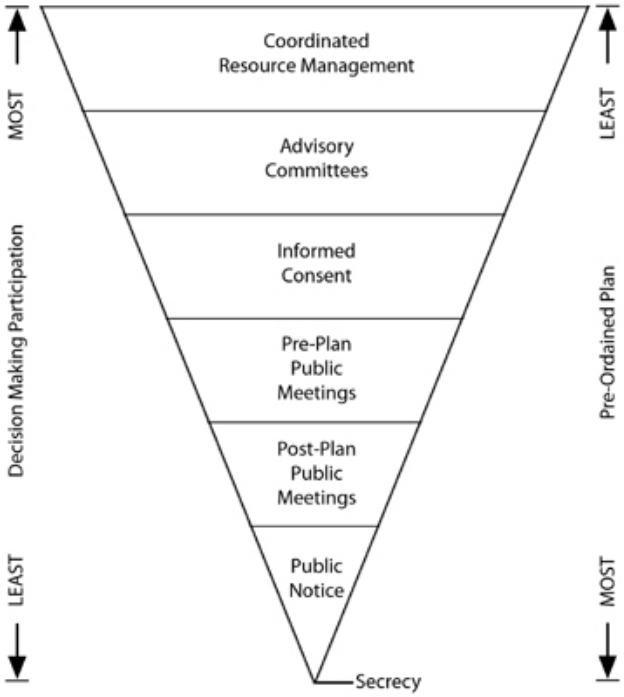
Public Involvement, Information, and Education

Public participation can be defined as any of several methods used to involve the lay public or their representatives in administrative decision making (Beierle and Cayford, 2002). These methods range from a nearly secretive, top-down governmental approach with minimal public input to an open, collaborative approach with moderate to high public involvement. The popular Coordinated Resource Management and Planning (CRMP) process, advocated by the Society of Range Management as well as other groups, can be paired with a diagram to depict the relative levels of collaborative decision-making and "pre-ordained planning." This method is used to determine the relative openness of a particular group's governing structure. In open approaches, the CRMP process operates at the top of the scale (Figure 1).

Public participation involves sharing in decision-making.

Figure 1. Public participation scale



Source: Cleary and Phillippi, 1993

However, agencies are not obligated to use the CRMP process unless they are committed to this type of "participatory democracy." To the extent that agencies resist public input and appear secretive, they are more likely to instigate public resentment and could experience difficulty implementing programs. In fact, one method of analyzing forestry debates of the 1990s is the struggle to increase public involvement in forest and rangeland resources decisions. This examination echoes John Naisbitt's observation that "a participatory democracy is one of the 10 major directions now transforming the lives of Americans" (Naisbitt, 1990).

Findings on existing legal frameworks for public participation

Both federal and California laws require or promote public participation in governmental processes. To varying degrees, federal and state agencies in California have included public involvement as part of rulemaking, planning, permitting, and other administrative functions.

From USDA Forest Service, Pacific Southwest Region, 2002.

In California, the interested public can usually expect to receive information in advance of proposed government actions, have time for review and comment, be allowed to testify at proceedings and observe deliberations, and sometimes even appeal the decisions of governmental agencies before involving the court system. Increasingly, the public may participate in less formal, collaborative processes such as agency workshops and field trips. Approaches vary by agency.

Federal mandates for public participation

Federal laws address public involvement in two ways. The first set of statutes applies to all federal agencies. They establish the methods by which federal agencies provide information to the public as well as those by which the public obtains information from public agencies. Examples are shown in Table 1.

Table 1. Federal agency regulatory laws governing public participation

Law	Relationship to public involvement
Federal Register Act	Requires publication of proposed rules and other documents
Administrative Procedure Act	Requires open meetings and sets procedures for public hearings
Paperwork Reduction Act	Requires agencies to publish rulemaking calendars
Freedom of Information Act	Specifies public's right to information and how agencies must respond
Government in the Sunshine Act	Requires that each part of federal agency meetings have public notice and be open to the public
Federal Advisory Committee Act	Sets framework for operation of advisory committees, including public deliberations
Negotiated Rulemaking Act of 1990	Specifies ways that stakeholders can be involved in bargaining, negotiating, and mediation with federal agencies
National Environmental Policy Act	Provides the basic legal framework for environmental decisions governing federal projects that will potentially have significant impacts on the environment. Also provides time frames and a structure for public comments and sets the standards for environmental documentation in project reviews. Implementing regulations of the Council for Environmental Quality broadens opportunity for public input under NEPA

Source: FRAP, 2002

The second kind of federal law addresses ways in which federal agencies involve the public in the implementation of their mandates, especially the planning processes. Examples include the Federal Land Policy Management Act, the National Forest Management Act of 1976 (NFMA), and the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA). Each of these statutes incorporates methods of public involvement in their planning processes.

Certain federal laws address ways in which agencies involve the public in the implementation of their mandates, especially the planning processes.

The planning methods of the largest federal land management agencies in California, the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS), provide for extensive public input. An example is the USFS's RPA as amended by the NFMA. Under these statutes, all units in the National Forest System must have a land and resource management plan. In order to implement regulations, the public is required to be involved in the development of such plans, both at the initial and final stages of environmental documentation. Another example is the BLM's Resource Advisory Councils as a key part of the effort to reach common ground through local leadership. The Resource Advisory Councils are one of the components of the grazing and public participation rule, which the BLM calls its Healthy Rangelands Strategy, established in 1995.

All national forests in California are regulated by these land and resource management plans. Plans must be updated at least every 15 years or when there is a need for change as prescribed by federal regulations (U.S. Forest Service, 1996). Currently, there are efforts to strengthen forest plans as they relate to wildlife, fish, rare plants, and fire in many national forests across the United States. (U.S. Forest Service, 2002b). Fire considerations are particularly being concentrated on through the Federal Wildland Policy (U.S. Forest Service, 1996).

These efforts are particularly being applied in four southern California national forests: the Angeles, San Bernardino, Los Padres, and Cleveland. See the online document Forest Planning in Southern California for more information (U.S. Forest Service, 2002a). The planning process associated with these efforts illustrates the extent to which the USFS is attempting to include the public and is an example of

the amount of time involved when seeking public involvement. The efforts started in January 2001, a preliminary Draft Environmental Impact Statement (DEIS) was due in September 2002. A Final Environmental Impact Statement is due in September 2003, and the entire process is scheduled for completion in February 2004. Extensive efforts were made in 2001 and 2002 encouraging the public to review data used in the planning effort and to collaborate in development of alternatives. These efforts included field trips and collaborative discussions. Additional input is to be solicited after publication of the DEIS.

The complexity of forest planning in southern California: Forest planning must address 59 federally listed species as well as designated habitat for 10 species in the Angeles, San Bernardino, Los Padres, and Cleveland National Forests. Achieving these goals has not been easy and illustrates the role that litigation plays in California forest and rangeland policy.

All four southern California national forests issued final land resource management plans between 1986 and 1989. The public was involved in development and review of these plans. As part of this process, the USFS and the U.S. Fish and Wildlife Service (FWS) determined that the plans were too general to allow species consultation as required by the federal Endangered Species Act (ESA). The agencies agreed on a strategy in which FWS consultation would occur on specific projects that might affect a federally listed species or designated critical habitat.

In June 1998, the Center for Biological Diversity (formally the Southwest Center for Biological Diversity filed a lawsuit against the four southern California forests. Grounds for the suit included the failure to consult on each of the management plans and on the impacts that individual activities and projects implementing these plans would have on federally protected species.

In August 1998, the FWS established an interagency team to provide consultation pursuant to section 7 of the federal ESA. A subsequent agreement was signed between the USFS and FWS that focused on consultation arrangements relating to the existing plans. However, the existing forest plans did not reflect the status of listed species or their habitats and did not address the potential adverse effects resulting from ongoing activities. Because of these factors, consultation would take at least two years to complete.

In January 1999, the two agencies signed another consultation strategy that replaced the earlier agreement. This strategy focused on a consultation process, products, actions, time frames, and expectations of both agencies. Its purpose was to ensure that the USFS met all of its obligations under the federal ESA.

In March 2000, the USFS reached an agreement with the Southwest Center for Biological Diversity. Under the terms of the settlement, the USFS agreed to implement specific actions that would protect listed and proposed species as well as habitat in the four southern California national forests. Subsequent meetings between the USFS and FWS clarified these measures.

In February 2001, the FWS issued a biological opinion relating to continued implementation of the land and resource management plans for the four national forests (U.S. Forest Service, 2001a). The opinion addresses all 59 species and related habitat designations. It also notes that as of February 2001, the FWS had completed seven formal consultations with southern California national forest managers consistent with the collaborative consultation strategy (U.S. Forest Service, 2001b). The USFS has changed management action strategies where consultation identified that certain activities could affect listed species.

State mandates for public participation

Generally, California has tended to emphasize a governmental process that is open and encourages public involvement. For example, the State has a direct ballot initiative process, and its citizens use it. As summarized later in this paper, nine ballot initiatives impacting forest and rangeland issues have been considered from 1990 to date.

State laws governing public involvement closely parallel their federal counterparts. They also address public involvement in two ways. The first category applies to all Stage agencies and sets the general framework for agency decision-making. Examples of these laws are summarized in Table 2.

Table 2. State regulatory laws governing public participation

California Administrative Procedures Act (APA)	Sets framework for adoption of regulations including review and approval of regulations by the California Office of Administrative Law (OAL)
Bagley-Keene Open Meeting Act	Requires that agencies meet and make decisions in public
California Environmental Quality Act	Requires analysis of the environmental impacts of State and local projects

Source: FRAP, 2002

The APA and other related rulings outlined a process for agencies to create administrative regulations. There are approximately 200 regulatory agencies in California. All rules must be reviewed and approved by OAL for compliance with standards set forth in the APA. APA standards seek to insure that regulations are clear and necessary, that they are publicly accessible, and that the public can meaningfully participate in agency rulemaking. The APA provides for limited use of arbitration and mediation to resolve conflicts. However, these methods have not been widely used in the decision-making processes of agencies with resource mandates. Agencies must publish their rulemaking calendars.

