (VHFHSZ). Technically, the classification was not zoning since all land use decisions remained under control of local government. A large number of local agencies chose not to acknowledge or implement it. The "Bates" bill also required that CDF periodically review compliance with VHFHSZ use by local agencies. A 1999 review indicated that not all VHFHSZ jurisdictions had yet followed state mandates.

Following the Southern California Firestorm in 1993 that destroyed 1,171 structures, AB 3819 (AB 3819, Chapter 843, 1994) was passed that established stronger fire-resistant roofing requirements in both LRA VHFHSZ and SRA High and Very High Fire Hazard Severity Zones (Legislative Council of California, 1994). However, for several reasons, a number of areas were not covered by the legislation and compliance has been uneven. However, subsequent legislation has been more stringent. In 1995, AB 747 (AB 747, Chapter 333, 1995) passed, which severely limited the use of wood roofing on any new structure or on a re-roof of 50 percent or more of the roof area of any existing structure in VHFHSZ in California (Legislative Council of California, 1995). In 1999, AB 423 (AB 423, Chapter 380, 1999) was passed that now requires fire retardant roofing in designated fire hazard severity zones when any re-roofing is initiated (Legislative Council of California, 1999a).

The PRC contains a variety of sections that define the relationship between landowners, local government, and the State. For example, lands where the State is responsible for providing fire protection (SRA) must also be developed in a way that helps lessen the risk of wildfires to the public (California Office of the State Fire Marshal, 2000). State and local agencies are expected to cooperate to achieve this end. However, state agencies have made recommendations as part of the local land use planning process, with local government deciding on outcomes. To a large degree, this remains true today.

Local government and land use arrangements

In California, local government plays a key role in influencing use of agricultural and natural resource lands, including ranching and timber growing. Influence occurs in a variety of ways, particularly through zoning ordinances and land use policies (Sokolow, 1997). Counties typically set minimum parcel sizes for lands in different locations or classifications. The minimum parcel size for forests and rangelands varies from 20 acres or less to 160. Parcels can have different designations, such as Timberland Production Zone (TPZ), agricultural conservation zone, or other labels such as conservation, resource management, rural agricultural, or other agricultural use zones. Permissible residential densities vary in each zone. Residences may be "grouped" or "clustered" in an effort to preserve more undeveloped land.

Counties may also employ other tools such as establishing agricultural buffers and adopting right-to-farm ordinances. For example, about 40 counties and 50 cities in California have enacted right-to-farm measures to protect farmers from nuisance lawsuits. The effectiveness of these measures has varied (Wacker et al., 2001). While right-to-farm ordinances may include timber operations (California Farm Bureau Federation, 2002), there has not been widespread application of right-to-farm ordinances to timber growing.

Several local jurisdictions in California have actively used agricultural easements. This is a voluntary process whereby development rights are acquired from landowners through purchase or by donation applicable towards tax exemption (Kirkpatrick et al., 2001). As of mid-2000, three open space districts and 18 land trusts held about 82,000 acres of farmland in 17 counties (Sokolow, 2002). Most of this land is classified by the California Department of Conservation (DOC) as grazing land.

Use of agricultural easements for rangeland protection in Sonoma County:



Lelmorini Ranch, along Highway 1 east of Valley Ford, Sonoma County

The Sonoma County Agricultural Preservation and Open Space District has granted an easement to the Lelmorini Ranch in Sonoma County. This property, bordered on the south by the Estero Americano River, is used for grazing, silage production, and heifer replacement to support the family's dairy operation. The easement places limits on future development and protects riparian resources while providing financial support for an ongoing agricultural operation (County of Sonoma, 2002).

The Lelmorini family also established an agreement with the Marin Agricultural Land Trust (2001) protecting their dairy lands in Marin County. These two easements protect in excess of 1,500 acres of land.

State laws related to special zoning and differential assessment for agriculture and timber production

In the case of agriculture, the California Land Conservation Act of 1965 (also known as the Williamson Act) provides for special zoning and differential assessments. Under this act, private landowners may enter into contracts with local governments for the purpose of restricting specific parcels of land (including some rangeland parcels) to agricultural or related open space use. In exchange, landowners are taxed on values based upon farming and open space uses. These values usually are much less than the full market value would be for other uses, resulting in a lower tax bill. Since the Open Space Subvention Act of 1971 and until the proposed 2002-2003 California budget, provisions have been made

for local governments to receive an annual payment of forgone property tax revenues from the State (DOC, 2002).

The passage of the 1998 Farmland Security Zone provisions of the Williamson Act (SB 1182, Chapter 353, 1998) (Legislative Council of California, 1998) provided additional protection for farmland. Under these provisions, landowners can enter into Williamson Act contracts with a minimum length of 20 years. In exchange, they receive a greater property tax reduction. Local government and school districts have additional limits placed on taxation, annexation, or taking of these lands. The zones are limited to specific categories of farmland. Ranching farmlands, except those used for irrigated pasture, do not qualify.

Extent of Williamson Act: At the end of 1998, approximately 15.9 million acres were enrolled under Williamson Act contracts Statewide. (See the Assessment document [Rangeland Area and Condition](#) for more information.) Of this amount, approximately 5.5 million acres were labeled as prime land. Prime land defines several categories of higher production capacity under the Williamson (Legislative Council of California, 1999b), including land with a livestock capacity of at least one animal unit per acre/year Act (SB 985, chapter 1018, 1999). The remaining 10.4 million acres (approximate) were classified as “non-prime,” a term usually defining rangeland, open space, and lands supporting low-yielding crops (Department of Conservation, Division of Land Resource Protection, 2002).

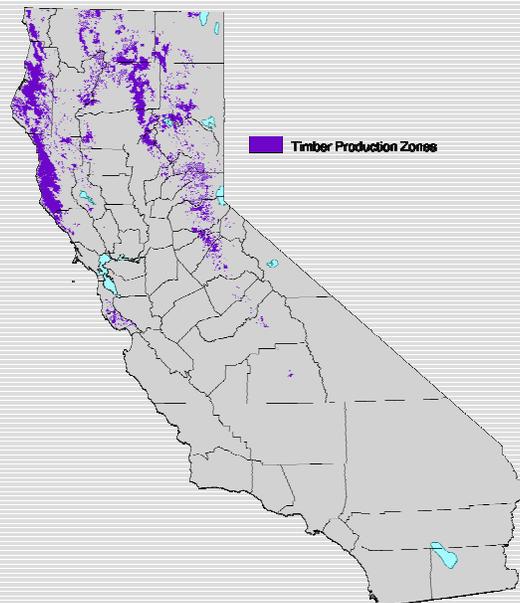
The number of non-renewed Williamson Act contracts in the 1990s has been significant in Alameda, Contra Costa, El Dorado, Kern, Nevada, Orange, Placer, Riverside, Sacramento, San Bernardino, San Diego, and Ventura counties (DOC, 1994, 1996, and 1998). From 1996 to 1998, there was an 11 percent increase Statewide in the acres of land slated for future nonagricultural use—184,588 acres in 1996 to 205,746 acres in 1998 (DOC, 2000).

Special zoning for timberlands occurs under the Forest Taxation Reform Act, later amended by the Timberland Productivity Act of 1982. Under this Act, counties designate certain conifer-growing lands as Timberland Production Zones (TPZs). The TPZ designation is a ten-year contract that renews itself each year unless it is cancelled. Similar to the principle of the Williamson Act, the goal is to help keep timberlands in production and available for other uses. The relative productivity or site class determines the land value. This lessens annual property taxes and holding costs for timberland. See the Assessment section [Maintenance of Productivity of Forest Lands by Zoning](#) for more information.

Forest Taxation Reform Act: The Forest Taxation Reform Act (Act) replaced the annual property tax on combined land and timber value with a percentage tax based on the value of harvest at the time of cut (called a yield tax), as well as a separate tax on the land itself. Timberland remains subject to taxation but is assessed only on its timber production value. As part of the implementation of the Act, counties zoned many lands as TPZ that were used to grow and harvest timber. Landowners who met certain criteria were included if they wished, and counties specified which land uses were compatible by ordinance. Allowable compatible uses have varied by county. Several counties permit development of oil wells, transmission lines, and additional residences on TPZ parcels.

