

THE 2008 REPORT
OF
THE BOARD OF FORESTRY AND FIRE PROTECTION



ON
FOREST MANAGEMENT RESEARCH

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Section I- Overview and Background

The Board of Forestry and Fire Protection is required (PRC § 4789.6) to report to the Legislature and the Governor biennially the extent of what the state needs for forest management research and recommend the conduct of needed projects. This document constitutes that report, and is based upon the 2003 Forest and Range Assessment, and the 2007 Board of Forestry and Fire Protection Policy Program.

The Forest and Range 2003 Assessment

The Forest and Range 2003 Assessment provides a systematic overview of the status, trends, and challenges to California's forest and rangeland resources. The Assessment is not a plan; it summarizes current knowledge, projects future conditions, and underscores potential problems and opportunities.

The Assessment comprises a comprehensive series of on-line technical reports on over 30 topics relevant to environmental, economic, and social conditions that are the foundation of resource sustainability. The Assessment flagship product, "The Changing California: Forest and Range 2003 Assessment," summarizes information from these technical reports. It focuses on status, trends, and factors affecting sustainability, while framing policy issues and options for consideration by the California State Board of Forestry and Fire Protection as well as other policy makers.

A number of information systems created by the Fire and Resource Assessment Program (FRAP) support the assessment analysis and provide rich information for further research, analysis, and dialogue. This information is available through the FRAP web site and includes Geographic Information System (GIS) data, maps, tabular databases, technical reports, and links to related external publications. All of these will be continually updated as new information and analyses become available.

FRAP incorporates all the mandated requirements of Public Resources Code 4789 and delivers it in a contemporary framework focused on measurements of sustainability. Fifteen years ago, sustainability was simply defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission Report, 1987). As many groups began to work on defining sustainability, it became clear that three very different sets of conditions or indicators—environmental, social, and economic—needed to be included. While the desire may be to have very positive indicators for all three themes, objective assessments document a range of current conditions as well as many potential approaches towards improving overall sustainability in the future. The value of an objective framework for sustainability is that it provides all stakeholders with valuable information for assessing future decisions and policies.

The Montréal Process

For the assessment, FRAP followed the Montréal Process framework that is a set of criteria and indicators used to measure sustainable forest management for nontropical forests. It was designed under the auspices of the United Nations and is now used by the U.S. Forest Service, the state of Oregon, and a number of other entities (USFS RPA, 2002; ODF, 2003; USFS, 1997). The Montréal Process was the result of initial efforts by the 1992 United Nations Conference on Environment and Development and led to the 1994 formation of the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests in Geneva.

The criteria and indicators cover broad topics relevant to sustainable management. They recognize the interdependence of environmental, economic, and social goals. The seven criteria identified by the Montréal Process include vital functions and attributes (biological diversity, productivity, forest health, the carbon cycle, and soil and water protection), socio-economic benefits (timber, recreation, water, forage, and cultural values), and the laws and regulations that constitute the forest policy framework. Within these criteria are 67 indicators that measure the status and trends of forest conditions and help focus attention on factors affecting sustainability.

The 2003 Assessment uses the Montréal Process indicators but also adapts and expands them to meet the many different conditions within the State. California is a very diverse state with extensive forests, rangelands, metropolitan interfaces, and open space values. Often, the conditions of these components of the forests and rangelands are not expressly considered in the Montréal Process. To address this need, FRAP has used or modified the Montréal Process indicators as well as crafted descriptive, qualitative statements addressing conditions specific to California. These qualitative descriptors are used in cases where FRAP does not have enough information to make a definitive assessment or show established trends.

The 2007 Policy Statement and Policy Program

The Board is responsible for developing the general forest policy of the State, for determining the guidance policies of the Department, and for representing the State's interest in Federal land in California. Together, the Board and the Department work to carry out the California Legislature's mandate to protect and enhance the State's unique forest and wildland resources.