APA standards seek to insure that regulations are clear and necessary, that they are publicly accessible, and that the public can meaningfully participate in agency rulemaking.

The second kind of laws relating to public involvement includes the enabling statues of specific California agencies. Boards and commissions concerned with resource management perform major roles in rulemaking, planning, permit oversight, and other functions. Examples include the California State Board of Forestry and Fire Protection, California Fish and Game Commission, California Coastal Commission, California Air Resources Board, and the California State Water Resources Control Board. At the regional level, examples include local air quality management districts and regional water quality control boards. The statutes enabling many of these boards provide public members and require public hearings and other forms of public input. Each board has developed approaches to provide public information, involve the public in agenda development and the presentation of discussion topics, and receive and respond to public comment. Techniques include use of the worldwide web, public workshops or board committee meetings, advisory committees, and periodic strategic planning.

Additionally, when boards and commissions are involved with permits, statutes may provide for appeal procedures with public input. State agencies may, and often do, use advisory committees.

Historic evolution of public participation in California Department of Forestry and Fire Protection (CDF) and BOF: In 1946, the newly reorganized BOF held public hearings around the State concerning the development of proposed Forest Practice Rules (FPRs). However, "virtually no one from the general public participated [and] the lay public remained disinterested in such things for at least another decade" (Arvola, 1976). During the subsequent 50 plus years, there has been increasingly intense public interest in state forest practices, as well as in practices on federal lands. Opportunities for public involvement have expanded concurrently as shown in Table 3.

Table 3. Public participation opportunities in BOF decisions and CDF management responsibilities

Method	Decision making authority	Purpose
BOF membership: five from general public	Governor appointment/State Senate confirmation	Policy-making body for California's forests and rangelands
BOF public forum and public comment on agenda items	BOF	Develop public interest and support
BOF rulemaking process for Forest Practice Rules (FPRs)	BOF	Public input on FPR
Standing and other committees: • Range Management Advisory Committee (RMAC) • Forest Practice Committee • Resource Protection Committee • Monitoring Study Group	BOF	Advise full BOF on selected topics
Task forces and working groups: public membership and meetings • Forestland Incentives Task Force (ad hoc) • Forest Stewardship Working Group	BOF / California Resources Agency	Advise BOF on selected topics over the short-term
Independent Advisory Councils: public membership and meetings • California Forest Pest Council • Fire Safe Council (FSC) • California Exotic Pest Plant Council (CalEPPC) • California Urban Forest Council (CaUFC)	Councils	Advise BOF on selected topics
CDF Timber Harvesting Plan (THP) process: public notice and comment	CDF staff and director	Public input content of THP and its approval or disapproval
CDF State Forests Advisory Committee: public membership and meetings	CDF director	Advise director on management plans for State Forests

Source: FRAP, 2002

The California Environmental Quality Act (CEQA) provides a basic legal framework for environmental decisions concerning State and local projects where permits are required. It provides both structure and time frames for public comment. CEQA also sets the standards for environmental documentation in project review. As specified in rule and law, other laws that have environmental purposes may be certified as "functionally equivalent" to CEQA. Several programs under the California Resources Agency and the California Environmental Protection Agency (Cal/EPA) have received this certification, including the adoption of Forest Practic Rules (FPRs), approval of Timber Harvest Plans (THPs), and actions of the State Water Resource Control Board (SWRCB).

CEQA provides structure and time frames for public comment.

Local level mandates for public participation

At the local level, county and city governments are subject to the same open meeting and notice requirements as State agencies. See the Assessment document Legal Framework for more information. However, in the case of special districts, the Little Hoover Commission recently criticized the public process as largely ineffective and public notice inadequate (Little Hoover Commission, 2000). Many special districts do not have an internet presence. Even if they have such a presence, they mail fail to provide sufficient information to facilitate public input or to involve electronic input from the public. In many cases, public notice is minimal and meeting times inconvenient for the public.

Local agencies are also subject to CEQA and its governing regulations. Under California law, counties must also develop and update general plans. These plans contain elements related to natural resources, such as public safety (including wildfire) and open space. To varying degrees, the public is involved in General Plan updates. Local governments also pass ordinances that govern land use and make decisions regarding development. Development on either forest or rangeland is within the purview of local government, and the public usually has multiple opportunities to influence decisions regarding new subdivisions. Local governments may also deal with other land use issues concerning rangeland such as the nuisance concerns of neighbors.

Public participation findings in conflict resolution on private and public land

Conflicts can and do arise between agencies, agencies and landowners, agencies and the public, and landowners and neighbors, interest groups, or the public. Both federal and California laws seek to solve disputes during the decision making process by substantial opportunity for public participation. These laws also mandate that information be publicly available.

Historically the public was less involved in decision-making than it is today. Agencies tended to be more closed and protective of what they viewed as their management prerogatives. However, for a variety of reasons, there has been a growing understanding that stakeholders must be more involved in discussions and decision-making processes. This is the best way to deal with uncertainty and change. A number of agencies, particularly at the federal level, are experimenting with processes that accomplish the following: 1) support conflict resolution between individuals, groups, and communities; 2) address multiple values and institutions; 3) share information; and 4) utilize collaboration to solve common problems.

Improving public involvement has been done by meetings and workshops, the integration of public representatives into federal land monitoring teams, grants to improve information sharing, cooperation between agencies and communities, and private and non-profit sector partnerships.

Several means are used to involve the public in decision making process: These include: 1) expanding the number of meetings and workshops as components of various planning processes; 2) integrating public representatives into federal land monitoring teams; 3) providing grants to improve information sharing; 4)

improving cooperation between agencies and communities; and 5) establishing new private and non-profit sector partnerships. Examples of these methods are discussed in the Assessment document Institutional Framework: Governance Shifts during the 1990s.

Resolution through lawsuits

Although there have been extensive efforts involving conflict resolution, the court system has been the most significant factor in dealing with conflict during the last decade. This condition is true regarding issues on both public and private lands. Throughout the 1990s, many lawsuits were filed regarding resource issues. On public lands, lawsuits have led to federal actions that more aggressively protect threatened and endangered species, such as the northern and California spotted owls. Furthermore, lawsuits have been filed challenging implementation of the federal Clean Air and Clean Water Acts. See the Assessment document Institutional Framework: Governance Shifts during the 1990s for more information.

Although there have been extensive efforts involving conflict resolution, the court system has been the most significant factor in the resolution of conflict during the last decade.

During the 1990s, 24 case decisions were published concerning the issue of timber harvesting on private lands. The reason behind many of these suits were objections by neighbors, the public, and interest groups concerning the location and extent of harvesting or other impacts on water supplies, amenities, and threatened or endangered species. Other issues addressed by these suits included the timely provision of information to the public and the quality of environmental impact analyses contained in proposed THPs.

Historically, it has been difficult to integrate the protection of California resource interests with local governmental authority when adopting land use practices regarding private land. There have been inherent tensions surrounding certain land resource issues between decision-makers at the state level and local government, citizens, and landowners who view state agencies as insensitive to their needs. To date, these conflicts are still very active.

Litigation and the struggle for local control of forest practices: Nowhere is the tension between the decision-making roles of local and state government more evident than in timber harvesting issues. Historically, counties have had the ability to impose additional requirements. This authority was removed by the California legislature in the early 1980s after landowners complained that restrictions imposed by some counties were unreasonable and unnecessary. The Forest Practice Act, as amended, allows counties to propose rules for the BOF to adopt regarding timber harvest operations in the county in question. If the proposed rules match specified criteria, the BOF must adopt them for that county. Such rules are enforced by CDF; however, there are provisions for additional input and participation by county staff. The BOF has adopted rules for Monterey, Santa Cruz, San Mateo, Santa Clara, and Marin counties.

During the early 1990s, the Board received a rule proposal from Mendocino County. The county indicated concern over the extent of harvesting on industrial timberlands within its boundaries, principally with regard to the loss of larger trees in the forest canopy and the large percentage of harvesting in particular watersheds during the previous decade. A county committee with representation from diverse interests, including the forestry sector, developed the proposal. Its influence was more extensive than any that the Board had ever considered for a county. The proposal included regulations limiting the sections of a watershed that could be harvested in a single decade, constraints on the percentage of inventory that landowners could harvest, and additional protection for larger trees and riparian areas.

After a series of hearings that included the testimonies of hundreds of individuals, the BOF rejected the proposal in favor of requiring major timber companies operating in the county to submit Sustained Yield Plans (SYPs). The BOF has received no other county rule proposals of this scope since.

However, local governments in both Santa Cruz and San Mateo Counties have continued to press for more local control. San Mateo County passed an ordinance that prohibited timber harvesting in designated rural areas within 1,000 feet of legal dwellings. Subsequently, a local forest products company challenged the ordinance (FindLaw, 2002). The Superior Court of San Mateo County upheld the county regulation, a decision the lumber company appealed. The California Court of Appeal held that: 1) the Forest Practice Act did not preempt the county's zoning ordinance regulating the location of commercial timber harvesting outside of a Timberland Production Zone; and 2) the county ordinance was not arbitrary.

The court recognized that while local authority to zone is recognized, it is not limitless. Through the Forest Practice Act, the legislature preempted regulation of timber harvesting operations. A county ordinance to prohibit timber harvesting within 1,000 feet of any building is permissible where lands are specifically zoned for timber production. The amended zoning ordinance did not regulate the way in which timber operations are to be conducted but rather addressed where timber operations could take place. The court found that a zoning law that managed competing land uses within the county did not conflict with general State regulations governing how such an activity should be conducted and where it should be allowed.