Approximately 5.2 million acres of timberland ultimately were zoned as TPZ, and this acreage has been relatively stable over recent years (Figure 3). Several counties have experienced rezoning by landowners of over 1,000 acres in one year because of anticipated development projects. Counties receiving significant rezoning applications during the 1990s included Alameda, Amador, Butte, Calaveras, Glenn, Lake, Los Angeles, Mariposa, Mendocino, Placer, Plumas, Napa, Madera, Nevada, Santa Cruz, and Tehama. The numbers indicate that rezoning may be a potential problem (The Pacific Forest Trust (PFT), 1995 and 2000).

Figure 3. Timberland Production Zones (TPZs) in California



Source: Updated by FRAP, 2002, from PFT, 1995 and 2000

Application of special zoning provisions from both Williamson Act and TPZ contracts has not been uniformly distributed. The implementation of ordinances varies with content, application, and enforcement by county. Development restrictions placed on participating Williamson Act lands also differ by county. In some cases, landowners may choose not to renew contracts if they anticipate development opportunities, even if the land is some distance from urban areas.

Forests and rangelands (including TPZ and Williamson Act parcels) can be subdivided below a county's minimum parcel sizes when landowners hold valid Certificates of Compliance (CC) for parcel divisions predating the zonings. CC predate later zoning laws by decades and are exempt from both the California Environmental Quality Act (CEQA) and county zoning requirements (California Environmental Resources Evaluation System, 2002).

Certificates of Compliance (CC): Landowners may receive a CC if they can produce a map indicating their land is composed of smaller parcels created prior to the implementation of the county general plan. During the 1800s, the federal government gave 20 to 40 acre parcel “patents” to railroad companies and individuals to foster transportation and settlement. These patents remain valid today. In some counties where an abundance of historic patents were issued, such as Mendocino County, the impacts of CCs could be significant on forest and rangelands.

Large variations in protection from different types of conversions and land use pressures may lead to smaller parcels that allow non-forest and non-range development (PFT, 1995). There are also differences in county land use policies. Some counties focus development away from forests and rangelands while others encourage development of these lands.

An evolving land tenure framework: hardwoods

Through zoning classifications, California has attempted to help forest and rangeland owners maintain land in production or keep it from being broken into smaller parcels for development. However, these special tax zonings have not been used on a large portion of California’s forest and range landscapes covered by hardwood forests. These lands do not fall under TPZs and are not covered by Williamson Act contracts.

The State has strongly encouraged local governments to develop policies regarding the protection of hardwoods. To varying degrees, counties have been active in developing guidelines. These include formal voluntary county guidelines, county ordinances, and land use planning processes. As of May 2000, all but a few counties had some kind of process governing privately owned hardwood range resources within their boundaries—a total statewide acreage of approximately 9.9 million acres (Integrated Hardwood Range Management Program (IHRMP), 2000a). Many of the ordinances focus on protecting hardwood trees rather than habitat values, which are harder to measure. protection of habitat values. However, some counties like Los Angeles and Contra Costa focus on broader aspects of hardwood protection.

Evolution of institutions focused on hardwoods: During the early 1980s, events occurred in several counties that caused the BOF to consider regulating hardwood species, especially oaks, under the Forest Practice Act. After two studies, the Board declined a 1987 resolution that would regulate hardwoods under the Forest Practice Act. Rather, the Board instructed CDF to take the lead in implementing a series of non-regulatory initiatives protecting hardwoods. These actions included research, education, and monitoring. The BOF fostered development of the IHRMP (2000b), a program that continues to provide substantial research, information, and outreach relating to hardwoods.

The BOF also requested that local governments develop their own approaches to protection and preservation of hardwoods. In the next decade, a number of local governments took steps that ranged from permits and regulation to implementation of voluntary guidelines for ranchers and developers. By the early 1990s, a majority of counties had developed hardwood approaches that primarily addressed ranch management issues.

Despite the efforts of outreach and the response by local governments, concern continues over the loss of hardwood habitat. In many cases, public concern is raised by individual development projects, but recent analysis of Census data shows that low-density residential land use is the largest single cause of changes to hardwood woodlands. The BOF and the California Fish and Game Commission (FGC) expressed this concern as early as 1994 in hearings on the adoption of their joint policy on hardwoods (FGC and BOF, 1994). The policy calls for increased sensitivity to the loss of oak stands (especially those important for wildlife) and for close monitoring of changes in hardwoods. DFG indicated concern over the continued loss of habitat and urged more aggressive protection of hardwood resources.

In September 2000, the California Oak Foundation (COF) and the Mountain Lion Foundation (MLF) sued the BOF and CDF in order to protect oak woodlands. The suit alleged that the Board was failing to apply and enforce the Forest Practice Act to protect hardwoods; however, the court dismissed the litigation. See the online document [COF Position Paper](#) (COF, 2000) for more information.

Formal voluntary guidelines rely largely on education, outreach, and networking. This approach has been the basis of over a decade of work by IHRMP and by entities such as the California Cattlemen's Association (CCA), COF, and the California Urban Forests Council.

The importance of networks: In 1992 and 1994, CDF initiated two projects to foster the conservation and management of oak woodlands at the bioregional or ecosystem scale. These projects, referred to as "Sustainable Landscapes Projects" were implemented in the central coast (Santa Cruz, Santa Clara, Monterey, San Benito, and San Luis Obispo counties) and northern Sacramento Valley (Shasta, Tehama, Butte, Colusa, and Glenn counties).

The purpose of these two projects was to encourage a diverse group of local stakeholders to develop regionally appropriate criteria for sustainable management of oak woodland landscapes. Although no guidelines emerged from either study, they demonstrated the importance of paying attention to networks of local stakeholders. Educating individuals about the ecological and social values of oak woodlands makes a difference. Education can facilitate exchanges of views and generally improves collaborative efforts (Greenwood and Nechodom, 1998).

Oak resources can also be protected at the local level through implementation of CEQA Guidelines and county general plans. However, local planning processes often do not discuss cumulative impacts across watersheds or larger areas, especially regarding oak woodlands (Greenwood and Nechodom, 1998). This occurs despite the fact that development has been the major cause behind loss of oak woodlands (Bolsinger, 1988).

Conservation plans, joint projects, conservation easements, and even acquisition of lands in fee (purchase and title changes) also protect hardwoods and hardwood habitats and involve landowners, non-profit organizations, and governments at all levels. To a large degree, the focus has been on hardwood lands that hold special value, such as riparian forests or threatened or endangered species habitat. For

example, protection and restoration of riparian habitat along the Sacramento River was a subject of legislation in 1986 (SB 1086, Chapter 885, 1986) (Sacramento River Conservation Area, 1999). The law called for the creation of an overall restoration plan and established an advisory council composed of representatives from numerous agencies and groups. These actions resulted in the 1989 publication *The Upper Sacramento River Fisheries and Riparian Management Plan*. Additionally, the *Sacramento River Conservation Area Handbook* was developed in 1993 to foster riparian habitat management along the river. Under the leadership of the California Wildlife Conservation Board (WCB), a subsequent Memorandum of Agreement was signed by most organizations engaging in management activities along the river (WCB, 2000a). See the [State of California Wildlife Conservation Board](#) web site for more information.

In 1990, the passage of Proposition 117 provided additional protection of hardwood and riparian habitats. This ballot initiative protected mountain lions in California and established the Habitat Conservation Fund, which requires the State to spend \$30 million per year for 30 years towards habitat protection. Expenditures have focused on habitat acquisition, especially riparian habitat, and some restoration and improvement (MLF, 2000).

The Natural Heritage Preservation Tax Credit Act of 2000 is another program that protects hardwoods and associated habitat. The goal of this act is to assist in habitat stewardship and promote public/private partnerships facilitating the resolution of land and water use disputes. Implemented by the WCB, the act provided over \$50 million in tax credits to donations of qualified lands and water for permanent preservation. Private land owners may donate land or water rights to State and local agencies or designated non-profit organizations for conservation purposes. In exchange, landowners receive a tax credit equal to 55 percent of the appraised fair market value of the contribution (WCB, 2000b).

Most recently, the California Legislature passed the Oak Woodlands Conservation Act (AB 242, Chapter 588, 2001), which created the Oak Woodlands Conservation Fund (Legislative Council of California, 2001). As a result of this legislation, funds can be used to buy oak woodland conservation easements and land improvements, as well as provide private landowners with cost-sharing incentive payments. These funds can also be used for public education, outreach, or to assist with the development of local general plans relative to oak woodland habitat (WCB, 2000c).