As mentioned above, a policy statement is prepared following a comprehensive assessment by the California Department of Forestry and Fire Protection's (CDF) Fire and Resource Assessment Program (FRAP).

The strategic planning process defines and communicates the Board's guiding values and priorities. This planning directs resources and efforts on the most important issues. It also defines both the Board's and Department's desired future outcomes, and how performance is measured and reported. This reporting, in turn, provides for an improvement cycle that allows the Board and the Department to make informed and timely changes.

This Strategic Plan is only one step in a process that will lead to further development of specific work plans, refinement of the indices that will define progress, and ongoing adaptation through a public process to ensure that the Board's vision is achieved.

The framework utilized for the Policy Statement is the same as the assessment: the Montreal Process. This framework allows for the Board to utilize internationally recognized criteria and indicators to evaluate all of its actions.

A criterion is:

- A category of conditions or processes by which sustainable forest management may be assessed.
- A Criterion is characterized by a set of related indicators which are monitored periodically to assess change.

An indicator is:

A measure (measurement) of an aspect of the criterion. A quantitative or qualitative variable which can be measured or described and which, when observed periodically, demonstrates trends.

These, in turn can form the basis of the above mentioned work plans, or strategic plans, such as the Research Report of the Board.

Previous Research Efforts

In 1987, BOF's committee on research identified twelve critical areas of research including cumulative watershed effects, vegetation and pest management, landowner rights and responsibilities, riparian zone management, land fragmentation, recreation, sediment yield, uneven-aged silvicultural systems and monitoring, wildlife habitat, forest and rangeland education, public attitudes, and multi-resource inventories and database development. In the twenty years since that report, many of these same areas are still relevant as research topics. To these, the issue of climate change and fire related impacts would need to be added.

During the last decade, the context of forest and rangeland resource decisions broadened as these lands became viewed through a variety of lenses. Better

information, monitoring and research are fundamental tools used to manage this uncertainty. The Board has determined, that managing the risks, rather than trying to totally remove risks in one particular area is a more realistic framework for decision-making. This was the conclusion suggested in the 2001 report “ A Scientific Basis for the Prediction of Cumulative Watershed Effects” of the University of California Committee on Cumulative Watershed Effects.

Baseline information is still needed with which to conduct condition monitoring. Many programs involve implementation and effectiveness monitoring. However, many areas require validation monitoring efforts in order to test whether or not the assumptions underlying management actions are valid.

A substantial amount of forestry research has been conducted during the last decade. Federal agencies, followed closely by non-profit foundations, have played a dominant role in guiding and focusing research. Major research categories have included:

Topic area	Major contributors	Estimated Magnitude of Funds
Exotic weeds and pests (preventing entry, spread, and control)	Cooperative efforts, strong UC role	Large
Hardwood ecosystems and land conversion	UCIHRMP	Medium
Wildlife habitat and population dynamics, particularly information necessary to formulate HCPs	USFS, private industry, FWS, UC	Large
Riparian habitat and fish population dynamics, particularly information necessary to formulate HCPs	Private industry, DFG, NMFS	Large
Identification of unstable areas and related geologic information	USGS, CGS	Medium
Improved forest inventory data and spatial information	USFS, CDF, private industry	Medium
Watershed assessment, particularly regarding the causes and control of pollution in waterbodies not satisfying water quality standards	SWRCB, RWQCBs, private industry, UC	Large
Interactions of urban populations and forests	USFS, UC	Small
Air quality related to ozone and fine particulate matter	ARB, EPA, USFS	Medium
Wildfire impact, control, and risks	USFS, CDF	Small, though increased under National Fire Plan
Forest genetics	USFS, private industry	Small

Renewable Energy Sources— biofuels and biomass	DOE, private industry	Large
Improved wood utilization and forest product development	USFS, UC, private industry	Small
Forest policy, including methodology development that measures and integrates environmental and social costs and benefits into markets and public policies	USFS, UC, non-profits	Small

There is a need to address questions at the ecosystem level more effectively. However, the ability to do so is limited. The most effective research framework would include multiple scientific disciplines, and would be able to learn from and share results of its research with the larger community. Yet, existing institutions can make this difficult. These include:

1. the tendency to reward independent work and academic publication over collective, interdisciplinary work published in more informal arenas;
2. the structure and reliability of research funding;
3. agency operating procedures; and
4. limited stakeholder involvement.

