

## **Standard No. 8**

### **Research, Extension, Continuing Education, Public Service**

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#### **Research Administration**

The research program at the College of Forest Resources is administered by the Institute of Forest Resources under the direction of the Dean, who is also the Institute Director. Because of the size and complexity of the research program, the Institute assumes a wide scope of responsibility and provides vital support to the College administration, faculty, staff and students. Institute services include administering all research projects funded by federal, state and private agencies, coordinating all grant proposal submissions, monitoring the McIntire-Stennis research program and ensuring College compliance with federal reporting requirements. The Institute employs a grants coordinator who facilitates the submission of research proposals developed by the faculty. The grants coordinator works in conjunction with the University Office of Grants and Contracts and numerous funding organizations. The Institute also maintains a database system containing current and historical information on College research projects, and prepares the annual *Summary of Research*. Copies of the 1992-93 annual report will be available to the SAF Accreditation Team. The 1993-94 report is under preparation and may also be available in preliminary form.

#### **Faculty Areas of Research Interest**

College research covers a broad range of professional and scientific topics: forest policy analysis, stand management, urban horticulture, streamside and riparian zone management, forest ecosystem analysis, international trade in forest products, forest biotechnology, wildlife science, forestry engineering, wood science and technology, and pulp and paper science. Research topics are selected not only to respond to the applied research interests of individuals and groups in the Pacific Northwest region, but also to promote basic research of interest to the

scientific community at large. Research projects include studies undertaken by individual faculty, as well as

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interdisciplinary programs that combine the interests of several College faculty, and often involving those from other academic units of the University. College faculty and their areas of research interest are presented in Table 8.1.

### **External Research Support**

The annual *Summary of Research* is published by the Institute of Forest Resources from information provided by the faculty, Student Services Office and the fiscal office of the College. The report identifies the magnitude of the College's extramural funding support and the research in progress during the period July 1 to June 30 of each year. In addition, the report documents the scholarly publications, theses, dissertations and other contributions to the scientific and professional literature resulting from this research effort. Annual *Summaries of Research* are on file and will be available for examination by the Review Team during the site visit.

Selected data from the *Summary of Research* are shown in Figures 8.1 -8.4, covering recent years. As shown, total funding for research more than doubled during the last five years (1989-93). Total funding support provided by federal agencies was 70 percent or more for the years 1986 to 1990; declined somewhat through 1993 (although the total dollar amount continued to increase), and increased once again to 72 percent in 1994. The National Science Foundation and the U.S. Forest Service were the major sources of federal funding from 1985 through 1994. Funding support by source is listed in Table 8.2 for recent fiscal years. The total research expenditure in 1993-94 represented 44 percent of the total expenditures of the College during that budget period. On average, grant and contract support was \$127,000 per faculty FTE. Over 95 percent of faculty were involved in grant or contract activity during this period.

### **Interdisciplinary and Cooperative Programs**

There has been an increasing trend in recent years towards multi-faculty and interdisciplinary research and continuing education efforts that combine the activities and interests of faculty groups within the College as well as involvement of faculty in other academic units of the University, other universities in the region (Washington State and Oregon State Universities) and various regional forest-related agencies or industry. These programs cover a wide breadth of activities, including continuing education, applied issue-related research, and basic studies of varied aspects of forest resources. The College's interdisciplinary and cooperative programs serve an important function, not only in the graduate and research programs, but also in addressing forest-related issues and problems of the State of Washington and the nation and world as a whole. Examples of these interdisciplinary efforts, as reported in the 1992-93 *Summary of Research* are summarized below.

#### **Center for International Trade in Forest Products (CINTRAFOR)**

Country Analyses. Analysis of Russia's forest inventory and export potential provided by Professor Thomas Waggener and Doctoral Candidate Charles Backman was extended by support from the International Institute for Applied Systems Analysis (Austria), the Russian government and the Canadian government. While Russia's exports could increase by reducing the subsidy to domestic users, they will also become less competitive as internal costs rise to market prices, clouding the potential for increased exports. The impact of the North American Free Trade Agreement (NAFTA) continued to receive attention as Professor Waggener made presentations at several conferences on the role of Mexico's forest sector, currently they are a net importer from the US. A reassessment of the near term capacity and economic potential of Japan's forests by Professor Waggener and Research Assistant Guy Robertson shows that their inflating cost structure has reduced their competitiveness which may result in a continued decline in their

harvest and self sufficiency unless government support offsets their increasing costs. Their economic dependence on foreign wood will increase under free markets.