Finally, providing another example of new partnerships, the CCA has worked with various foundations to create the California Rangeland Trust. The goal of the Trust is to help ranchers develop and use tools that combine sound stewardship with economic practices. These practices can include the purchase of conservation easements on ranches allowing continued ranching while providing additional benefits.

Native American lands

Over 200,000 Native Americans reside in California, many of whom came from other states and live in urban areas. This number is less than the estimated 310,000 Native Americans prior to 1700 (National Park Service, 2001). There are 105 federally recognized reservations and a number of other unrecognized tribes in California. Figure 4 illustrates the historical range of the major tribes.

Figure 4. California Indian tribal groups



Source: Museum Informatics Project, 1994

State law gives some protection to Native American historical, cultural and burial sites. Under State law, it is a felony to disturb Native American cemeteries. Furthermore, construction or excavation must be halted in the vicinity of human remains until the coroner can determine whether they are those of a Native American. If they are, the coroner must contact the California Native American Heritage Commission (CNAHC). State agencies must provide surveys and protection as required for Native American sites on State-owned lands. The public is prohibited from disturbing Native American sacred, ceremonial, or cemetery sites and from interfering with the free expression of Native American religious practices on State lands. Proposed projects on private lands subject to CEQA must be analyzed where there would be demolition, destruction, relocation, or alteration of historically significant sites (CNAHC, 2002a).

In 1976, the CNAHC was established to assist in preserving cultural and religious sites important to Native Americans. The Commission is composed of nine commissioners who are appointed by the Governor. At least five of the commissioners must be California Native American elders, traditionalists,

or spiritual leaders (CNAHC, 2002a). See the [California Native American Heritage Commission](#) web site for more information. The CNAHC has several responsibilities, one of which is to maintain the Sacred Lands Inventory File. Another is to act as a liaison between California's Native American population and other government agencies. The CNAHC works with federal and State agencies to encourage access to public lands for traditional practices such as native plant collecting and performing religious ceremonies. DPR has developed a strong program of interpretative education regarding Native American sites and practices.

Rules have evolved regarding protection of Native American rights on privately-owned forestland. In the mid 1980s, the courts required CDF to take additional steps to identify and protect archaeological sites. Timber harvesting plans (THPs) now must contain a review of possible archaeological or cultural sites and appropriate protection must be provided. If a potential site is discovered during an operation, procedures are changed to avoid harm to the site. CDF has developed an archaeology program that provides archaeological resource surveys, technical assistance, project reviews, and archaeological resource identification and management training to CDF staff, foresters, and others in the private sector. The annual budget for this program is approximately half a million dollars. Staff review an average of just over 2,000 projects a year, conduct over 250 field inspections, and teach a number of training courses. About 500 archaeological sites are recorded and protected each year (CDF, 1999). See the online document [CDF Archaeology Program Summary](#) for more information.

Several federal statutes, such as the National Historic Preservation Act of 1966 and the Archaeological Resources Protection Act of 1979, set out a framework to identify and protect historic sites, cemeteries, cultural practices and other aspects of Native American culture (CNAHC, 2002c). Also, by Federal EO (EO 13007, Indian Sacred Sites, May 24, 1996) (National Archives and Records Administration, 2002) federal agencies must follow certain guidelines: 1) manage lands to accommodate access to and ceremonial use of sacred sites by Indian religious practitioners; 2) avoid adversely affecting the physical integrity of sacred sites; and 3) as appropriate, maintain the confidentiality of site locations.

The Pacific Southwest Region of the USFS (Region 5) is governed by a Memorandum of Understanding (MOU) with CNAHC to protect resources and areas that are important to California Native Americans. USFS maintains a Tribal Government Program that seeks to increase understanding, communication, and partnerships. Similarly, BLM has developed MOUs with the CNAHC as well as protocols with local Native American groups. It has also conducted specific planning efforts on the Carrizo Plain and in the Santa Rosa Mountains National Scenic Area where California Native American groups and individuals have provided specific management advice. In turn, BLM has set aside portions of its lands for Native American activities and acted to protect sacred sites. See the online document [CAIB98-37 Sacred Areas](#) (BLM, 1998) for more information. BLM also appoints Native Americans to its Resource Advisory Councils that advise BLM district managers. In addition, NPS protects culturally significant areas and has significant interpretive programs.

Findings on encouragement of best practice codes for forest and range management on public and private lands

Six State agencies have significant regulatory influence on private forest and rangeland management. These agencies are divided between the California Resources Agency and California Environmental Protection Agency (Cal/EPA).

The mandate of the California Resources Agency relates to the conservation, enhancement, and management of California's natural and cultural resources (California Resources Agency, 2000). These include land, water, wildlife, parks, minerals, and historic sites. The Agency contains departments, boards, conservancies, commissions, and special programs all possessing focused responsibilities.

The five departments in the California Resources Agency most involved with forest and range resources are CDF, DFG, DOC, DPR, and the California Department of Water Resources (DWR). Other State and regional agencies involved with forest and range resources include the California Coastal Commission (protects special values in the coastal zone), Tahoe Regional Planning Agency (governs special values in the Lake Tahoe area), and the California Board for Geologists and Geophysicists (licenses geologists and geophysicists), a division of the California Department of Consumer Affairs (Table 6).

Table 6. California Resources Agency departments, commissions, and agencies governing forest and range resources

Agency	Laws	Forest/range focus or description
CDF	Z'berg Nejedly Forest Practice Act	Establishes regulatory framework for timber harvesting
CDF/BOF	Professional Foresters Law	Creates framework for professional forester and related licenses
DFG	Various fish and game codes	Laws focus on activities in streams and stream banks; also sets State listing process for threatened and endangered species; may comment on THPs or acquire forest or rangeland parcels
DFG/FGC	California ESA; various fish and game codes	Lists species under California ESA; provides regulations and policy for DFG
DOC/California Geological Survey	Surface Mining and Reclamation Act	Sets structure to deal with extraction of materials, such as gravel
DCA/California Board for Geologists and Geophysicists	Geologist and Geophysicists Act	Governs the practice of geology and provides professional licenses to practice geology including on forest and rangelands
TRPA	Tahoe Regional Compact	Oversees land uses including forestry in the Tahoe Basin
CCC	California Coastal Act	Creates coastal zone and framework to protect related values including those related to forests and rangelands
DWR	Miscellaneous provisions of the State Water Code	Runs state water project that includes water from forest and range watersheds; also in charge of infrastructure and contracts
DPR	Miscellaneous provisions of PRC	Owns and manages state parks and wilderness areas; may comment on THPs or acquire forest or rangeland parcels

BOF – California State Board of Forestry and Fire Protection; CCC – California Coastal Commission; CDF – California Department of Forestry and Fire Protection; DPR – California Department of Parks and Recreation; DCA – California Department of Consumer Affairs; DFG – California Department of Fish and Game; DOC – California Department of Conservation; DWR – California Department of Water Resources; ESA – Endangered Species Act; FGC – California Fish and Game Commission; PRC – Public Resource Code; THP – Timber Harvesting Plan; TRPA – Tahoe Regional Planning Agency

Cal/EPA is responsible for protecting and improving environmental quality and ensuring public health (Cal/EPA, 2002). The departments within Cal/EPA that have the most influence over forest and range resources include the California Air Resources Board, California Department of Pesticide Regulation, California Integrated Waste Management Board, and SWRCB as well as Regional Water Quality Control Boards (RWQCBs) (Table 7).

Table 7. Departments within California Environmental Protection Agency (Cal/EPA) that relate to forest and rangeland resources

Agency	Law	Description
SWRCB/RWQCBs	Porter Cologne Water Quality Control Act	Sets water quality goals and standards to protect beneficial uses of water including forested and range watersheds
CDPR	Various sections of Agricultural Code	Regulates registration and applications of pesticides including those used on forest and rangeland
CIWMB	Various sections of health and safety code and PRC	Administers solid waste disposal and recycling programs, including urban wood waste
ARB and local air quality management districts	Various sections of health and safety code	Sets air quality standards including those that relate to smoke and dust

ARB – California Air Resources Board; CIWMB – California Integrated Waste Management Board; CDPR – California Department of Pesticide Regulation; PRC – Public Resources Code; RWQCB – Regional Water Quality Control Board; SWRCB – California State Water Resources Control Board.