Scientists themselves differ in their ability to think holistically or outside the range of their traditional training. To some degree, methodologies have been developed that measure and integrate environmental and social costs and benefits into markets and public policies. In regions where exchange mechanisms have been developed, a substantial amount of this type of research has been conducted as it relates to air and water resources. The California Energy Commission (CEC) associates renewable energy investment decisions with potential public benefits such as a decline in wildfire risk, air pollution, and climate change. In addition, land acquisition and other conservation strategies often concentrate on areas that include valuable wildlife habitat or open space. Research has been conducted indirectly regarding ways in which communities and agencies can interact and improve public involvement and decision-making.

Because of the amount of institutional experimentation occurring in California, new methodologies and arrangements that measure and integrate environmental and social costs will probably be implemented. Non-profits and watershed/community groups might well lead this development, with or without research funding from the government.

What has been lacking over the past few years is any kind of cohesiveness in the field of forest management research. There are many different research projects and monitoring going on in the state, so much in fact that cataloging it becomes daunting, if not impossible. Much of this research is highly technical.

What this research means to the State of California and the Board is difficult to ascertain.

The Research and Science Committee

What is needed is a methodology to compile and make sense of the work being done. When that is accomplished, the information gaps will become more apparent, at least to qualified scientists. Such a methodology would also allow the Board and the Department to comply with their duties under PRC § 745 and PRC § 4789.6 to provide the public with information. It is therefore a high priority for the Board to seek sufficient funding and staffing to revive and expand the Research and Science Committee. This Committee would provide invaluable service as it would be comprised of leading experts in various fields. Here are the proposed responsibilities of this Committee:

- A. Review ongoing research programs;
- B. Advise the Board on research needs, priorities, policy, and such other matters as the Board directs;
- C. Provide science-based recommendations and technical information to assist the Board in making its determinations on forest practice rules and fire regulations;
- D. Coordinate reviews of existing science and produce unbiased technical information for consideration by the Board;
- E. Provide oversight and coordinate the efforts of the Board's technical committees, such as the Monitoring Study Group (MSG);
- F. When funding is available, coordinate research projects at the request of the Board;
- G. Take the lead role to improve coordination and cooperation of the various industrial, educational, State and Federal agencies involved in research; and
- H. Recommend a system through which information can be collected, maintained and disseminated on all completed forestry research projects.

This is similar to the approach adopted in the State of Washington for its Committee on Monitoring, Evaluation and Research (CMER). Given the increasingly technical nature of the discussion, and the need to base policy on sound science, the Board has determined that this approach will provide the needed flexibility to address the issues in an adaptive management context.

Section II- The Necessary Elements of Research Plan Implementation

The strategy elements identified below correspond to the Board's Strategic Policy Program, adopted in May of 2007. The Program follows the format of the Montréal Process, and utilizes the Criteria identified by the Process. These criteria are numbered 1-7. Within each criterion are strategies identified by the Board. These are identified by alphabetic character.

- There are three criteria which contain strategies considered necessary for Research Plan Implementation.

Policy Program Criterion #7 - Governance

- M. Develop overall forest and rangeland research plan for California.
- O. Maintain the forest and rangeland extension functions at University of California and applied programs at California State Universities.
- P. Hold research symposia to share results.
- Q. Increase foundation support for research.
- R. Develop and support a science review team that will provide the Board with timely review of existing rules, and, where appropriate, recommendations for modification of rules and evaluation procedures.
- E. Provide an annual reporting system on rule effectiveness as a means of providing necessary feedback.
- T. Continue to develop interagency agreements that set standards for information sharing and use

Policy Program Criterion #3 – Forest and Range Health

- L. Expand research on pest and disease control methods.
- K. Develop overall plan to guide forest and rangeland pest research and control, including public involvement.