Conflict resolution through the ballot box

Conflict resolution also occurs through the ballot box. California voters have increasingly been asked to resolve very complex issues formulated as ballot propositions. Initiatives can be placed on the California ballot through legislative vote or through a specified number of voter signatures. In the last two decades, the process of adding a proposition to the ballot has been perfected and can be employed by organized groups with sufficient cause and funding.

Ballot propositions related to forest and rangeland issues fall into three categories: forest practices, range/wildlife management, and investment in water, air, parks, habitat, and related infrastructure. These issues are summarized in Table 4.

Table 4. November 1990 ballot initiatives regarding conservation on private forests

Proposition	Year	Outcome	Key content
Forest Practices			
128	1990	Lost	To regulate pesticide use and greenhouse gas emissions; facilitated the purchase of old-growth redwood forests; provided funding for reforestation and forest acquisition programs of $300 million in bond sales; established the elective office of Environmental Advocate to enforce State environmental law; set a one-year moratorium on logging in stands of virgin old-growth redwoods ten acres or larger; clear-cutting would be banned
130	1990	Lost	To authorize $742 million in bond sales for the purchase of old-growth forests including the Headwaters Forest; provided retraining and compensation of timber industry employees; mandated that industrial forest growth must equal or exceed harvesting in a ten year period; prohibited clear-cutting with certain exceptions; established a framework of fees to recover costs of the THP review process.
138	1990	Lost	To require industrial timber owners to submit a long-term industrial timber management plan; disallowed clear-cutting within 100 feet of State highways, parks, and public recreation areas; prohibited clear-cutting in privately-owned, old-growth forests; mandated BOF to assess the impacts of clear-cutting; called for studies regarding possible connections between forests and greenhouse gas accumulation; imposed a temporary $3 per acre fee on THPs to finance those studies; authorized the sale of $300 million in bonds for grants that would fund reforestation projects and forest improvement; prohibited the State from buying private timberlands in the redwood region of California without the consent of the owner (using the power of eminent domain) for 10 years.
Range/wildlife management			
117	1990	Passed	Banned hunting of mountain lions except as specified; provided for a multi-year program of habitat acquisition
197	1996	Lost	To repeal ban on mountain lion hunting (Proposition 117, 1990)
4	1998	Passed	Banned body-gripping and leghold traps in California for commercial and recreational trapping of mammals classified as nongame or fur-bearing.
Water, air, parks, habitat resources, and related infrastructure			
204	1996	Passed	Authorized $995 million for water related projects, including $390 million for Cal Fed
12	2000	Passed	Authorized $2.1 billion for parks, habitat acquisition, and other projects
13	2000	Passed	Authorized $1.97 billion for water-related projects and stream restoration
40	2002	Passed	Authorized $3.44 billion for projects and stream restoration
50	2002	Passed	Authorized $3.4 billion for water-related projects and stream restoration

Source: FRAP, 2002

Initiatives approved through the ballot box have been successful in protecting wildlife from certain control methods, in acquiring habitat, and in funding stream restoration, upper watershed work, and other projects related to improved water supply. So far it has not been an approach that has resolved disputes concerning forest practices or the way in which timber harvesting is conducted on private lands.

Findings on issues and trends in public participation

The process of determining the success of public participation efforts requires an evaluation of whether or not certain criteria or goals are being achieved. These criteria include the following (Beierle, 1999): 1) incorporating public values into decisions; 2) improving the substantive quality of decisions; 3) resolving conflict among competing interests; 4) building trust in institutions; and 5) educating and informing the public. Each of these criteria was relevant to forest and rangeland issues during the last decade. See the Assessment documents Institutional Framework: Governance Shifts during the 1990s and Information Collection, Monitoring and Research for more information.

Several factors regarding public participation can be concluded:

- California's demographics have become progressively more diverse. Recent data suggests that the public now considers values related to open space, recreation, habitat protection, species protection, and clean air and water as among the most important in natural resources. Agencies that resolve issues concerning natural resources have been required to interrelate with an increasingly diverse public for input and then appropriately respond to its contributions. These efforts have historically produced mixed results.

- Ecosystems are complex and the connections between natural processes and management actions are often not clear. This ambiguity causes public information to seem even more complex and challenges agencies when formulating analysis and rendering decisions. Several approaches have emphasized the importance of early and frequent public involvement, as well as better use of information, monitoring, and research. Though they attempt to enhance community participation, these methods may be time consuming and costly.

- Beyond the courts and the ballot box, the effectiveness of conflict resolution can be limited. Conflicts relating to forest and rangeland uses in California have existed for a long time. There are often interest group networks at the state or national level that influence public involvement and agency response. During the last decade, dozens of new interest groups with forest and rangeland concerns have been formed. The influence and desires of these interest groups can make conflict resolution difficult or lead to partial outcomes.

  In certain cases, issues are local and conflict resolution that includes cooperative approaches may be possible. For example, numerous watershed groups have become active in the last decade. By their nature, they may be able to better involve the local landowners and the public. They also may be better able to define a common problem and address its solution, if sufficient skills at finding consensus and resolving conflict are available. Governmental agencies may be involved, or even facilitate the process, but the context is decidedly local. However, litigation will remain a primary solution for those seeking an answer to conflict in cases involving the public at local or higher levels.

- Results of litigation in California include improvements in agency information and analysis and an increase in public involvement. The pressures associated with litigation have often required that agencies exert additional analytical effort in order to meet their mandates. This process can provide the public with additional information and greater chances for involvement. Examples include lawsuits that led to the Northwest Forest Plan, wildlife consultation and forest planning efforts in southern California national forests, and efforts to address water quality issues in forested watersheds of the north coast.

  In contrast, private landowners have had to develop ways to work with the public, anticipate litigation and perhaps provide the resources necessary to sustain legal defenses. This may add both time and cost to obtaining necessary permits.

- Historically it has been difficult to balance the protection of California resource interests with local government's authority to make land use decisions on private land. Some issues involve an inherent tension between decision makers at the state level and local government, citizens, and landowners who view State agencies as insensitive to their needs. The control of timber

harvesting and coastal land use practices are two examples. In these cases, governmental structure sets the context of public involvement and determines its impact.

- Judging by the growth of watershed and community groups during the last decade, trust is best built at the local level. At this level, opportunities exist to share and resolve diverse understandings and values. These kinds of discussions can result in agreements concerning acceptable risk associated with different management alternatives. In some cases, agencies have been open to this type of approach. For example, the Implementation Monitoring Program of the Northwest Forest Plan involves public representatives in evaluations and field visits at the local level. However, issues of public access as well as the proprietary nature of certain information may cause problems in situations involving private land. Therefore, it is important that State and local governmental agencies working with private landowners cooperate and work to promote public trust of their actions. State agencies have experienced varied success with this process.

- The process of educating and informing the public has changed perhaps more than any other criteria of public involvement. This evolution is true for two reasons: the use of Internet-based communication and the development of extensive networks of interests, particularly with help from the non-profit sector.

  Though not without shortcomings, Internet-based communication has made it far easier to display and exchange information. Agencies can provide the public with information in a much more timely manner. Examples include hearing notices, agendas, and background material for meetings of various boards and commissions. A specific example is the information CDF provides on its web site regarding the status of current THPs (California Department of Forestry and Fire Protection, 2002). Many other organizations provide information concerning ongoing forest and rangeland issues of special interest. Specific organizations include the California Forestry Association (CFA), the California Forest Products Commission (CFPC), the California Oak Foundation (COF), the Center for Biological Diversity, and the Environmental Protection Information Center. See the Assessment document Information Collection, Monitoring and Research for more information.

  While not new, networking between interest groups accelerated in the 1990s. A reason for this increase was the political power that resulted from the process. Another was that individual groups were financially limited. The third reason was that non-profit organizations emerged as major supporters of greater public involvement. Non-profit foundations have invested millions of dollars addressing urban growth and resource issues in California. Their involvement has improved the ability of organizations and communities to understand and influence land management policies. For example, many foundations financially support the Southwest Center for Biological Diversity (Undue Influence, 2000). Non-profits have also funded public opinion surveys revealing the opinions of California residents concerning various resource-related topics. See the Assessment document Information Collection, Monitoring and Research for more information.

Because of these factors, the way public decisions are made is slowly changing. Tension concerning the government's environmental decision-making process continues both in California and in other jurisdictions (Romm, 2000). Regulatory and administrative policy affecting the use of forest and rangeland may still involve only marginal public participation for those who are affected by, or trying to

effect, change. The diverse, political culture of California certainly offers a distinct challenge to any process of public participation. However, according to the claim of one forest policy researcher at UC Berkeley, forestry "has features that have resisted innovation perhaps more than any other sphere of State life" (Romm, 2000). He concludes that incorporating the State's diverse population and interests into new, emerging configurations is one of the challenges confronting the future of California's forests.

Findings on public information concerning forest and range sustainability

Information sharing related to forest and rangeland resources occurs through a variety of channels. Formal channels include academic programs, extension, and technical assistance. Other sharing occurs as part of governmental processes, such as public hearings or review of planning documents. Information is also transferred via the media and exchange within professional organizations and councils, community and watershed groups, industry and environmental networks, grant-making associations, and to anyone with access to a library or the Internet. See the Assessment document Institutional Framework: Governance Shifts during the 1990s for more information. Information is also closely tied with monitoring and research functions described elsewhere in the Assessment (see Information Collection, Monitoring and Research).

Information sharing regarding forest and rangeland resources occurs through a variety of channels. Formal channels include academic programs, extension, and technical assistance.

Forest and rangeland education

During the last decade, much effort was applied to developing and conveying the concept of forest and rangeland sustainability to the public. This endeavor has primarily been accomplished through public education and awareness efforts. Examples of the message of sustainability are evident throughout all levels of California government, within many watersheds and communities, and in the language of several interest groups. Information regarding forest and rangeland may or may not be scientific. It may be neutral in value or may reflect specific opinions about what is necessary to ensure forest and rangeland sustainability. However, the consensus is that well-informed citizens, landowners, and managers will better understand the concepts of sustainability and support actions consistent with this knowledge.