Providing best practice codes for private and State-owned timberlands

Several California laws and agencies regulate harvest practices on private forestlands (Table 8). BOF is a nine-member board appointed by the governor that oversees the system of forest practice regulation. The Board is charged with adopting rules that protect forest and other related resources and ensuring a sustainable forest resource. CDF enforces these rules. Regulation of harvesting practices has been debated in California since the mid-1960s. The Professional Foresters Law, passed in 1972, set minimum requirements for foresters in California practicing forestry on private lands. In 1973, the Z’berg-Nejedly Forest Practice Act was passed. Z’berg-Nejedly fundamentally reformed the regulation of harvesting practices. BOF rules evolved over the following decades, reflecting the results of key lawsuits, amendments to existing rules, and agreements with the SWRCB to implement the federal Clean Water Act (CWA).

Table 8. Agencies and activities in the forest practice regulation

Subject	Agencies and activities
Regulatory bodies	BOF, DFG
Agencies with permit authority	CDF for harvesting, DFG for stream crossings
Nature of regulations	Mandatory
Other agencies with authority	Review by RWQCBs, CGS, DPR, and local agencies where State rules exist for local counties; EPA certifications for compliance to CWA and Coastal Zone Management Act
Regional or watershed focus in planning	Review by RWQCBs
Public comment on proposed operations	Required by CDF in THP’s
Plan needed	Required by CDF
Legal penalties if standards violated	Enforced by CDF with other enforcement tools available to RWQCBs

BOF – California State Board of Forestry and Fire Protection; CDF – California Department of Forestry and Fire Protection; DPR – California Department of Parks and Recreation; CGS – California Geological Survey; CWA – Clean Water Act; DFG – California Department of Fish and Game; EPA – U.S. Environmental Protection Agency; RWQCB – Regional Water Quality Control Board; THP – Timber Harvesting Plan

Timber Harvesting Plan (THP) process: Before harvesting can occur, a landowner must have a registered professional forester prepare a THP or similar document. The content of the plan and the steps for its review are set by the Forest Practice Rules. The complete document is submitted to CDF for review and the public is notified of the proposed operation. If the THP is in good order, then additional review occurs by CDF staff and by other State agencies (DFG, California Geological Survey, RWQCBs, and others).

Despite private ownership, the process is a public one. The public may send comments by mail or attend the review meeting and offer comments vocally. If other agencies or the public raise concerns, then CDF offers suggestions to the plan submitter. If all is in order, CDF approves the plan and responds to all significant public comments in writing. If there are continuing issues, CDF may deny the plan. CDF also inspects timber operations in the field for compliance with planning and operational rules and checks that reforestation standards are met. CDF records indicate a compliance rate of well over 90 percent.

BOF rules regulate elements of forest sustainability including harvest and road planning, conduct of harvesting, protection of water, fish, and wildlife, mitigation of other impacts, and reforestation following harvest. Increasingly, they have attempted to address issues at the watershed scale.

The Forest Practice Act allows counties to propose additional rules for BOF to consider and adopt that relate to timber harvest operations in the county (Table 9). If the proposed rules fit specified criteria, the Board must adopt them for the county. Such rules are enforced by CDF, but provide for additional input and participation by county staff. Rules have been adopted for Lake, Marin, Monterey, San Mateo, Santa Cruz, and Santa Clara counties. They have been proposed but denied for Mendocino and Sonoma counties. Rules vary by county and cover such areas as additional public notice, control of traffic, hours of logging, and timber operator bonding for protection of private property.

Table 9. Amendments to Forest Practice Rules passed in the 1990s

Rule area	Rules and year adopted	Content focus
Protection of old growth and related habitat values	Late Seral Forests 1993	Requires consideration of late seral stands (bigger, older stands of trees including old growth); must be mapped in THP and protection provided as specified
Use of even-aged management/clearcutting	Limits to Size, etc. 1993	Reduced size of clear cuts to a maximum of 20 acres with specified exceptions to 40 acres and increases other limits; even-aged management options retained
Amount and rate of harvesting in watersheds - 1	Sustained Yield Plan – 1993	Creates option for a long term plan by which timber owners can demonstrate long term sustained yield over 100 years; landowners may also address wildlife and water-related issues in the plan
Amount and rate of harvesting in watersheds - 2	Sensitive Watershed - 1993	Creates a process by which the public or an agency can request special rules for a watershed
Cumulative impacts	Cumulative Impacts/Watershed Assessment - 1999, 2001, 2002	Added information requirements to cumulative impacts including watershed assessment
Protection of threatened and endangered species	Riparian Rules - 1996, 1997, 1998, 1999, 2000	Strengthened rules to protect riparian areas and to limit harvesting practices that contribute sediment or raise mean temperatures
Conversion of forestland	Tightening of Conversion Rules - 1996	Requires application of Forest Practice Act on less than three acres

THP – Timber Harvesting Plan

In watersheds where water quality does not achieve federal standards as defined by the federal CWA, additional mitigations are required on private lands to lessen the impacts of timber harvesting. See the Assessment document [Institutional Framework: Governance Shifts during the 1990s](#) for more information.

Findings on providing best practice codes on privately-owned rangelands

Grazing operations on private lands are not subject to the same permit system as those on public lands. The only permit requirement relates to roads and stream-crossing agreements with DFG. However, the agency with the most potential influence over grazing practices may be SWRCB and its regional boards under the California Rangeland Water Quality Management Plan (CRWQMP). This influence stems from implementation of the federal Clean Water Act (CWA) and the Coastal Zone Management Act by the SWRCB and Regional Water Quality Control Boards (RWQCB) under the auspices of the federal EPA (Table 10).

Table 10. Basic factors influencing rangeland practices

Subject	Range operations
Regulatory body	None
Agencies with permit authority	DFG for stream crossings
Nature of controls on management practices	Voluntary under CRWQMP
Other agencies with authority	Review by RWQCBs, EPA certifications for compliance to CWA and Coastal Zone Management Act
Regional or watershed focus in planning	Yes, but only in the context of RWQCB objectives or TMDLs
Public comment on proposed operations	No
Plan needed	Consistent with CRWQMP
Legal penalties if standards violated	Yes for water quality standards

CRWQMP – California Rangeland Water Quality Management Plan; CWA – Clean Water Act; DFG – California Department of Fish and Game; EPA – U.S. Environmental Protection Agency; RWQCB – Regional Water Quality Control Board; TMDL – Total Maximum Daily Load.

Rangelands and the California State Water Resources Control Board (SWRCB): Under the federal CWA, the SWRCB has developed a Non-point Source Pollution Control Program. A portion of this plan sets objectives related to grazing management. The objectives of this plan include:

- implementing and evaluating rangeland management practices;
- promoting better grazing practices;
- developing and implementing standards to reduce factors that cause impairment of water quality;
- directing grants and cost-share opportunities toward projects that implement grazing management practices; and
- developing a program to initiate watershed education.

The SWRCB also lists over \$1.5 million in grants under Section 319(h) of the federal CWA. These funds are used to educate ranchers or to restore watersheds where grazing contributes to water quality degradation (SWRCB, 2000a).

California Rangeland Water Quality Management Plan (CRWQMP)

The guiding document for rangeland management practices on private lands is the CRWQMP. The Board's Range Management Advisory Committee developed the basic program. The Committee is largely composed of representatives from livestock organizations and related governmental agencies. The voluntary plan took almost six years to develop and was approved in 1995 by the SWRCB. CRWQMP includes rangeland water quality management strategies and policies, coordination mechanisms, sample plans, and sources of assistance. Its focus is to help ranchers avoid degrading water quality degradation.

Ranchers are encouraged to make use of information in CRWQMP. The University of California Cooperative Extension (UCCE) and the U.S. Natural Resources Conservation Service (NRCS) have developed a short course to inform ranchers throughout the State. Since its official beginning in 1997, up to 400 ranches have sent one or more representatives to a course presentation. Future courses will be

targeted at watersheds with significant water quality issues related to grazing (Agronomy and Range Science Department, 1998). Both UCCE and NRCS continue to be involved in water quality outreach to ranchers.