Policy Program Criterion #6 – Socio-Economic Well Being

- E. Develop a coordinated plan to define needed statewide recreational expansion on forests and rangelands with protection of environment.

Section III- Topics for Research

The following is a list of potential research topics requiring additional development. Each topic is defined by its Montreal Process Criterion, and its strategy alphabetic identifier. The Board's Research and Science Committee will develop these ideas, consistent with the Board's Strategic Policy Program. These research topics are dependent upon being properly financed and staffed.

POLICY PROGRAM CRITERION # 1. BIOLOGICAL DIVERSITY**Goal:**

Contribute to the preservation, conservation, and maintenance of wildlife and native plant resources, so that the beneficial uses of those resources, both intrinsic and ecological, are available to the citizens of the State.

Objectives:

- 1. Reduce forest and rangeland plant community structure gaps to enhance fish, wildlife, and native plant habitats**
- 2. Where achievable as a result of forest and rangeland management, reduce declines in native species**
- 3. Ensure sustainability of species and natural communities found on forests and rangelands**

Potential Research:

- B. Methods that would strengthen analysis of cumulative impacts of land uses on terrestrial and aquatic habitat.
- C. Improve mapping and monitoring technologies and systems.
- G. Develop focused research program on State Forests for fish, wildlife, and native plant habitat.
- J. Research directed at habitat conservation and creation that is compatible with forest and rangeland commodity production.
- J. Research directed at understanding forest and rangeland ecosystem characteristics and functions.

POLICY PROGRAM CRITERION # 2. PRODUCTIVE CAPACITY

Goal:

Encourage prudent and responsible forest resource and rangeland management to serve the public's need for timber and other forest products, while giving consideration to the public's need for watershed protection, fisheries and wildlife, and recreational opportunities in this and future generations.

Objectives:

- 1. Create the necessary environment for a sustainable forest and rangeland products sector for California.**
- 2. Protect and enhance the forest and rangeland resource base.**
- 3. Reduce dependency on the importation of timber products.**

Potential Research:

- C & D. Research directed at retention and improvement of the forest and rangeland base and long-term investments by landowners through land-use and tax programs, performance-based regulations, market development, and applicable incentives.
- G. Research directed at protection and enhancement of the multiple values of California's urban and community forests and forests in the wildland/urban interface.
- H. Research directed at forest and range management techniques for enhancing resource productivity
- J. Research on the capability of California's forests and rangelands to sustain the state's level of consumption of timber, non-wood forest products, recreation, water, fish and wildlife habitat, and other forest values.

POLICY PROGRAM CRITERION #3. FOREST AND RANGE ECOSYSTEM HEALTH

Goal:

Protect, maintain, and enhance the health of California’s forest and rangeland ecosystems within the context of natural disturbance and active management.

Objectives:

- 1. Reduce the occurrence of catastrophic wildfires and reduce life, property and natural resource losses through the implementation of effective and efficient fire prevention, fire protection planning and suppression, financial management, and firefighter/public safety strategies.**
- 2. Improve the natural resiliency of forests and rangelands**
- 3. Reduce the occurrence of catastrophic mortality to pest and disease outbreaks**
- 4. Reduce and control non-native invasive species**
- 5. Reduce impacts related to poor air quality**

Potential Research:

- B.** Research directed at the development of integrated and comprehensive fire prevention and land use planning strategies.
- C.** Research directed at developing monitoring and reporting systems for wildland fire prevention, suppression, and restoration.
- R.** Develop efficient and effective control programs and strategies characterized by efforts that prevent invasions and quickly detect new occurrences so that the species may be removed or contained before spreading.
- T.** Research impacts of ozone and other pollutants on forest and rangeland vegetation and aquatic resources.
- U.** Develop improved modeling of air quality impacts of wild and prescribed fire.