Four things are clear regarding forest and rangeland education in California:

- It is both part of and influenced by general environmental education in California;
- Both the federal and state government significantly influence environmental education, including areas that relate directly to forest and rangeland;
- The non-governmental sector is also a major factor in the educational process; and
- Many educational programs exist as partnerships between the public and private sector.

Forest and rangeland education is both part of and influenced by general environmental education in California.

Federal government role

Multiple agencies and programs in the federal government are involved in environmental education. Under the National Environmental Education Act of 1990 (NEEA), the U.S. Environmental Protection Agency (EPA) was charged with fostering communication and collaboration between the environmental education efforts of federal agencies. This act included funding that allowed the EPA to award grants for environmental education to schools and universities, state and local governments, and nonprofit organizations. See the online document Report Assessing Environmental Education in the United States and the Implementation of the National Environmental Education Act of 1990 for more information (U.S. Environmental Protection Agency, 1996). The EPA has awarded grants under NEEA since 1992, some of which have benefited entities in California. See the online document Environmental Education Grants Program for more information (U.S. Environmental Protection Agency, 2002).

At least 19 federal laws authorize federal agencies to maintain educational programs related to forest and natural resource sustainability. Seven of these laws specifically concentrate on forests. There are multiple educational programs that cover aspects of forest sustainability (Hibbard and Ellefson, 2002).

Many federal agencies are required to provide public information relevant to a specific aspect of forest and rangeland resources in California. In addition to the EPA, agencies include the National Marine Fisheries Service, BLM, FWS, the U.S. Geological Survey, the National Park Service, the U.S. Department of Energy, and several departments of the U.S. Department of Agriculture (USDA), such as the Forest Service, the Natural Resources Conservation Service (NRCS), the Animal Plant and Health Inspection Service, and the Cooperative State Research, Education, and Extension Service (CSREES). An example of a federal information program is the Environmental Education Grants Program administered by the EPA. Grants awarded by this program are to be used in such a way as to enhance the public's awareness of and ability to make informed decisions affecting environmental quality, such as a grant to the Friends of the Urban Forests in the San Francisco Bay Area for their outreach efforts (Friends of the Urban Forest, 2002).

No comprehensive review has been completed that assesses federal educational programs designed for the public, including those based in California. Therefore, most analysis is done by examples (Hibbard and Ellefson, 2002). These types of evaluations are difficult because many federal programs are supported or implemented as partnerships with states and other organizations. Significant examples operating both nationally and in California include Project Learning Tree, Project WILD, and the 4-H.

Significant examples of educational programs operating both nationally and in California include Project Learning Tree, Project WILD, and the 4-H.

Project Learning Tree, Project WILD, and 4-H: Project Learning Tree (PLT) is a national environmental education program founded more than 20 years ago that primarily focuses on trees and forest ecology (Project Learning Tree, 2002). Its philosophy is to give teachers the tools they need to help children learn how to think about the environment rather than what to think. Although the organization is funded from a variety of private (including timber and forest products industries) and public sources, recently the EPA has been the major contributor.

In the early 1990s, the California Department of Education (CDE) and CDF started a project to develop a cohesive curriculum on which further instruction may be based and which is more conducive to systematic evaluation. Six compendia were produced by 1995. The topics were air quality, energy resources, human communities, integrated waste management and used oil, natural communities, and water resources. The compendium on natural communities contains information most closely related to forest and rangeland resources. See the online document Compendium for Natural Communities for more information (Love and Lettington, 1995). Agencies cooperating in the effort included the California Coastal Commission, CDE, the California Department of Fish and Game (DFG), CDF, SWRCB, and the USFS. The compendiums addressing human communities and natural communities were revised in 2001. During this process, a team of educators with experience in environmental education evaluated the compendiums according to California educational content standards. The California State Board of Education (SBE) establishes these standards as objectives for students to achieve at various grade levels. Both compendia received the highest marks possible.

Project WILD is a K-12 conservation and environmental education program with an emphasis on wildlife and ecosystems. See the online document About Project WILD for more information (Project WILD, 2000). The program has been developed under the oversight of the heads of western fish and wildlife agencies, including DFG. Like PLT, it has been evaluated according to California educational content standards and has received high grades. See the online document Correlations to CA Content Standards for Education for more information (California Department of Fish and Game, 2000). One function of the program is to develop courses that reflect current environmental topics and material. An example is the addition of a new curriculum entitled Science and Civics: Sustaining Wildlife. Its intent is to relate student experience in habitat exploration with local community dynamics. See the online document Going Wild…!: A Newsletter for Project WILD Educators in California for more information.

4-H is the largest range and livestock related educational program. It is also the youth education branch of the USDA Cooperative Extension System. Each county has access to a county extension office for both youth and adult programs. Nationally, the 4-H program involves the cooperative efforts of nearly 7 million youth, 640,000 volunteer leaders, approximately 3,600 years of professional staff time, 105 state land-grant universities, state and local governments, private sector partners, state and local 4-H foundations, the National 4-H Council, and CSREES (Smith, 2002). The 4-H in California operates its California 4-H Youth Development Program that provides resources for a number of project areas, including large animal science (beef cattle and sheep), plant science including forestry and Christmas trees), and natural resources (wildlife and soil and water conservation). See the online document Project Resources for more information (California 4-H Youth Development Program, 2002a).

State government role

Like the federal government, a number of California agencies fulfill their mandate through environmental education. Outreach objectives include both the K-12 levels and higher education. Examples are listed in Table 5.

Table 5. Examples of State agencies involved in environmental education, K12 and the general public

Agency	K-12	K-12 program example	Other information to the public
Department of Forestry and Fire Protection	X	Project Learning Tree	Resource management, fire safety and fire hazard reduction, resource status
Department of Fish and Game	X	Project WILD	Wildlife, hunting, fishing, biodiversity, habitat, diseases
Department of Parks and Recreation	X	Adopt a Ranger and Natural History Field Trips	Park-related information
State Water Resources Control Board	X	Support-a-Watershed	Wide range of information concerning water quality and other related information
Air Resources Board	X	Know Zone	Wide range of information related to air
California Integrated Waste Management Board	X	Closing the Loop	Recycling, solid waste, and related information
California Department of Pesticide Regulation	X	School Integrated Pest Management	Integrated pest management and pesticides
California Department of Food and Agriculture	X	Kids Page	Agricultural diseases, agricultural industry, health concerns

Source: FRAP, 2002

Academic education

California statutes (California Education Code) declare that an educational program is needed that will foster opinions favorable to environmental conservation and the non-destructive use of resources. The Office of Environmental Education under the California Department of Education (CDE) attempts to fulfill this mandate in K-12 schools. See the online document Office of Environmental Education for more information (California Department Education, 2002).

A review of California's current environmental education system suggests that it is too diffused and fragmented to be effective (Mann and Hensley, 2002). There is no formal agreement of terms, purposes, or processes surrounding environmental education in the State. Hundreds of State and county agencies, schools, and other organizations provide environmental education programs. Furthermore, at least 12 groups formulate guidelines for environmental education in California, but no single entity monitors its development or provides leadership.

To address this situation, the CDE began developing a strategic plan in Spring 2000. A plan was published in 2002 with the help of extensive public input. The plan identifies three goals:

- Develop environmental learning programs that are accessible to all students;
- Strengthen and expand existing programs so that all students are regularly exposed to outdoor and community-based learning; and
- Improve coordination and support for environmental education.

Four elements essential to achieving these goals are the availability of better materials, improved communication, increased funding, and the development of Statewide leadership.

In September 2001, the Governor signed State Bill 373 into law, a bill that included significant environmental education mandates (SB 373, Chapter 926, 2001) (Legislative Council of California, 2001).

Its requirements included that SBE incorporate environmental concepts into the California State Science Framework through the California Education Code. It also required CIWMB, CDE, SBE, and the Secretary of Education to develop and implement a unified environmental education strategy for K-12 schools. It also established a $1.5 million grant program enabling county offices of education, school districts, and schools to promote on-site waste reduction practices, adoption of the unified education strategy, and programs that incorporate concepts of integrated waste management into teaching.

At the community college level, several institutions sponsor programs related to forest and rangeland. Examples include associate degree programs in the following disciplines: 1) forest technology and agricultural business (including animal science and livestock) at College of the Redwoods in Eureka (College of the Redwoods, 2002); 2) ecosystem management and agriculture at Lassen College in Susanville (Lassen Community College, 2002); 3) natural resources, geographic information systems, fire technology, and earth sciences at American River College in Sacramento (American River College, 2002); and 4) agricultural business management, animal science, and forestry at Bakersfield Community College (Bakersfield College, 2001). Most community colleges offer introductory courses in core sciences such as biology and geology.

Professional training education

At the university level, three California schools offer undergraduate and graduate degrees in forestry: University of California (UC) Berkeley; California State University (CSU) Humboldt; and California Polytechnic State University, San Luis Obispo. Four universities offer degrees in range management or rangeland resources: UC Davis, UC Berkeley, CSU Chico, and CSU Humboldt. All campuses have core courses in biological sciences. Continuing education for professionals and non-professionals is also offered through the extension programs of these campuses. See the Assessment document Information Collection, Monitoring and Research for more information on academic forest research and field stations.

Professional licenses and education

Forest and rangeland management activities on private lands involve a wide range of skills. A number of these require California licenses. These certifications include: Professional Forester, Pest Control Advisor, Timber Operator, Landscape Architect, Civil Engineer, Land Surveyor, Real Estate Appraiser, and Geologist and Geophysicist. Range Managers must also be certified.