In addition, UCCE conducts an ongoing study of riparian grazing. This study examines the interactions between grazing and riparian area health, specific site watershed conditions, and site-specific management (CCA, 2002).

Grazing practices on leased land: Grazing also takes place on leased lands that are not considered as ranches. An example of this arrangement is the lands owned by the Los Angeles Department of Water and Power (LADWP) in the upper Owens River watershed. The watershed has a history of heavy grazing, thought to be a contributing cause of sedimentation. LADWP has worked with ranchers, fishermen, State agencies, and other interested parties to implement a program of practices that improves water quality including fencing, stock rotation, riparian restoration, and monitoring of bank and vegetation health. LADWP has installed fencing along the Upper Owens River on all of its grazing leases. The fencing is part of an overall program consisting of best management practices (SWRCB, 2000b).

Federal government process

All federal agencies are subject to certain laws that influence their policies and practices (Table 11). Six federal agencies play a key role in the management of public lands in California. They include the USFS, BLM, NPS, FWS, EPA, National Marine Fisheries Service (NMFS), and the U.S. Department of Defense (DOD).

Table 11. Federal laws and policies governing forests and rangelands in California

Law/policy	Result
NEPA	Requires analysis of environmental impacts made by federal projects.
National Historic Preservation Act of 1966 as amended	Requires identification and management of cultural resources under jurisdiction of federal agencies.
Government Performance and Results Act of 1993	Creates a performance-based management system for federal agencies. It requires agencies to prepare and intermittently revise strategic plans and annual performance plans with a focus on outcomes and results. Revamped the way agencies prepared strategic plans and measured results.
Federal Advisory Committee Act	Governs appointment and use of advisory committees by federal agencies
Environmental Justice (EO 12898)	Requires federal agencies to incorporate environmental justice in their mission by addressing disproportionately high environmental effects of their programs, policies, and activities on minority and low-income populations.
Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management	Federal agencies agree to utilize watershed approach to prevent and reduce water quality degradation from resource management activities on federal lands and to accomplish this in a unified and cost-effective manner. Includes mutual focus on specific watersheds and use of watershed assessments to guide planning and management activities (EPA, 2000).
EO on Invasive Species (EO 13112 2/399)	Establishes a framework for the fight against weeds and other invasive species; calls for a coordinated federal effort and the creation of an Invasive Species Council and an advisory committee comprised of non-federal stakeholders that develops a comprehensive plan to deal with the issues.

EO – Executive Order; EPA – U.S. Environmental Protection Agency; NEPA – National Environmental Policy Act.

Source: Compiled by FRAP, 2002

The USFS, BLM, and NPS manage large areas in California. The FWS also administers lands in the National Wildlife Refuge (NWR) System, but its most significant influence on forest and rangeland management is its implementation of the federal ESA. The EPA influences public lands through administration of the Coastal Zone Management Act and federal CWA and Clean Air Act (CAA). The

NMFS role in public land management is founded in its implementation of ESA provisions for anadromous fish species.

There are also three special federal management systems that involve lands from more than one federal land management agency. These systems are the National Wilderness Preservation System, the National Wild and Scenic Rivers System, and the National Trails System. Congress set these lands aside in a multi-agency framework to preserve special features and characteristics. By law, existing agencies manage the designated lands as specified (Vincent et al., 2001).

Special federal management systems: The 1964 Wilderness Act established the National Wilderness Preservation System. As of 1999, there were a total of 13,890,605 acres of federally designated wilderness in California split between NPS, BLM, and USFS (Vincent et al., 2001). Under the Wilderness Act, wilderness areas are typically managed to protect and preserve natural conditions. Permanent improvements, such as buildings and roads, and activities that change existing natural conditions (e.g., timber harvesting) are largely prohibited. Depending on historical use, livestock grazing and the use of motorboats or airstrips are allowed to continue.

The National Wild and Scenic Rivers System was established under the 1968 Wild and Scenic Rivers Act. This act mandated preservation of selected free-flowing rivers. Under this act, three classes of wild and scenic rivers (wild, scenic, and recreational) were established. Each class relates to the status of the river at the time of designation. The designated class also controls the development types that may occur.

Congress may add rivers to the System or they may be nominated by the state. State-nominated rivers may only be added to the National Wild and Scenic Rivers System under certain conditions. These include: 1) the river is protected under state law; 2) it is permanently administered by a state agency; and 3) it is approved by the Secretary of the Interior. As of 2000, California had 1,872 miles of designated rivers including 686 miles of wild rivers, 200 miles of scenic rivers, and 987 miles of recreational rivers (Vincent et al., 2001).

Where land areas along rivers are dominantly owned by federal agencies, they are managed by those agencies to maintain their scenic, aesthetic, historic, scientific, and archaeological values. Management varies according to the class of the designated river and the values for which it was included in the System. Congress provided some flexibility in management as long as it does not interfere with the values for which the area is protected. Local land use and zoning restrictions apply to private lands within corridors. Federal agencies have limited authority to acquire lands within river corridors. Additionally, agencies must cooperate with state and local governments to develop corridor management plans.

The National Trails System Act of 1968 created the National Trails System. This Act established the Appalachian Trail on the east coast and the Pacific Crest National Scenic Trail, which runs from California through Washington State. This act also authorized a national system of trails to be built that enhances outdoor recreation opportunities and access to outdoor historic and other related national resources. The National Trails System includes four classes of national trails.

Each of these national trails is administered by either the Secretary of the Interior or Agriculture. The National Parks Service administers the majority of the trails. Management responsibilities vary by the type of trail. Federal agencies must work cooperatively with states and landowners to administer non-federal lands associated with trails. Department secretaries may acquire lands or interest in lands for the National Trails System by several methods including written cooperative agreements, purchase, exchange, or even condemnation (within limits).

U.S. Bureau of Land Management (BLM)

BLM is organized into several state offices including one for California. Each state office is broken into administrative units or BLM districts. Each district has a manager who is responsible for implementation of BLM programs and policies. Several basic laws control BLM forest and rangeland management (Table 12).

Table 12. Laws controlling the U.S. Bureau of Land Management's (BLM's) management of forest and rangeland

Law	Description
Taylor Grazing Act of 1934	Controls use of public lands for grazing
Federal Land Policy and Management Act (FLPMA)	Consolidated and delineated BLM management functions
Roaming (Wild) Horses and Burro Act of 1971 (as amended by FLMPA)	Wild horses and burros given specific protection and management direction
Public Rangelands Improvement Act of 1978	Sets procedure for determination of USFS/BLM grazing fees; continued by EO 12548 of 1986

BLM – U.S. Bureau of Land Management; EO – Executive Order; FLPMA - Federal Land Policy and Management Act; USFS – U.S. Forest Service.

Source: Legal Information Institute, 2001

BLM lands are managed for a variety of uses that generally fit into two categories: 1) reserved lands, such as the Headwaters Forest, that are set aside and managed for specific purposes, and 2) multiple-use lands that are not set aside for a specific purpose but are managed for multiple uses.

BLM management programs also fit into two categories: 1) resource planning and assessment and 2) resource protection and use. BLM develops resource management plans that fit the Federal Land Policy and Management Act requirements for analysis and public input. Resource protection and use deals with such things as fire protection, recreation, and grazing management. Plans may be in effect up to 15 years in length. Each BLM area office has a land use plan for the district. Any terms or conditions specified for a permit or lease must be consistent with and supportive of appropriate BLM land use plans or other land use plans applicable to the public lands in question (BLM, 1999).

For its lands located along the North Coast, BLM has incorporated the principles of the Northwest Forest Plan into its district plans. These principles include greater protection of old growth, wider riparian areas, and vegetation connectors between riparian areas and upslope terrain.

U.S. Forest Service (USFS)

Administratively, the USFS is organized into regions (California is Region 5). A Regional Forester administers each of the ten USFS regions. Forest supervisors manage individual national forests within each region. The USFS operates under a long list of statutes and federal policies (Table 13).