Value-Added Products and Market Competitiveness. Factory-built housing differs considerably across the three main producing regions of Sweden, the US East and US West, based on the market research by Professor Jay Johnson and Research Assistant Pete Gobroski. The opportunity for a major penetration in the Japanese market exists but will require both marketing alliances and code changes. Factors determining export success was the goal of a cooperative project by Assistant Professor Ivan Eastin with business school faculty Dr Anne Ilinitich. They determined that contrary to the conventional wisdom, neither size of firm or physical resources are important. Company commitment, gaining knowledge in the market and other intangibles were the discriminating factors on who succeeds in exporting; all factors that can be directly affected by management. Distribution requirements for value added products are being analyzed by Dr Ivan Eastin as a critical link to future value added export growth. The importance of marketing alliances under the keiretsu umbrella in Japan were determined to be a key to the support of high valued products which are generally more service dependent . With millwork a major US export opportunity, increased supply of quality radiata pine from New Zealand makes it an especially interesting test case for understanding market acceptance. Dr Eastin explains the rapid penetration of an essentially new material largely because New Zealand invested heavily in millwork production and consumer countries are concerned over future supply.

Trade Assessments and Environmental Impacts. CINTRAFOR's Global Trade Model of Forest Products portrays dramatic restructuring in world trade markets as a consequence of the supply constraints impacting the US in the spotted owl region, tropical hardwood supply reductions and ultimately declines in Canadian harvests. Assistant Professor John Perez-Garcia's research shows that the supply reductions in one country will result in increased exports by other

countries causing more acres to be harvested even though wood still loses a large share of the market to competing non-wood materials that are fossil fuel intensive and contributing to

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increased carbon emissions. EPA carbon mitigation analysis was completed analogizing the impact of tree planting scenarios, recycling and trade liberalization on forest sector markets globally.

Socioeconomic Impacts. What's required to maintain a viable wood products industry in Washington was the question being asked by state officials at the time of the Clinton Forest Conference. Center Director Bruce Lippke characterized the industry statistics showing that the industry had been experiencing healthy growth but has now become the high cost producer, largely as a consequence of supply disruptions and other regulatory policy including tax rates. Biodiversity Management Concepts and Eastside Forest Health issues were addressed by Professor Chad Oliver and Bruce Lippke. Incentives were shown to have a high potential to manage forests for non-timber values as well as for timber markets. The increased management contributes to jobs in depressed areas while also increasing forest health and biodiversity. Contributions to the scientific team of the Washington (State) Landscape Management Project examined new forest management pathways to biodiversity (and habitat) and the level of incentives that should be sufficient to alter land management to reach non-timber goals. The cost of managing for joint production of timber and biodiversity is much lower than relying on set asides as the increasing quality in long rotations pays for at least part of the biodiversity gains.

New Product Development. Cell wall filled pulp as a carrier for paper was satisfactorily tested by Dr Graham Allan. Good progress continues to be made on this new technology where the filler in paper is placed inside, rather than in between, the fibers which could substantially lower the cost of paper. The technology enables the amount of wood fiber in paper to be reduced and replaced with filler without undesirable effects on the physical properties. Hitherto, the generation of chemical byproducts has been somewhat of an economic problem, but this has now

been resolved. Patents were successfully extended to include waste-paper recycling processes and process alternatives continue to be investigated. Presentations were made in South Korea as part of a program to commercialize the technology.

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#### Center for Quantitative Science.

Formed in 1968, the Center for Quantitative Science (CQS) in Forestry, Fisheries, and Wildlife is an interdisciplinary unit jointly supported by the College of Ocean and Fishery Sciences and the College of Forest Resources. The Center's mission is two-fold: (1) students are offered a broad program of undergraduate and graduate course work in applied statistical methods, ecological modeling, population assessment, and resource management, and (2) graduate research is supported and conducted in areas leading to improved quantitative assessment of environmental processes and resources.

Curriculum. The Center's academic activities consist of 36 courses under the Quantitative Science (QSCI) and Quantitative Ecology Resource Management (QERM) departmental designations. These courses are offered jointly with Forest Resources, Fisheries, and Statistics.

Statistical consulting services were provided to students in the School of Fisheries and the College of Forest Resources through a graduate research assistantship at CQS. In 1992-93, that consultancy was funded by the College of Forest Resources and was staffed by a graduate student in the Interdisciplinary Program in Quantitative Ecology and Resource Management. Eighty-two students received assistance in their research. CQS graduate students conduct research in the areas of quantitative fisheries, ecological modeling, environmental sampling, and forest resources. These research areas complement research in the parent colleges. Students in the QERM graduate program study the application of statistical, mathematical, and decision sciences to a broad array of problems in terrestrial and marine ecology, natural resource management, biometrical, and mathematical biology. The QERM program of study leads to a Master of Science and Doctor of Philosophy degrees and involves 43 faculty from 16 different

academic units at the University of Washington. Four students completed the program successfully in 1992-93, three with Masters of Science degrees and one Doctor of Philosophy. The program is designed to attract mathematically trained students interested in working on contemporary ecological or resource management problems from a quantitative perspective.