- BB. Research directed at the Department's fire suppression level of service for personnel and equipment consistent with well defined standards and goals.
- JJ. Research directed at evaluation methods for determination of State Responsibility Area designations.
- LL. Research directed at defining the optimal mix of wildfire prevention and suppression levels to reduce losses to life, property, and natural resources, and minimize fiscal cost, pursuant to the Board's Fire Plan.

POLICY PROGRAM CRITERION #4. SOIL CONSERVATION AND WATER QUALITY

Goal:

Protect, maintain, and enhance the soil and water resources of the State of California's forest and rangelands.

Objectives:

- 1. Control soil erosion to protect resources and forest productivity.**
- 2. Protect the beneficial uses of water.**

Potential Research:

- A. Develop methods for watershed assessments using common watershed models and risk assessment capacity, enhancing cooperative mapping and monitoring techniques, and using long-term plans for large scale analysis and monitoring schemes.
- B. Research directed at the linkage of in-stream conditions to hillslope processes. Incorporate in-stream monitoring technologies to track effectiveness of regulations and restoration efforts, and provide the basis for adaptive management.
- F. Use the Demonstration State Forests as a venue for testing and demonstrating watershed assessment approaches and restoration techniques.
- G. Conduct focused research on the dynamics of fish populations and their linkages to instream conditions and land uses.
- H. Research directed at the evaluation of the level of water quality provided by the Forest Practice Rules.
- H. Research directed at the evaluation of the potential soil and water quality effects of timber and range management operations relative to other land uses.

POLICY PROGRAM CRITERION #5. FORESTS AND CLIMATE

Goal:

Protect, maintain, and enhance the State of California's forestlands to promote a positive impact on the climate.

Objectives:

- 1. Promote the contribution of the forested landscape in the reduction of greenhouse gases.**

Potential Research:

- D. Research directed at refinement of carbon sequestration accounting and carbon trading mechanisms. Investigate systems that recognize all life stages of forests and forest products.
- F. Research directed at developing a contingency plan for ecological impacts of climate change, including seed banks and land trades adjusted to ranges of vegetation types.
- J. Review and consider regulatory modifications that will further reduce harvesting costs of biomass while maintaining a balance with the protection of associated natural resource values.
- F. Research directed at forecasting possible climate change impacts on forests and rangelands.
- H & I. Research directed at identifying mechanisms for sustaining fuel reduction biomass harvests.
- A. Research directed at the effects of catastrophic fire on climate change.

POLICY PROGRAM CRITERION #6. SOCIO-ECONOMIC WELL BEING**Goal:**

Create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations.

Objectives:

- 1. Create conditions that allow for a continued and predictable commitment of timberland and investment for growing and harvesting timber.**
- 2. Create conditions that allow for a continued and predictable commitment of rangeland and investment for livestock production**
- 3. Create conditions that contribute to rural economic vitality.**

Potential Research:

- C. Research directed at identifying markets for new products and services, certification of wood and livestock products, and market mechanisms for carbon sequestration.
- D. Research directed at identifying markets for non-commodity products that complement commodity production.
- Q. Develop analysis of profitability limits at the industry levels and examine if state policies can be improved to assure both private and public benefits of large unfragmented holdings.
- U. Research directed at identifying monitoring and adaptive management approaches that are compatible with small parcel ownership.
- W. Development of methodologies to measure and integrate environmental and social costs and benefits into markets and public policies
- W. Research directed at monitoring rural economic conditions in counties with timber and/or range production.

POLICY PROGRAM CRITERION #7. GOVERNANCE

Goal:

Create a policy and regulatory system that encourages prudent management to serve the public needs.