Table 13. Mandates controlling U.S. Forest Service (USFS) management of forest and rangeland

Act/mandate	Description
Organic Act of 1897	Specified purposes for which forest reserves can be established and protected
Weeks Act of 1911	Allowed the federal government to incorporate private forest lands into the national forest system, where the best methods of forest management could be used.
Multiple Use Sustained Yield Act of 1960	Required forests be managed for multiple uses and at a sustained yield of products and services
Wilderness Act of 1964	Established National Wilderness Preservation System
Forest and Rangeland Renewable Resources Planning Act of 1974	Gives authority to the U.S. Forest Service to prepare and update an assessment of National Forest systems every ten years, making an inventory and monitoring the status and trends of the forest and range lands. Also provides a mandate to prepare a long-range plan every five years to guide Forest Service policies.
National Forest Management Act of 1976	Set guidelines for planning and management of national forests; delineated information and analytical requirements for individual resources
Forest and Rangeland Renewable Resources Research Act of 1978	Set a framework for forestry research
Public Rangelands Improvement Act of 1978	Set procedure for determining USFS/BLM grazing fees; continued by EO 12548 of 1986
Cooperative Forestry Assistance Act of 1990	Authorized conduct and cooperation of research on forest and rangeland renewable resources
Protecting People and Sustaining Resources in Fire-Adapted Ecosystems-A Cohesive Strategy (2000)	Congressional direction to provide a strategic plan that reduces wildfire risk and restores forest health in the interior west. The plan includes objectives and milestones that 1) specifically address treatment expectations, 2) set broad geographic area priorities, management direction, and performance measures for accountability, and 3) set an initial 15-year treatment schedule and budget strategy to reach treatment objectives.

BLM – U.S. Bureau of Land Management; EO – Executive Order; NFMA – National Forest Management Act of 1976; USFS – U.S. Forest Service.

Source: USFS, 2001

Each region issues guidelines directing the development of plans for the national forests within its boundaries. Such plans are part of the long-range resource planning framework required by the RPA of 1974 and amended by the National Forest Management Act of 1976 (NFMA). This legislation requires each forest supervisor to develop a plan directing management activities in their national forest. These plans are to be revised when conditions have significantly changed or at least every 15 years. NFMA planning regulations (65 Federal Register 67513) were recently changed. They now include emphasis on adaptive management and change the way regional priorities are implemented.

Environmental legislation and Congressional budget authorizations of the last two decades have changed the focus of the USFS. Expenditures for production of traditional commodities such as timber and range have decreased and there is greater emphasis on both ecosystem restoration and maintaining healthy ecosystems. Enhanced programs for recreation are promoted, particularly to serve the needs of urban residents.

USFS response to the Government Performance and Results Act of 1993: This act is part of a package of legislation passed in the 1990s that created a performance-based management system for federal agencies. It requires these agencies to prepare and intermittently revise strategic plans and annual performance plans with a focus on outcomes and results.

Consistent with the intent of this legislation, the USFS released a strategic plan in September 2000 (USFS, 2000). See the online document [USDA Forest Service Strategic Plan \(2000 Revision\)](#).

National Park Service (NPS)

The National Parks Service (NPS) was created in 1916 as a new federal agency under the Department of Interior. NPS is responsible for protecting national parks and monuments. Among federal agencies, NPS manages the widest array of lands including traditional national park designations, scenic rivers and trails, memorials, historic sites, historic parks, seashores, lakeshores, recreation areas, and monuments. By law, all units receive the same standard of protection. NPS operates under a variety of statutes and policies (Table 14).

Table 14. Laws and rules that govern National Park Service (NPS) management of forests and rangelands

Laws/rules	Description
Organic Act of the NPS, 1904 (16 U.S.C. 1),	Set the purpose of parks as one that conserves the scenery, historic objects, and wildlife within their boundaries and manages in such a way that leaves them unimpaired for the enjoyment of future generations
Organic Act Revisions of August 18, 1970	Extended the Organic Act provisions (including the statement of fundamental purpose) to all areas of the National Park System except where such provisions conflict with statutes that specifically apply to the area in question
Organic Act Revisions of 1978	Declared that activities allowed in parks and their management areas shall be conducted in light of the high public value and integrity of the National Park; activities must be consistent with the values for which areas have been established, except as provided by Congress
Antiquities Act of 1906	Gave the President authority to proclaim national monuments on lands currently under federal jurisdiction; national monuments are managed for purposes specified in designation
California Desert Protection Act of 1994	Shifted over 6.3 million acres administered by BLM to the jurisdiction of the NPS. Of this amount, nearly 3.5 million acres were designated as wilderness. Another 1.2 million acres of land were added to Death Valley National Monument and it was re-designated as a National Park. Another 234,000 acres were also added to the Joshua Tree National Monument and it was re-designated as a National Park. A new 1.4 million acre Mojave National Preserve was created. National park wilderness areas were also established for Death Valley, Joshua Tree, and Mojave. Management is primarily for protection and restoration of the desert ecosystems.

BLM – U.S. Bureau of Land Management; NPS – National Park Service

Source: NPS, 2003

The individual park units are arranged in seven regional offices, each headed by a regional director. A superintendent oversees the individual units where staff is generally in proportion to the size, use, and significance of the unit. California is in the western region.

The general mandate of NPS is to protect and interpret a park's national, natural, cultural, and historic resources. The nature of park management is to carry out these responsibilities. Generally, activity (such as harvesting) that removes natural resources from Park System lands is not allowed. Exceptions may include hunting, predator control, grazing, timber harvesting for public safety and disease control, and the use of prescribed fire.

U.S. Department of Defense (DOD)

The Department of Defense (DOD) owns about 3.9 million acres in California (DOD, 2002). Like other federal agencies, the Department works under NEPA, the federal ESA, and the Clean Water Act, and the Clean Air Act.

The military also has specific laws and programs that direct natural resource management on their lands (Table 15). The primary law has been the Sikes Act, which in various amended forms has increasingly required the DOD to balance conservation and restoration activities on its facilities with its military mission (National Military Fish and Wildlife Association, 1999). See the online paper [Legal Research on Legislative History of Sikes Act](#) for more information.

Table 15. Laws and rules that govern U.S. Department of Defense management of forests and rangelands

Law/rules	Description
Sikes Act of 1960 (amended multiple times)	Authorizes the Secretary of Defense to develop cooperative plans for conservation and rehabilitation programs on military reservations and to establish outdoor recreation facilities. The Act also provides for the Secretaries of Agriculture and the Interior to develop cooperative plans for conservation and rehabilitation programs on public lands under their jurisdiction.
Sikes Improvement Act of 1997	Requires the Secretary of each military department to prepare and implement an integrated natural resources management plan for each military installation under their jurisdiction, except as specified. It also requires cooperation with the US Fish and Wildlife Service and State wildlife agencies.
Legacy Resource Management Program (1990-91)	The goal is to manage, research, conserve, and restore the biological, geophysical, and historical resources on DOD lands and facilities

DOD – U.S. Department of Defense

Source: NMFWA, 1999; NMFWA, 2002

Historically, military lands were managed on a commodity or species-focused basis. During the 1990s, DOD and Army land management guidance evolved to a more holistic, ecosystem management approach (Construction Engineering Research Laboratory, 2002a). During the Clinton administration, DOD worked with other federal agencies as part of the Ecosystem Management Initiative. In 1991, DOD implemented a Legacy Resource Management Program to improve the stewardship of its natural and cultural resources. One example of the program’s impact in California is the provision of funding for a project at the Camp Pendleton Marine Corps Base to develop a comprehensive multiple-species management Plan (Congressional Research Service, 2002).

DOD has an Environmental Security Program under which it is committed to finishing biological inventories of its installations, and creating and implementing integrated natural resources management plans (Congressional Research Service, 2002). See also the [Home Page of the National Military Fish and Wildlife Association](#).

In California and elsewhere, DOD is increasing its examination of the potential impacts on federally listed, threatened, or endangered species. For example, more than 160 of the 1,100 plant and animal species currently protected under the ESA are known to inhabit Army lands (Construction Engineering Research Laboratory, 2002b). A number of these are in California. Current work in the area of endangered species is focused on inventorying, monitoring, and assessing military impacts. It is also working with other agencies in ecosystem management, such as the Mojave Desert Ecosystem Program (Mojave Desert Ecosystem Program, 2002a). The Program’s goal is to bring together and integrate spatial

and temporal information over the Mojave Desert Ecoregion, covering about 80,000 square miles. This is the first effort to develop a detailed digital geographic data set over an entire ecoregion (MDEP, 2002b).