Several of these license programs emphasize continuing education. Training can be provided by a number of different methods and institutions including extension classes, professional societies, and trade organizations.

Associated California Loggers (ACL) is a non-profit trade organization that represents loggers and log truckers in California (Associated California Loggers, 2002). During the last decade, ACL has promoted skill development and continuing education among its members. A primary example of this effort is ACL's ProLogger program. The purpose of this series of three, intensive one-day courses is to maintain and improve the skills and knowledge of ACL's members as well as other loggers. Topics

include Operating Practices, Business Practices, and Risk Management. Additionally, ACL sponsors an annual convention where information is exchanged.

The membership of the California Licensed Foresters Association (CLFA) includes many foresters who prepare THPs in California (California Licensed Foresters Association, 1999). CLFA sponsors seminars and workshops relevant to forestry skills and the current methods and techniques of FPRs. It also holds an annual convention.

Public information from non-governmental organizations

Forest-related information is also provided by sources outside of government and universities. These include K-12 focused groups, councils, professional societies, associations and interest groups, land trusts and related partnerships, and forest management and stewardship programs or organizations. There are hundreds of such groups in California (Table 6).

Table 6. Examples of non-governmental programs and entities providing forest-related information

Programs with K-12 focus	Councils / Professional Societies	Associations / Interest Groups	Land Trusts / Partnerships	Forest Management / Stewardship Programs	Foundations
Project Learning Tree (PLT)	California Forest Pest Council	California Forestry Association	The Pacific Forest Trust	Institute for Sustainable Forestry	American Forest Foundation
Project WILD	Fire Safe Council	Planning and Conservation League	The Nature Conservancy	California Native Plant Society	Pew Charitable Trust
California 4-H Association	California Exotic Pest Plant Council	California Cattlemen's Association	Trust for Public Land	Forest Stewardship Guild	James Irvine Foundation
California Oak Foundation	California Urban Forest Council	Sierra Club	Committee for the Green Foothills		Packard Foundation
Project Water	Forest Stewardship Council	California Farm Bureau Federation	American Land Conservancy		Hewlitt Foundation
Talk about Trees	Society of American Foresters	National Audubon Society			California Forest Foundation
	The Wildlife Society	Off Road Vehicle Association			California Oak Foundation
	Society for Range Management	Friends of the River			
	Public Policy Institute of California	National Wildlife Federation			

Source: FRAP, 2002

Note: Organizations may provide information in more than one category but are listed in just one

California's forest industry organizations, the California Forestry Association (CFA) (1996) and the California Forest Products Commission CFPC (2001), provide educational materials. "A Walk in the Woods" is a traveling exhibit that appears in malls and museums addressing California's forests. "Talk about Trees" is a classroom and field education program and curriculum. The Forest Foundation also sponsors the California Forest Center by maintaining public exhibits at the California State Fair in Sacramento. Forest Landowners of California (2002) offers a newsletter and field tours and co-sponsors many of the ongoing forest education efforts established by other organizations. The Society of American

Foresters (SAF) provides a wide range of information on forestry, and its California members are involved with public education (Society of American Foresters, 2002). For example, the Northern California Society of American Foresters chapter annually sponsors two conservation programs (Forest Conservation Days and the Forest Institute for Teachers). The purpose of both programs is to educate urban youths and adults on the methods used in California forest management. Finally, the California Farm Bureau Foundation (CFBF) includes forest-related elements in its "Agriculture in the Classroom" K-12 program.

Non-industry groups are also involved in the information-sharing process concerning forest and rangeland resources. There are many examples. Sustainable forest practices are specifically promoted by non-profit organizations such as the Institute for Sustainable Forestry (ISF) (1997) in northwestern California and the nationwide Forest Stewards Guild (2001). The Pacific Forest Trust (PFT) encourages stewardship forestry through education and research. The organization also finances sustainable operations and acquires conservation easements. Through funding from both the private and public sectors, these groups provide publications, handbooks, continuing education, field tours, workshops, and other resources (Pacific Forest Trust, 2000).

Other examples include the Planning and Conservation League (PCL), the California Native Plant Society (CNPS), Friends of the River (FOR), and the California Oak Foundation (COF). PCL (2002) has played a major role in the development of ballot initiatives resulting in greater State resource investment. The organization also reviews the implementation of public policy and provides forums for the discussion of issues. CNPS (2002) primarily operates through local chapters and is interested in the preservation of native plants including hardwoods. The society publishes the journal *Fremontia* that contains information regarding native plants and their protection. Friends of the River (FOR) (2002) is dedicated to river conservation and other related issues. The group concentrates it efforts on public education, the training and organization of citizen activists, and influencing public policy decisions through expert advocacy. The primary purpose of COF (2002) is to preserve the State's forest ecosystem and rural landscapes. The foundation has developed the oak-related components of the Cal Alive! CD-ROM series designed for youth. It has also published and distributed a new curriculum entitled "Investigating the Oak Community" designed for children in grades 4 through 8. The foundation has actively worked with landowners, farmers, developers, and others to conserve oak woodlands and to preserve sustainable ranching.

Extension programs

Extension programs "extend" information to the public through cooperative governmental efforts.

The Smith-Lever Act of 1914 authorized land-grant colleges to "extend" information to the public through cooperative governmental efforts. The Berkeley, Davis, and Riverside campuses in the UC system are land-grant campuses. Federal authority to implement extension programs is based on several laws, including the Renewable Resources Extension Act of 1978 (RREA). Programs are administered or coordinated by U.S. Cooperative State Research, Education, and Extension Service (CSREES). The service recognizes the diverse nature of forest interests, and therefore emphasizes the creation of partnerships with other agencies and the private sector. Most of the funding for these activities is provided by the RREA. See the

online document Extension Forestry Staffing for a breakdown of extension staffing levels (U.S. Cooperative State Research, Education, and Extension Service, 2002).

The University of California Cooperative Extension (UCCE) maintains farm, 4-H, and nutrition, family, and consumer sciences advisors in more than 50 offices throughout the California. See the online document University of California Cooperative Extension for more information. County farm advisors collaborate with farmers, ranchers, pest control advisors, and industry representatives to identify issues and solve problems. They also work with extension scientists at UC Berkeley, UC Davis, and UC Riverside to research, refine, and conduct field tests to solve problems or promote the use of research findings. Farm advisors also collaborate with the California 4-H Youth Development Program in various counties to promote farm-related school educational programs (University of California Cooperative Extension, 2002). See the online document Home Page of the California 4-H Youth Development Program for more information.

There are also regional extension forestry specialists who develop research-based solutions to natural resource problems through applied research, meetings, conferences, workshops, demonstrations, field days, video programs, newsletters, software, and manuals. Headquartered in the College of Natural Resources at UC Berkeley, the program supports seven full-time professional foresters who possess various specialties. Similarly, the UCCE Rangeland Extension program supports two full-time, regional rangeland specialists at UC Davis as well as many county advisors with part-time range responsibilities.

Funding for extension programs is provided primarily through the federal and State budgets. Funding provided through the RREA and designated for forestry education in California totals approximately $90,000 per year. Under the act, individuals or groups can competitively apply for grants issued through each forest advisor. RREA funded projects address oak woodlands, forestland, rangeland, fish and wildlife, and fire.

Outreach groups include forest and rangeland landowners, government agencies, interest groups, and policy makers. New national and State environmental conservation issues, such as biodiversity, water quality, and sustainable production, have contributed to an increase in breadth of forestry-related topics when compared to public debate a decade ago (University of California Department of Agriculture and Natural Resources, 1996). Examples of some of the recent UCCE workshop topics, primarily designed for landowners and managers, reflect this trend:

- maintaining forest and ranch roads;
- forest stewardship;
- large woody debris;
- riparian forest management; and
- ranch water quality planning (short course).

UCCE workshops are frequently evaluated by participants in order to measure educational effectiveness. For example, questions are asked regarding the usefulness of the information presented,

As a result of the U.C. Rangeland Watershed Program's Ranch Water Quality Planning Short Courses, over 350 ranches and more than one million acres of private rangeland have been incorporated into voluntary rangeland management plans for the purpose of protecting water quality and riparian areas.

the quality of the presentations, and usefulness to clarify management objectives. Additionally, instructors encourage suggestions for future topics. This feedback helps instructors target and adjust those areas of the content and delivery in order to improve the effectiveness of future workshops.

One extension program, the UC Rangeland Watershed Program at UC Davis, offers Ranch Water Quality Planning Short Courses for rangeland owners and managers. Since its inception in 1997, the short course has been presented more than 50 times. As a result, over 350 ranches and more than one million acres of private rangeland have been incorporated into voluntary rangeland management plans for the purpose of protecting water quality and riparian areas. This educational program was initiated by CDF's Range Management Advisory Committee (RMAC) as part of the California Rangeland Water Quality Management Plan in order to address one of the identified sources of nonpoint pollution in the State.

Educational publications intended for the public range from pamphlets to comprehensive guidebooks. "Working in the Woods" is a recent interactive guide designed to help California forest landowners develop a strategy for their property while learning about ecology, forest management laws, wildlife, and other related topics. As part of its mission to conserve California's 10 million acres of oak woodlands, the University of California Integrated Hardwood Range Management Program (IHRMP) produces newsletters, videos and materials to help landowners manage their oak woodlands. The Home Page of the Integrated Hardwood Range Management Program provides access to current publications, research, and other reference sources (Integrated Hardwood Range Management Program, 2000).

Recent UCCE conferences have addressed a variety of topics relevant to today's expanding educational and research needs. They are intended for resource professionals rather than the public:

- Forest Vegetation Management (an annual conference);
- Cumulative Watershed Effects;
- Coast Redwood Forest Ecology and Management; and
- Oak Symposium: Oaks in California's Changing Landscape.