Goals:

- 1. Encourage the continued productivity of timberlands.**
- 2. Provide the public with a regulatory system that is accountable and logical.**
- 3. Move the focus of the policy and regulatory system to outcomes, not process.**

Potential Research:

- A. Conduct an analysis of the impact of overlapping mandates and review processes to create an efficient structure.
- F. Research directed at identifying the relationship of desired landscape goals with potential practices and conflicts.
- G. Evaluate performance based rules structures to replace or enhance existing prescriptive standards as a means to encourage innovative approaches to resource management.
- J. Investigate how to provide for efficient public input into decision making and monitoring.

APPENDIX A**EXISTING STATUTES FOR FORESTRY RESEARCH****§ 745. Public information programs.**

The board shall implement a public information program on matters involving forest management and shall maintain an information file on forest management research and other pertinent matters.

§ 4789.6. Forest management; research and recommendations; information storage and retrieval program.

(a) The board, assisted by the director, shall biennially determine state needs for forest management research and recommend the conduct of needed projects to the Governor and the Legislature.

(b) To facilitate reporting and updating the assessment pursuant to Section 4789.3, the director, under guidance by the board, may prepare and implement a forest resource management storage and retrieval program regarding forest land conditions in the state. Such program shall be coordinated and integrated to the maximum extent practicable with data storage and retrieval programs of other state and federal agencies and institutions. The director shall review existing forest resource management storage, retrieval, and analysis systems in the institutions of higher learning in this state, and insofar as the board deems desirable, may utilize such systems as a model for state program established pursuant to this section.

(c) The director shall, as budgetary resources permit, develop a cost-effective and statistically valid system to periodically monitor the extent to which timberland is, or is becoming, less available for the growing and harvesting of timber due to zoning, onsite development, adjacent land uses, ownership patterns, parcel size, or any other factors.

EXISTING BOARD POLICY FOR FORESTRY RESEARCH

FORESTRY RESEARCH	0333
GENERAL POLICY	0333.1

Pursuant to its responsibilities to determine, establish and maintain adequate forest policies, the Board has found that;

A. Forests provide numerous benefits to Californians. The creation and use of these benefits often involve complicated relationships between man and the wildland environment. Because of the complexities, man often does not have sufficient knowledge to manage effectively the forest ecosystems that are used by people. More also must be learned about the importance of natural forest systems to man's psychological and social needs.

B. This lack of knowledge is becoming increasingly critical. As more people use a limited forest base, economic and ecologic considerations clash more frequently. For recreational subdivisions conflict with concerns over soil disturbance or amenity values. If more were known about the forest ecosystem, these conflicts might be resolved on a more knowledgeable basis.

C. Historically, the forestry research program in California has been inadequate. There has been no central policy and no continuing organization to assess needs, develop the resources necessary to maintain an adequate ongoing research program and to coordinate the several elements required for such a program.

D. The Board is required by law to determine and report on the State's need for forest management research and to suggest needed projects. The Board is also required to conduct or provide for a program of research in specific areas set forth in law. These include forest management, soil characteristics and erosion rates, costs and feasible methods of reforestation, range improvement, and utilization of wood wastes for energy production. The Board's mandate to develop an "adequate forest policy for California" (PRC 740) requires an interest by the board in the interrelationship of all forest resources.

In light of these findings, the Board concludes that the public's interest is best served by developing and maintaining a vigorous program of forest research. The

Board, as part of its general policy responsibilities, herein sets forth its policy on forest research.

DEFINITIONS

0333.2

"Forestry research" means the development of knowledge about forest resource systems and about man's interrelationship to these systems. It refers to programs to obtain and apply technical knowledge about forest resources systems and ways in which they may serve man's needs. It also includes the development of methods to apply technical knowledge to the framing and resolving questions about public policy relative to forest resources.