At the same time that the military in California has been improving its environmental management, it also has been subject to the impact of urban growth. In some places, military readiness activities have faced public concerns over safety, noise, pollutants, ordinance use and disposal, traffic, and other issues. To address this matter, the State, at the request of the military, adopted legislation in 2002 (AB 1108, Chapter 638, 2002) that allows the military to receive early notification of proposed land use projects and eliminate duplicative meetings under CEQA and NEPA (Legislative Council of California, 2002).

U.S. Fish and Wildlife Service (FWS)

The FWS is both a regulatory and management agency. In its regulatory function, FWS implements much of the federal Endangered Species Act (see [Institutional Framework: Governance Shifts during the 1990s](#)). The primary management function occurs in the context of the National Wildlife Refuge System (NWR). Nationally, there are 771 refuge units with over 93 million acres. Currently, 84 percent (76.2 million acres) of NWR lands are in Alaska.

FWS managed the NWR System for almost 100 years under a variety of laws instead of a comprehensive enabling law. In 1966, the National Wildlife Refuge System Administration Act was adopted that provided one comprehensive law. This act, as amended, stated that the purpose for establishing the system was for the conservation and protection of fish and wildlife (Table 16).

Table 16. Laws and rules that govern U.S. Fish and Wildlife Service (FWS) management of forests and rangelands

Laws/rules	Description
National Wildlife Refuge System Administration Act of 1966 (FWS, 2002a)	States purpose of NWR System
EO 12996 (FWS, 2002a)	Defined a specific conservation mission for the NWR System and set guiding principles for habitat conservation, public use, partnerships, and public involvement
National Wildlife Refuge System Improvement Act of 1997 (FWS, 2002a)	Set management goals for the system to maintain biological integrity, diversity, and environmental health; required FWS to adopt regulations on compatibility
Refuge Recreation Act (FWS, 2002a)	Mandated that any recreational use in areas of the NWR System be “compatible” with the primary purpose(s) for which the area was created

EO – Executive Order; FWS – U.S. Fish and Wildlife Service; NWR – National Wildlife Refuge

Source: Compiled by FRAP from FWS, 2002a

Wildlife refuges are managed to create and maintain habitat for various plant and animal species, especially habitat for migratory waterfowl and endangered species. Individual refuges may consist of single contiguous parcels or unconnected blocks of land spread over a larger area. The FWS has a range of powers including trade and acquisition. The purchase of refuge lands is financed primarily through two funding sources: the Migratory Bird Conservation Fund and the Land and Water Conservation Fund.

California contains 40 refuges and four Wildlife Management Areas (WMAs) in the NWR System. The WMAs are operated under agreements with state agencies, and a number of these are on or influenced by forest and rangeland. Objectives vary, but a surprising number use prescribed fire and grazing as management tools (Table 17).

Table 17. Wildlife reserves in California that use forest or rangeland related management

Reserve	Emphasis	Range or forest related management
Bitter Creek (Ventura County)	Habitat for California condor	Active grazing program, use cattle to create habitat
Blue Ridge (Ventura County)	Forage and roosting for California condor	900 acres of coniferous forest managed by natural processes
Clear Lake (Klamath Basin)	Waterfowl	Natural sagebrush grassland community; managed by a combination of prescribed fire and grazing
Hopper Mountain (Ventura County)	California condor rearing	Annual grasslands, oak, walnut, chaparral, 1997 burned refuge studying fire as part of natural process
Humboldt Bay	T&E habitat	Grazing program provides about 3500 AUMs per year
Kern	T&E habitat; research	Grazing used to improve T&E habitat (thin out annual grass)
Lower Klamath	Waterfowl and wetlands (nation's first waterfowl refuge)	Livestock grazing on 7,300 acres and prescribed burning on 15,000 acres to maintain its wetlands in a variety of successional stages
Modoc	Waterfowl	Active haying, grazing, and burning programs provide food for migratory waterfowl; areas are shallowly flooded after treatment to make them more attractive
Pixley	Wetland and upland habitat	Upland habitat is managed by cattle grazing to limit vegetative cover
Sacramento River	Wetland, riparian, and T&E habitat	Riparian forests being restored; forest species planted proportional to local native grasslands; managed with livestock grazing to control weeds and create short grass habitat used by migratory cranes, waterfowl, and shorebirds.
Salinas	T&E habitat, waterfowl and shorebirds.	Restoration of riparian habitat along the Salinas River and native grasses in the upland areas
San Diego (new)	T&E habitat	Restoration of disturbed coastal sage scrub habitats
San Joaquin River (in acquisition)	T&E habitat, migratory bird, native species preservation	Oak-cottonwood-willow riparian forest, pastures, agricultural fields, and wetlands; existing pastures grazed; riparian forests to be restored
San Luis (Merced County)	Wetlands, T&E habitat	Uplands managed by the use of controlled grazing and fire. Plantings of native trees and shrubs used to improve riparian areas
Stone Lakes (Sacramento County)	Restore and maintain wetland and riparian habitats	Riparian restoration using native species; prescribed fires to be used to improve wildlife foraging conditions
Sutter	T&E habitat, migratory birds	Management of exotic or undesirable vegetation via burning, grazing, and other methods.

AUM – Animal Unit Month; T&E – threatened and endangered species

Source: FWS, 2002b

National Marine Fisheries Service (NMFS)

The NMFS is under the National Oceanic and Atmospheric Administration in the U.S. Department of Commerce. Both were created by President Nixon's Reorganization Plan No. 4 of July 9, 1970 (84 Stat 2090). Programs now under NMFS had previously been part of the Bureau of Commercial Fisheries within FWS. NMFS operates under a series of laws. Those significant to NMFS operations in California are listed in Table 18.

Table 18. Laws and rules that govern National Marine Fisheries Service (NMFS) management of forest and rangeland

Laws/rules	Description
Federal ESA	NMFS is responsible for marine species and Pacific salmon
Coastal Zone Management Act of 1972 and amendments	Established a federal grant program within the U.S. Department of Commerce to encourage coastal states to develop and implement coastal zone management programs. Activities that affect coastal zones must be consistent with approved state programs. The Act also established a national estuarine reserve system that NMFS and EPA jointly administer.
Marine Mammal Protection Act of 1972	Protection of marine mammals such as whales, seals and sea lions
Magnuson Fishery Conservation and Management Act (National Council for Science and the Environment, 1995)	Fishery resources within 200 miles of all U.S. coasts were placed under federal jurisdiction administered by NMFS. NMFS is responsible for a regional management system that allocates harvesting rights. Act set eight Regional Fishery Management Councils including Pacific, Western Pacific, and North Pacific regions. The eight Councils prepare fishery management plans for those fisheries that they determine require active federal management. The 1990 CAA provided for interstate commissions on air pollution control, which are required to develop regional strategies for cleaning up air pollution. The 1990 CAA included other provisions to reduce interstate air pollution.

CAA – Clean Air Act; EPA – U.S. Environmental Protection Agency; ESA – Endangered Species Act; NMFS – National Marine Fisheries Service

Source: National Council for Science and the Environment, 1995

NMFS has five regional offices including the Southwest Region of which California is a part. However, staff from the Northwest Region also influence lands in California. The Southwest Region maintains California field offices in Santa Rosa, Arcata, and Sacramento. These offices deal with issues of habitat and protected fish species north of Santa Barbara County (NMFS, 2002).

U.S. Environmental Protection Agency (EPA)

The EPA was established in 1970 with a mission to protect human health and safeguard the natural environment. It is organized into ten regions. California is part of Region IX, an area that includes Arizona, Hawaii, Nevada, and the Pacific Islands subject to U.S. law. Region IX also includes approximately 140 tribal nations (Table 19).