Forest and rangeland advisors have needed to apply conflict management and facilitation skills to disputes concerning the use of natural resources with increasing regularity. For example, UCCE supports the Mendocino County Forestry Council, a forum for public debate on local issues related to forestry (e.g., forestland conversion, herbicide use, Sustained Yield Plans).

The first year in the life of a U.C. Extension Forester*: The mission of my Forest Advisor Program in Humboldt and Del Norte counties is to develop educational and research programs that meet the needs of forest resource users. My program emphasis is on forest management activities including watershed management, conservation biology, water quality and silviculture. I work with a large clientele base of landowners and managers from industrial, non-industrial and public lands including resource professionals from a variety of public and private organizations and agencies. I have designed my program to respond to current needs through technical assistance programs and public facilitation as well as to develop a long-term research focus that will assist in policy work and resultant forestry management improvements. I began as the Forest Advisor in November 2000.

A large focus during this year has been trying to gain recognition for outstanding stewardship performance of non-industrial landowners and to create incentives to improve performance where needed. This has led to my Statewide involvement as a facilitator for the BOF Stewardship Working Group and local involvement with the Non-industrial Stewardship Forestry Group and the Buckeye Conservancy. With the Buckeye, I co-sponsored a Symposium to help develop a shared understanding of stewardship and the relationship between open space and the economic and ecological viability of the family forestlands in Humboldt County.

I have been responding to the increasing concern about a new disease, Sudden Oak Death. This recently discovered disease appears to be threatening a wide range of tree and shrub species present in our region. I have been responding through educational presentations, field sampling, an article in my newsletter, attendance at State-wide task force meetings and organizing a regional planning meeting for those that are involved with forestry technical assistance (e.g. County Agriculture Commissioner, CDF Service Forester, USFS silviculturists, etc.).

I have been working closely with the Institute for Sustainable Forestry and together we have been offering a technical landowner educational workshop series and opportunities for interested parties to "walk in the woods" of actively managed timberlands. The 2001 series constituted the following: Fire Hazard Reduction and Timber Stand Improvement, Stream Restoration, two Walks in the Woods, Non-timber Forest Products, and Tree Planting. I am also working with the UC Forestry Workgroup in the development of a landowner education course and an associated series of publications. I am currently responsible for the stewardship planning and regulation portions of each

I am beginning a research program into the role and functionality of coarse woody debris in forests. Recent ecosystem science research has revealed important biological and physical values of these materials, and some retention of these materials in now being recommended by a wide range of agencies for California forest landowners. I will be doing fieldwork this spring with a RREA Student Intern and then developing a DANR publication to provide a methodology for rapidly determining the amount the woody debris in Douglas fir and redwood forest stands for landowners, foresters and natural resource professionals. This publication will discuss value, functionality and processes of coarse wood debris dynamics in northwestern California forests. I will be collaborating with the CA Department of Fish and Game, local foresters, landowners and other extension advisors.

I have been active in numerous local watershed restoration efforts. I recently wrote a poster for presentation at a symposium on “Small Stream Channels and their Riparian Zones: Their Form, Function and Ecological Importance in a Watershed Context” in Vancouver BC (February 2002). I also have served as a resource for the Humboldt County Resource Conservation District as a member of the review committee for their restoration grant proposals. I hosted and facilitated a large community meeting to review the North Coast Watershed Assessment Program (NCWAP) manual. Additionally, the UCCE Marine Advisor and I planned a “Humboldt Bay and Watershed Symposium” for February 2002. We were fortunate to be the recipient of funds from both Sea Grant/DANR Mini Grant proposal for the symposium and from RREA for a student intern. I have also written a piece on working with watershed groups for the Second Edition of the Oak Planners Guide.”

** 2000-01 Annual Report by Yana Valachovic, UCCE Forest Advisor, Humboldt and Del Norte counties*

Technical assistance

As generally understood, technical assistance refers to on-site help provided by technical professionals (Hibbard and Ellefson, 2002). Furthermore, agencies that

As generally understood, technical assistance refers to on-site help provided by technical professionals.

provide technical assistance are often involved in education and extension programs. Table 7 lists examples of technical assistance programs provided by State and federal agencies involved in forest and rangeland.

Table 7. Forest and rangeland technical assistance programs

Program	Agency	Focus
Federal		
Forest Stewardship Program	USFS / with CDF	Provides management and technical, mostly through partnerships with organizations and agencies at the local level; provides educational, informational material, and financial resources to groups and incentives for landowners; promotes demonstration projects; operates a stewardship help line.
Forestry Incentives Program (FIP)	NRCS	FIP is a voluntary program that provides eligible forest landowners with technical and financial assistance. From 1997 to 2000, there were 94 contracts obligating over $500,000 in California (U.S. Natural Resource Conservation Service, 2001a).
Resource Conservation and Development Program	NRCS and Farm Service Agency	Fosters capability of designated RC&D areas to plan, develop, and implement projects for resource conservation and development; projects relate to land conservation, water management, economic development, and community sustainability.
Environmental Quality Incentives Program (EQUIP)	NRCS	Provides a voluntary conservation program for farmers and ranchers; offers financial and technical help assisting eligible participants in the installation or implementation of structural and management practices on eligible agricultural land. The Farm Security and Rural Investment Act of 2002 provides an additional $50 million in EQIP funding to assist producers in the Klamath Basin Lakes basin for soil erosion and sediment control measures. In fiscal 2001, 578 projects were funded totaling approximately $7.5 million (U.S. Natural Resource Conservation Service, 2002a). See the online document 2001 Environmental Quality Incentives Program for more information (U.S. Natural Resource Conservation Service, 2002b).
Wetlands Reserve Program	NRCS	Provides a voluntary program of technical and financial assistance for eligible landowners to restore, enhance, and protect wetlands. Landowners can agree to permanent easements, 30-year easements, and restoration cost-share agreements. In fiscal year 2001, the WRP in California assisted 26 landowners with $11,700,000 in funding. From 1997-2002, over 62,000 acres have been placed under easements or restoration agreements at a cost of $64,496,775 (U.S. Natural Resource Conservation Service, 2001b).
State		
California Forest Improvement Project	CDF	The program provides private forest landowners, forest operators, wood processors, and public agencies with technical assistance and cost-share assistance. Cost-shared activities include management planning, site preparation, tree purchase and planting, timber stand improvement, fish and wildlife habitat improvement, and land conservation practices.
Forest Legacy Program	CDF	Under the California Forest Legacy Act (SB 1832, chapter 790, 2000) (Legislative Council of California, 2000), CDF may acquire conservation easements, and permit federal and State agencies, local governments, and nonprofit land trust organizations to manage them. Money to fund the program should be obtained from gifts, donations, federal grants and loans, other appropriate funding sources, and from the sale of bonds pursuant to Proposition 12.
Enhancement and Management of Fish and Wildlife and their Habitat on Private Lands	DFG	The program offers ranchers and farmers an opportunity to increase their profits by improving wildlife habitat. Economic incentives include the ability to offer the public fishing and hunting opportunities beyond the traditional seasons. The landowner pays a fee to be in the program, pays for the tags / permits, develops an approved management plan, and implements the specified wildlife habitat improvements. The landowner sets and collects whatever access and service fees they wish. Through 1996, there were 52 PLM properties encompassing approximately 645,000 acres (Department of Fish and Game, 1997).
Vegetation Management Program	CDF	Assists landowners with prescribed burning.
Agricultural Land Stewardship Program	Department of Conservation	ALSP funds are primarily used to purchase conservation easements from willing landowners through a one-time payment that permanently sets land aside for agricultural use. Funds can also be used for conservation planning.
Urban and Community Forestry Grant Program	CDF	Assists local governments, special districts, and non-profits with tree planting projects

Source: FRAP, 2002

Findings on periodic forest related planning, assessment and policy reviews

Periodic forest-related planning is another method for compiling and communicating information to the public. These planning (and often research) sessions provide legislatures, agency personal, natural resource professionals, non-government natural resource groups, and educators with current and unbiased information regarding the status and trends of forest and rangeland related topics. Current information is only general and usually pertains to the natural, economic, and social factors related to forest and rangeland resource sustainability.

California's Forest and Rangeland Resources Assessment and Policy Act of 1977 provides for periodic forest-related planning, assessment, and policy review. CDF performs the assessment in cooperation with federal, state, and local agencies, public and private organizations, and California's academic research community. Other State agencies such as the California Energy Commission and the California Department of Parks and Recreation fulfill periodic planning processes that involve aspects of forest and rangeland resources.

Under RPA, the USFS must support periodic forest-related planning, assessment, and policy review. Other federal land management agencies have similar planning and assessment processes that involve forest and rangeland resources. In addition, legislation passed during the 1990s requires federal agencies to employ a performance-based management system. In response, federal land management agencies are developing strategic plans that include management goals, measured progress, other associated objectives, and strategies to achieve these objectives.

Findings on public awareness

Do the various public information programs involving California forests and rangelands produce results? Several messages, viewpoints, forums, and groups have been established that maintain an interest in the use of information. If the diversity of viewpoints is any measure, then information is being widely distributed. The extent to which it affects public awareness is more difficult to measure.

Public awareness of California's environmental issues

The general environmental awareness of Californians was reflected in two recent surveys of the geographic regions representing the major population centers of the State (Baldassare, 2000 and 2002). Overall, the survey's results revealed little change between 2000 and 2002, and showed that:

- An overwhelming majority view environmental problems as a threat to their health and well-being;
- Air pollution was most frequently cited as important, followed by growth, general pollution, water pollution, traffic, and water supply; and
- Residents believe little progress has been made over the past twenty years in solving environmental problems; 51 percent believe the quality of the environment in their region is deteriorating.