FORESTRY RESEARCH PROGRAM

0333.3

In order to promote a vigorous program of forestry research, the Board has found that in the public interest, it should, in conjunction with the Department, forest user groups, other State and Federal agencies, the University of California and other institutions of higher education, and the general public;

- A. Inventory and assess needed forestry research at timely intervals;
- B. Develop a master research plan that specifies and establishes priorities among needs and programs. The research plan will be updated every two years to reflect new needs and priorities;
- C. Develop legislation needed to maintain a continuing and vigorous program of forestry research;
- D. Foster and participate in mechanisms for ensuring cooperation and coordination in the development and implementation of research programs.

DISSEMINATION OF NEW KNOWLEDGE

0333.4

To be useful, findings from research must reach resource managers, field personnel, and policy makers. The faster that new knowledge can be put into practice, the greater the potential gains in time or money saved.

The Board believes that California must have an aggressive program to put new knowledge into use in the shortest possible time. Considering the large number of users of forestry information and the high investment in forestry within California, current investment in activities to utilize available knowledge is inadequate.

To speed the flow of forestry knowledge, the Board has found that:

- A. The Board, through its licensing programs and other mechanisms, will attempt to keep all Registered Professional Foresters, timber operators,

nonindustrial, private forest landowners and the general public advised of new technology as it becomes available. A dialogue must be encouraged among professional foresters and timber operators to transfer technology gained as land managers to other professionals in the field.

B. The board will promote programs for dissemination of new knowledge from research activities.

C. The Director should encourage the California State Forestry Committee to assume the lead role in setting statewide policies and priorities for technology transfer. This committee is the California counterpart of the "State Forestry Committee", formed in 1978, in each state at the request of the U.S. Secretary of Agriculture.

D. The Director should utilize a variety of activities, including Research Notes and periodic meetings with foresters and timber operators, to promote dissemination of the latest findings from research as they become available.

COMMITTEE ON RESEARCH

0333.5

The Board has established a Committee on Research to:

- I. Review ongoing research programs;
- J. Advise the Board on research needs, priorities, policy, and such other matters as the Board directs;
- K. Provide science-based recommendations and technical information to assist the Board in determining if and when it is necessary or advisable to alter forest practice rules.
- L. Review existing science and produce unbiased technical information for consideration by the Board.
- M. Provide oversight and direct the efforts of the Board's technical committees, such as the Monitoring Study Group (MSG).
- N. Take the lead role to improve coordination and cooperation of the various industrial, educational, State and Federal agencies involved in research; and
- O. Recommend a system through which information can be collected, maintained and disseminated on all completed forestry research projects.

“Best available science” is to be used and is considered to be relevant science from all credible sources, including peer-reviewed government and university research, and other published studies. The Committee is responsible for understanding available scientific information, selecting the best and most relevant information, and synthesizing it into reports for the Board.

The Committee on Research includes members drawn from the Department, forest user groups, other State and Federal agencies, the University of California, and other educational institutions as may be appropriate. The Board appoints the members and designates the Chairman. The Committee meets as required on the call of the Chairman of the Board, or of the Chairman of the Committee, or of a majority of its members. The Committee reports to the Board its recommendations for action biennially, beginning on June 30, 1980, and may submit interim reports of recommendations if needed.

The Committee may enter into arrangements with other agencies or advisory committees of the Board to assist in obtaining information and in conducting such analyses as are required for it to fulfill its functions. The Director, to the extent feasible, provides necessary staff support and funds to assist the Committee in its work.

COOPERATION

0333.6

Cooperation between the forest products industry, nonindustrial private forest landowners, other forest user groups, public agencies, and the general public, is essential to the development and maintenance of a vigorous forestry research program. Only through cooperation will it be possible to realize the full range of research possibilities and to arrive at acceptable priorities. The forest research program will inevitably be subjected to severe financial constraints. Through cooperation, the Board believes that all parties will come to view forestry research as an investment in the future. The future promises uncertainty with more people, limited land, and greater environmental problems. The Board believes that cooperation in forestry research will be one of the most cost-effective ways to meet these increased pressures.

APPENDIX B**Reference Materials**

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