Table 19. Laws and rules that govern U.S. Environmental Protection Agency (EPA) management of forest and rangeland

Laws/rules	Description
Federal Water Pollution Control Act (CWA) as amended by the Water Quality Act of 1987 (P.L. 100-4).	Established structure to protect water quality and vested administrative authority with EPA; 1987 amendments added a program requiring states to develop and implement programs to control nonpoint sources of pollution, or rainfall runoff from farm and urban areas, construction, forestry, and mining sites.
Coastal Zone Act Reauthorization Amendments of 1990 (Section 6217) (EPA, 2002a)	The Coastal Nonpoint Source Pollution Control Program (Section 6217) addresses nonpoint pollution problems in coastal waters. Coastal states and territories with approved Coastal Zone Management Programs must develop Coastal Nonpoint Pollution Control Programs, and must describe how management measures will be implemented to control non-point pollution and how they conform to those described federal guidance documents. This program is administered jointly with the NOAA.
CAA of 1977	Set initial strategy to reduce air pollution. Empowered EPA as implementing agency
The CAA Amendments of 1990 (EPA, 2002b)	Set a strategy to reduce air pollution. Focuses on ozone (smog), carbon monoxide (CO), and particulate matter (PM-10). It also allows EPA to define the boundaries of "nonattainment" areas: geographical areas whose air quality does not meet federal air quality standards. The amendment also set provisions defining when and how the federal government can impose sanctions on areas of the country that have not met certain conditions. States must develop state implementation plans, and the EPA must approve them. If a plan is not acceptable, EPA can start enforcing the CAA in that state.

CAA – Clean Air Act; CWA – Clean Water Act; EPA – U.S. Environmental Protection Agency; NOAA – National Oceanic and Atmospheric Administration

Source: Compiled by FRAP from EPA, 2002a; EPA 2002b

Concluding observations

Conservatively, there are at least 90 California and federal laws that govern forest and range resources. At least an additional 25 Executive Orders or other initiatives have been relevant in the last decade as well. In general, these seem to comprise a potentially ample legal authority to deal with resource issues on forests and rangelands.

However, historically, agencies have been organized around specific resources, resource protection functions, or land designations. For a variety of reasons, cooperation of legal mandates in light of new scientific input or changing public values has been slow. This has led to substantial institutional unrest and experimentation as described in the Assessment section [Institutional Framework: Governance Shifts during the 1990s](#).

Glossary

anadromous: Moving from the sea to fresh water for reproduction.

Animal Unit Month: The amount of forage needed by an “animal unit” (AU) grazing for one month. The animal unit in turn is defined as one mature 1,000 pound cow and calf.

APA: California Administrative Procedures Act.

appropriative rights: an exclusive land use rights obtained through passage of title, conveyance, or inheritance.

appurtenant: A right, privilege, or property that is considered incident to the principal property for purposes such as passage of title, conveyance, or inheritance.

AQMD: Air quality management district.

ARB: California Air Resources Board.

AUM: See **Animal Unit Month**.

BCDC: San Francisco Bay Conservation and Development Commission

best practice codes: Written guidelines which are either regulatory, quasi-regulatory, or voluntary, that recommend specific forest management actions that will ensure sustainability. Codes refer to the legal or administrative policy and practice statements that govern actual forest operations.

BLM: U.S. Bureau of Land Management.

BOF: California State Board of Forestry and Fire Protection.

BOR: U.S. Bureau of Reclamation.

BRD: USGS Biological Resources Discipline.

CAA: Clean Air Act.

Cal/EPA: California Environmental Protection Agency.

CC: Certificates of Compliance.

CCA: California Cattlemen's Association.

CCC: California Coastal Commission.

CDE: California Department of Education.

CDF: California Department of Forestry and Fire Protection.

C DFA: California Department of Food and Agriculture.

CDPR: California Department of Pesticide Regulation.

CEC: California Energy Commission.

CEQA: California Environmental Quality Act.

CGS: Department of Conservation's California Geological Survey.

CIWMB: California Integrated Waste Management Board.

CNAHC: California Native American Heritage Commission.

COF: California Oak Foundation.

commons: Goods that cannot be owned but that may have great potential value such as rivers, fish and viewsheds.

CPUC: California Public Utilities Commission.

CRWQMP: California Rangeland Water Quality Management Plan.

CWA: Clean Water Act.

DBW: California Department of Boating and Waterways.

DCA: California Department of Consumer Affairs.

DFG: California Department of Fish and Game.

DHS: California Department of Health Services.

DOC: California Department of Conservation.

DOD: U.S. Department of Defense.

DOE: U.S. Department of Energy.

DOI: U.S. Department of the Interior.

DPR: California Department of Parks and Recreation.

DWR: California Department of Water Resources.

easement: A right, such as a right of way, to make limited use of another's real property.

EO: Executive order.

EPA: U.S. Environmental Protection Agency.

ESA: Endangered Species Act.

even-aged stand: A forest stand or forest type in which relatively small (10-20 year) age differences exist between individual trees. Even-aged stands are often the result of fire, or a harvesting method such as clearcutting or the shelterwood method; Forest stand where more than 70 percent of the tree stocking falls within three adjacent, decadal, age classes.

FEMA: Federal Emergency Management Agency.

FERC: Federal Energy Regulatory Commission.

FGC: California Fish and Game Commission.

FLPMA: Federal Land Policy and Management Act.

FRAP: Fire and Resource Assessment Program.

FWS: U.S. Fish and Wildlife Service.

IHRMP: Integrated Hardwood Range Management Program.

LADWP: Los Angeles Department of Water and Power.

land trust: A private, non-profit organization formed to protect natural resources such as wildlife habitat, prime farmland, and recreational lands. It accomplishes this through a variety of means, including outright purchase, securing donations, and receiving conservation easements.

Local Responsibility Area: Areas in which local government has the primary financial responsibility for preventing and suppressing fires.

LRA: See **Local Responsibility Area**.

MLF: Mountain Lion Foundation.

Montreal Process: A scientifically rigorous set of criteria and indicators used to measure forest management and sustainability.

MOU: Memorandum of Understanding.

NARA: National Archives and Records Administration.

NEPA: National Environmental Policy Act.

NFMA: National Forest Management Act of 1976.

NMFS: National Marine Fisheries Service.

NMFWA: National Military Fish and Wildlife Association.

NOAA: National Oceanic and Atmospheric Administration.

nonpoint: Pollution whose source cannot be ascertained including runoff from storm water and agricultural, range, and forestry operations, as well as dust and air pollution that contaminate waterbodies.

NPS: National Park Service.

NRCS: U.S. Natural Resources Conservation Service.

NWR: National Wildlife Refuge.

OES: California Office of Emergency Services.

PALCO: Pacific Lumber Company.

PFT: The Pacific Forest Trust.

PG&E: Pacific Gas and Electric.

PRC: Public Resources Code.

prime land: A designation under the Williamson Act of land valuable for cropped agriculture.

RCD: Resource Conservation District.

riparian: Relating to or located on the banks of a river, stream, or lake.

RNA: Research natural area.

RPA: Forest and Rangeland Renewable Resources Planning Act of 1974.

RWQCB: Regional Water Quality Control Board.

SCC: State of California Coastal Conservancy.

SCE: Southern California Edison.

silage: Fodder harvested while green and kept succulent by partial fermentation as in a silo.

SRA: See **State Responsibility Area**.

State Responsibility Area: Areas in which the State of California has the primary financial responsibility for preventing and suppressing fires.

subvention: An endowment or a subsidy.

succession: Process of vegetational development whereby an area becomes successively occupied by different plant communities of higher ecological order.

SWRCB: California State Water Resources Control Board.

T&E: Threatened and Endangered Species.

THP: Timber harvesting plan.

Timberland Production Zone: A statutory designation for lands assessed for taxes based on growing and harvesting timber as the highest and best use of the land.

TMDL: See **Total Maximum Daily Load**.

Total Maximum Daily Load: A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, as well as an estimation of the percentage originating from each pollution source. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and non-point sources. The calculation must include a margin of safety to ensure that the waterbody can be used for State-designated purposes. The calculation must also account for seasonal variation in water quality.

TPZ: See **Timberland Production Zone**.

TRPA: Tahoe Regional Planning Agency.

UC: University of California.

UCDANR: University of California Division of Agriculture and Natural Resources.

UCCE: University of California Cooperative Extension.

UCNRS: University of California Natural Reserve System.

upland: Any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils and/or hydrologic characteristics associated with wetlands.

USACE: U.S. Army Corps of Engineers.

USBR: U.S. Bureau of Reclamation.

USFS: U.S. Forest Service.

USGS: U.S. Geological Survey.

VHFHSZ: Very High Fire Hazard Severity Zones.

watershed: The land area drained by a particular stream course.

WCB: California Wildlife Conservation Board.

WMA: Wildlife Management Area.

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