On forestry-related issues, the 2000 survey found that:

- Nearly half of the respondents said that urban growth and air pollution damage to the forests in the Sierra Nevada mountains are a "big problem." An additional third were also "concerned";
- Approximately one-third had significant concerns regarding the logging of old-growth redwoods in the north coast, while two-thirds of the respondents rated the issue at least "somewhat of a problem;" and
- One percent cited "logging, loss of redwoods, protecting forests" as the most important environmental issue facing the California.

In 2002, it did not appear that forestry issues were considered politically important enough to warrant inclusion in survey questions. Furthermore, north coast, central coast, and eastern sierra counties were not surveyed as they represented only 10 percent of the population.

Regional and ethnic differences became apparent in the survey's responses and included the following:

- Half of all residents believed California was not doing enough to protect the environment;
- A majority of Californians agreed that "stricter environmental laws and regulations are worth the cost," but not as many as reflected in nationwide polls (57 percent versus 65 percent);
- Most residents support the use of public funds to buy undeveloped land for open space protection, although a slight majority (52 percent) would oppose a bond measure authorizing local government to buy land for open space if it required an increase in property taxes; and
- However, the concept of nonprofit organizations using private funds to buy and protect undeveloped land received strong support (71 percent).

Surveyed respondents solutions to these perceived problems were diverse and included the following:

- Central Valley residents were less likely to support environmental laws and regulations than Californians as a whole, more likely to support individual property rights, and more supportive of tax cuts than the creation of conservation trust funds for open space if a budget surplus is available;
- Central Valley responses indicated less concern regarding growth and pollution damage in Sierra Nevada mountain forests and more concern regarding the encroachment of urban sprawl into Central Valley farmlands;
- San Francisco Bay Area residents followed by those in the Los Angeles region were most likely to agree that restrictions on development are a "very effective" means of preserving wetlands, rivers and environmentally sensitive areas. However, three in four Californians agreed that such restrictions are at least "somewhat effective;" and
- Latinos were more concerned about environmental problems than the general public, specifically those perceived to be a very serious threat to health and well-being.

Public attitudes about forest management in California

In contrast to the statewide environmental surveys of adults, the California Forest Products Commission conducted a specific survey from 1998-2002 in various urban regions of northern California that targeted the attitude of the voter population regarding forest management issues (Moore Information, Inc., 1998 and 1999; Zea, 2002). Almost all agreed that "good management" involves:

- replanting and reforestation; and
- removing dead and diseased trees to reduce forest fire hazards.

A majority believed that:

- harvesting healthy trees is an example of good management;
- well-managed forests are healthier than forests left untended by humans;
- California's private forests are well managed;
- there are scientific reasons to allow some clearcutting; and
- more trees are planted every year in California than are harvested.

Despite overall positive public perceptions, efforts to limit forest management on private lands are increasing. The study proposes three reasons for this discrepancy:

- The public does not realize the nature of "forest management," believes that forests are shrinking in size, and does not know about current State timber harvesting regulations;
- The public tends to support restrictions in areas defined by anti-logging groups as worthy of protection based on reported special or unique qualities; and
- The public supports protection over management when forest management issues are perceived to be in conflict with environmental protection.

Education and party affiliation affect viewpoints. Those educated beyond the high school level tend to support forest management activities to a lesser extent, while Republicans are more supportive than Democrats or Independents. Regionally, voters in the Eureka area of the forested north coast region are more concerned with forest management issues than the other regions surveyed.

Urban forestry was regarded very positively, based on a 1994 CDF sponsored survey of 600 registered voters throughout the State (Underhill, 1995):

- Support for urban forestry programs was very positive;
- The public tended to trust federal or State agencies over private groups when supporting an urban forestry program;
- All political affiliations and ethnic groups indicated urban forestry was a worthwhile effort to pursue; and
- The amount respondents were willing to pay for an urban forestry program increased with income and decreased with home ownership.

However, a majority of respondents were unaware of an urban forestry program in their community. One conclusion of the researcher was that more effort was needed to educate the public about the various benefits provided by such a program.

Improving public awareness

An evaluation regarding ways to improve the public's awareness of current State forest management activities was included in recent reports to the California Forest Products Commission (Zea, 2002). The studies concluded that a long-term communications program has the potential to increase public

awareness and acceptance of forest management activities in California. Overall, the public remained largely uninformed regarding the extent to which forest management is practiced in California. The surveys found that the public is interested in learning more about forests and forest management, with 58 percent intending to seek out more information concerning forest practices and management in the future.

On the other hand, the same percent admitted they generally do not think about forest management issues. CFPC television advertising has a higher profile in the Sacramento area, but newspapers are the primary information source in other regions. After a focused advertising campaign over a period of several months, public awareness concerning forest industry reforestation was significantly increased. Survey statements or topics associated with a high percentage response of "no opinion" were an indicator of an "educational opportunity." However, a short, concentrated communications effort will not change public attitudes in the long term.

An April 2002 poll, also commissioned by the CFPC, found what it considered to be positive changes in the public's attitude toward forest management and credits them to the many ongoing, forestry-related educational and public outreach programs (Zea, 2002). A strong majority of those surveyed believed the following:

- Managed forests can protect the environment and adequately provide wood products at the same time;
- It is hypocritical to reduce logging in the State while buying lumber from other countries where environmental regulations are less restrictive;
- A fire prevention program should include thinning overcrowded forests and cutting trees;
- Collaboration is needed between State and local governments and the forest products industry; and
- There is a cause-and-effect relationship between imposing more regulations on timber harvesting and the cost of lumber.

Concluding observations

Working with public and private forest and range landowners, managers, users, advocates, and observers includes an extensive California "public." The transition to greater public involvement in natural resource management is already underway for a variety of reasons. Some public processes are now being mandated, as noted in the Assessment document Legal Framework, while other approaches are being voluntarily tested to find better alternatives to traditional decision-making processes. Litigation remains a primary determinant of public involvement in California.

Doubtlessly, sustainable management of forests and rangelands will require further changes to the decision making process. The importance of the need for good technical analysis as part of the sustainability solution is increasingly being emphasized. However, the ongoing uncertainty regarding ecosystems, natural processes, and social concerns complicates the ability to frame public participation. Participation appears to be most successful when various stakeholders can utilize technical information and interact to agree on common problems and solutions. Usually, this occurs at the local or community

level. "Public deliberation and technical analysis can create a virtuous cycle, with one process adding to the effectiveness and integrity of the other. More intensive processes—rather than the all-too-common public hearing—are most likely to create such a cycle" (Beierle and Cayford, 2002).

Glossary

ACL: Associated California Loggers.

ALSP: Agricultural Land Stewardship Program.

APA: California Administrative Procedures Act.

ARB: California Air Resources Board.

BLM: U.S. Bureau of Land Management.

BOF: California State Board of Forestry and Fire Protection.

Cal/EPA: California Environmental Protection Agency.

CalEPPC: California Exotic Pest Plant Council.

CaUFC: California Urban Forest Council.

CDE: California Department of Education.

CDF: California Department of Forestry and Fire Protection.

CEC: California Energy Commission.

CEQA: California Environmental Quality Act.

CFA: California Forestry Association.

CFBF: California Farm Bureau Federation.

CFIP: California Forest Improvement Project

CFPC: California Forest Products Commission.

CIWMB: California Integrated Waste Management Board.

CLFA: California Licensed Foresters Association.

CNPS: California Native Plant Society.

COF: California Oak Foundation

CRMP: Coordinated Resource Management and Planning.

CSREES: U.S. Cooperative State Research, Education, and Extension Service.

CSU: California State University.

DEIS: Draft Environmental Impact Statement.

DFG: California Department of Fish and Game.

EPA: U.S. Environmental Protection Agency.

EQIP: Environmental Quality Incentives Program.

ESA: Endangered Species Act.

FIP: Forestry Incentives Program.

FLP: Forest Legacy Program.

FOR: Friends of the River.

FPR: Forest Practice Rule.

FSC: Fire Safe Council.

FWS: U.S. Fish and Wildlife Service.

IHRMP: Integrated Hardwood Range Management Program.

ISF: Institute for Sustainable Forestry.

NARA: U.S. National Archives and Records Administration.

NEEA: National Environmental Education Act of 1990.

NFMA: National Forest Management Act of 1976.

NRCS: U.S. Natural Resources Conservation Service.

OAL: California Office of Administrative Law.

PCL: Planning and Conservation League.

PFT: The Pacific Forest Trust.

PLT: Project Learning Tree.

PPIC: Public Policy Institute of California.

RC&D: Resource Conservation and Development.

RMAC: Range Management Advisory Committee.

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

RREA: Renewable Resources Extension Act of 1978.

SAF: Society of American Foresters.

SBE: California State Board of Education.

SYP: Sustained Yield Plan.

THP: Timber Harvesting Plan.

TWS: The Wildlife Society

UC: University of California.

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

UCCE: University of California Cooperative Extension.

USFS: U.S. Forest Service.

WRP: Wetlands Reserve Program.

Literature cited

American River College. 2002. Programs of study. Web site accessed October 2, 2002. http://www.arc.losrios.edu/areas/areas.html.

Arvola, T.F. 1976. Regulation of logging in California, 1945-1975. Sacramento, CA: California Department of Conservation, Division of Forestry.

Associated California Loggers. 2002. Home page of associated California loggers. Web site accessed October 2, 2002. http://www.calog.com/.

Bakersfield College. 2001. Degrees and certificate programs. Web site accessed October 2, 2002. http://www.bakersfieldcollege.edu/student_info/academic_info/degrees.

Baldassare, Mark. 2000. Special survey on Californians and the environment. Public Policy Institute of California. Web site accessed October 7, 2002. http://www.ppic.org/publications/CalSurvey11/survey11.pdf.

Baldassare, Mark, 2002. Special survey on Californians and the environment. Public Policy Institute of California. Web site accessed October 8, 2002. http://www.ppic.org/publications/CalSurvey28/survey28.pdf.

Beierle, Thomas C. 1999. Using Social Goals to Evaluate Public Participation in Environmental Decisions. *Policy Studies Review* 16(3 / 4): 75-103.

Beierle, Thomas C. and Jerry Cayford. 2002. Democracy in practice: public participation in environmental decisions. Washington, DC: Resources for the Future.

California 4-H Youth Development Program. 2002a. Project resources. Web site accessed October 2, 2002. http://fourh.ucdavis.edu/projresource/index.asp.

California 4-H Youth Development Program. 2002b. Home page of the California 4-H youth development program. Web site accessed October 3, 2002. http://fourh.ucdavis.edu/.

California Department of Education. 2002. Office of environmental education. Web site accessed October 2, 2002. http://www.cde.ca.gov/cilbranch/oee/.

California Department of Forestry and Fire Protection. 2002. Timber harvesting plan status. Web site accessed October 1, 2002. http://www.fire.ca.gov/ResourceManagement/THPStatus.asp.

California Forest Products Commission. 2001. Home page of the California forest products commission. Web site accessed October 3, 2002. http://www.calforests.org/.

California Forestry Association. 1996. Home page of the California forestry association. Web site accessed October 3, 2002. http://www.woodcom.com/woodcom/cfa/.

California Licensed Foresters Association. 1999. Home page of the California licensed foresters association. Web page accessed October 2, 2002. http://www.clfa.org/.

California Native Plant Society. 2002. Home page of the California native plant society. Web site accessed October 3, 2002. http://www.cnps.org.

California Department of Fish and Game. 1997. Habitat conservation and management in California. Web site accessed October 7, 2002. http://www.dfg.ca.gov/habitats/private.html.

California Department of Fish and Game. 2000. Correlations to CA content standards for education. Web site accessed October 7, 2002. http://www.dfg.ca.gov/coned/projectwild/correlation.html.

California Department of Fish and Game. 2002. Going WILD…!: a newsletter for Project WILD educators in California, volume VII, summer 2002. Web site accessed October 7, 2002. http://www.dfg.ca.gov/coned/projectwild/newsletter2002summer.pdf.

California Oak Foundation. 2002. Home page of the California oak foundation. Web site accessed October 3, 2002. http://www.californiaoaks.org/.

Cleary, C. Rex and Dennis Phillippi. 1993. Coordinated resource management guidelines. Lakewood, CO: Society for Range Management.

College of the Redwoods. 2002. Academic departments. Web site accessed October 7, 2002. http://www.redwoods.cc.ca.us/MAIN/dept/index.htm.

FindLaw. 2002. Big Creek Lumber Co. v. County of San Mateo (1995) 31 Cal.App.4th 418, 37 Cal.Rptr.2d 159. Web site accessed October 1, 2002. http://login.findlaw.com/scripts/callaw?dest=ca/caapp4th/31/418.html.

Fire and Resource Assessment Program (FRAP). 2002. Information assembled by Dean Cromwell.

Forest Landowners of California. 2002. Home page of Forest Landowners of California. Web site accessed October 3, 2002. http://www.forestlandowners.org/.

Forest Stewards Guild. 2001. Home page of the Forest Stewards Guild. Web site accessed October 7, 2002. http://www.foreststewardsguild.org/.

Friends of the River. 2002. About Friends of the River. Web site accessed October 3, 2002. http://www.friendsoftheriver.org/html/about.html.

Friends of the Urban Forest. 2002. History of Friends of the Urban Forest. Web site accessed October 1, 2002. http://www.fuf.net/newsite/A_about/history.html.

Hibbard, Calder and Paul Ellefson. 2002. Public involvement activities and public education, awareness, and extension programs, and make available forest related information. U.S. Forest Service. Web site accessed September 24, 2002. http://www.fs.fed.us/research/sustain/indicator53a.pdf.

Integrated Hardwood Range Management Program. 2000. Home page of the University of California Integrated Hardwood Range Management Program. Web site accessed October 3, 2002. http://danr.ucop.edu/ihrmp/.

Institute for Sustainable Forestry. 1997. Home page of the Institute for Sustainable Forestry. Web site accessed October 3, 2002. http://isf-sw.org/.

Lassen Community College. 2002. Vocational programs. Web site accessed October 2, 2002. http://www.lassen.cc.ca.us/lcc2001/edprog/voc_main.htm.

Legislative Council of California. 2000. Bill number: SB 1832: chaptered September 28, 2000. Web site accessed October 7, 2002. http://leginfo.public.ca.gov/cgi-bin/statquery?chapter=790&year=2000.

Legislative Council of California. 2001. Bill number: SB 373. Web site accessed October 2, 2002. http://www.leginfo.ca.gov/pub/bill/sen/sb_0351-0400/sb_373_bill_20011014_chaptered.html.

Little Hoover Commission. 2000. Special District: relics of the past or resources for the future. Web site accessed October 8, 2002. http://www.lhc.ca.gov/lhcdir/155/report155.pdf

Love, Cathy and Paige Lettington. 1995. Compendium for natural communities. Digital Library Project, University of California, Berkeley. Web site accessed October 2, 2002. http://elib.cs.berkeley.edu/cgi-bin/display_page?page=1&format=gif&elib_id=415.

Mann, Lori and Ed Hensley. 2002. Education and the environment: strategic initiatives for enhancing education in California. California Department of Education. Web site accessed October 2, 2002. http://www.cde.ca.gov/cilbranch/oee/caplan.pdf.

Moore Information, Inc. 1998. Sacramento county voters and forest issues. Portland, OR.

Moore Information, Inc. 1999. California voters and forest issues. Portland, OR.

Naisbitt, John. 1990. Megatrends 2000: ten new directions for the 1990's. New York, NY: Morrow.

Pacific Forest Trust. 2000. Home page of the Pacific Forest Trust. Web site accessed October 3, 2002. http://www.pacificforest.org/.

Planning and Conservation League. 2002. Home page of the Planning and Conservation League. Web site accessed October 3, 2002. http://www.pcl.org/.

Project Learning Tree. 2002. Branch: The national newsletter of Project Learning Tree. Web site accessed October 2, 2002. http://www.plt.org/newsletter/pdf/spring2002_edit.pdf.

Project WILD. 2000. About project WILD. Web site accessed October 2, 2002. http://www.projectwild.org/aboutPW/about.htm.

Romm, J. 2000. California forest policy must bend toward the new social order. *California Agriculture*. March-April 2000, p.35-42.

Smith, Allan T. 2002. 4-H youth development facts. National 4-H Headquarters. Web site accessed October 2, 2002. http://national4-hheadquarters.gov/4HFacts2002.pdf.

Society of American Foresters. 2002. Education. Web site accessed October 3, 2002. http://www.safnet.org/educate/index.html.

Underhill, Karen K. 1995. Abstract: Public opinion of urban forestry in California. Urban Forest Ecosystems Institute. Web site accessed October 8, 2002. http://www.ufei.calpoly.edu/data/abstracts/OpinionAbst.html.

Undue Influence. 2000. Center for Biological Diversity. Web site accessed October 1, 2002. http://www.undueinfluence.com/southwes1.htm.

University of California Department of Agriculture and Natural Resources. 1996. Natural resources in action: a guide to the renewable resources extension act in California. Davis, CA.

University of California Cooperative Extension. 2002. Web site accessed October 3, 2002. http://ucanr.org/CES.CEA.shtml.

U.S. Cooperative State Research, Education, and Extension Service. 2002. Extension forestry staffing. Web site accessed October 7, 2002. http://www.reeusda.gov/nre/forestry/staffing.pdf.

U.S. Environmental Protection Agency. 1996. Report assessing environmental education in the United States and the implementation of the national environmental education act of 1990. Web site accessed October 1, 2002. http://www.epa.gov/enviroed/pdf/report.pdf.

U.S. Environmental Protection Agency. 2002. Environmental education grants program. Web site accessed October 1, 2002. http://www.epa.gov/region09/enviroed/grants.html.

U.S. Forest Service. 1996. Federal wildland fire policy. Web site accessed September 25, 2002. http://www.fs.fed.us/land/wdfire.htm.

U.S. Forest Service. 2001a. Biological and conference opinions on the continued implementation of land and resource management plans for the four southern California national forests as modified by new interim management direction and conservation measures (1-6-00-F-773.2). U.S. Fish and Wildlife Service. Web site accessed September 26, 2002. http://www.r5.fs.fed.us/sccs/download/programmatic-bo.pdf.

U.S. Forest Service. 2001b. Biological opinions. U.S. Fish and Wildlife Service. Web site accessed September 26, 2002. http://www.r5.fs.fed.us/sccs/biological-opinions.htm.

U.S. Forest Service. 2002a. Land management planning. Web site accessed September 25, 2002. http://www.fs.fed.us/biology/planning/.

U.S. Forest Service. 2002b. Forest planning in southern California. U.S. Forest Service. Web site accessed September 25, 2002. http://www.r5.fs.fed.us/sccs/.

U.S. Natural Resources Conservation Service. 2001a. 2000 Forestry incentives program. Web site accessed October 7, 2002. http://www.nrcs.usda.gov/programs/fip/2000summaries/CA-FIP.pdf.

U.S. Natural Resources Conservation Service. 2001b. 2001 wetlands reserve program. Web site accessed October 7, 2002. http://www.nrcs.usda.gov/programs/wrp/factsheets/CA_WRP.PDF.

U.S. Natural Resources Conservation Service. 2002a. Farm bill 2002: conservation provisions overview. Web site accessed October 7, 2002. http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/ConsProv.pdf.

U.S. Natural Resources Conservation Service. 2002b. 2001 environmental quality incentives program. Web site accessed October 7, 2002. http://www.nrcs.usda.gov/programs/eqip/2001summaries/CAEQIP%20doc.pdf.

Zea, Donn. 2002. Public attitudes about forestry are changing. *California Forests* April / June. Web site accessed October 2002. http://www.calforests.org.