CQS faculty

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interests are in two major areas: (1) assessment and management of renewable resources in aquatic and forest ecosystems in terms of dynamics and productivity of exploited populations, forest growth and yield, and how to make sound resource management decisions; and (2) analysis of ecological, biological, and physiological systems by simulating ecosystem dynamics and animal and plant responses to environmental conditions, and by assessing long-term changes in forest growth function. Since 1992, research budgets have been administered through the School of Fisheries and the College of Forest Resources. Project sponsors included the Environmental Protection Agency, the Bonneville Power Administration, the U. S. Agency for International Development, and the Washington Sea Grant Program.

#### Center for Streamside Studies

Mission. As a result of the escalating controversy over the management of forest, fish, wildlife, and water resources in the Pacific Northwest, the Center for Streamside Studies (CSS) was created in 1987 under the auspices of the College of Forest Resources and the College of Ocean and Fishery Sciences. It is a unique partnership of state and federal agencies, Native American tribes, the forest products industry, environmental organizations, and the University of Washington. The Center's mission is to provide the necessary information for resolving management issues related to the production and protection of forest, fish, wildlife, and water resources associated with the streams and rivers in the Pacific Northwest. The Center is operated from the premise that the riparian forest is the key area regulating ecological health in the watershed. An interdisciplinary approach is promoted to better understand the complexity of

stream and river ecosystems. Integrating forestry, fisheries, hydrology, geology, sociology, and economics is essential to understanding the structure and dynamics of streamside systems.

Programs. CSS has three major programs: graduate and undergraduate education; continuing education and technology transfer; and research, analysis, and information management. Cooperation among the Center's partners provides the cornerstone for these

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programs. The partners offer leadership, funding, technical skills, and a pool of expertise on a variety of issues. In many cases they are also our clients, faculty, guest lecturers, and workshop planners.

Research. Most controversial issues concerning the management of Pacific Northwest forest resources focus on the interaction between humans and the environment. Land-use activities such as urban development, timber harvesting, road building, and water diversion are intensifying to meet increased public demand for homes, wood products, electricity, and community stability. As increasing numbers of wildlife and fish species approach threatened or endangered status, concerns about fish, wildlife, and water quality have captured the attention of society. Traditional thought about forest resources management has generally provided two land use management options: preservation, or commodity production. Without balancing these two options, significant negative social, economic, and environmental effects result. The Center collects and analyzes the information needed to provide alternative management options between land base preservation and commodity production. Research focuses on three broad areas: ecosystem component interactions, watershed or landscape perspectives, and recovery of systems from disturbance.

Funding. CSS is funded by a combination of private industry, state and federal agencies, and the University of Washington. Major contributors include Andrew W. Mellon; ITT Rayonier, and Weyerhaeuser Foundations; Simpson Timber and Champion International Companies; the State of Washington Departments of Natural Resources and Wildlife; and the U.S. Forest Service.

## Olympic Natural Resources Center

The mission of the Olympic Natural Resources Center (ONRC) is to conduct research and education on natural resource management practices which integrate ecological and economic values. With resource conflicts in the Pacific Northwest gaining national and even international attention and concern, ONRC is in a position to test hypotheses on how to effectively resolve

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these conflicts and provide for sustainable resource management on the Olympic Peninsula. To be truly sustainable, new management methods must not only maintain healthy ecosystems, but also provide for the continued economic support of Peninsula communities. Legislation establishing the Olympic Center was passed in 1989, and planning for the Center began that year. In the short time that the Olympic Center has been in operation, work has focused on:

- o Establishing a forest biology research program
- o Developing cooperation between state and federal agencies and private forestry organizations
- o Acquiring, funding, and beginning construction on a research field station on the western Olympic Peninsula near Forks, Washington
- o Establishing a permanently staffed field office in Forks

The next two years will also see significant achievements in the following areas:

- o Completing construction of a research field station in Forks, Washington
- o Planning of a marine research and education symposium as a key part of the continuing intensive scoping process for a marine and estuarine research program.
- o Continuing development of a local public outreach program at the field office in Forks.

ONRC's research program is expected to develop two branches; one focusing on terrestrial or forestry systems, and the other on marine systems. Much of the forestry research program, which is the Center's initial emphasis, develops and tests "new forestry," a conceptual approach

to obtaining a broad range of benefits from forests. Described below is a sampling of research projects conducted in association with the Olympic Center in 1992-93.

Economic Analysis. The project Spatial Harvest Planning Analysis (project staff: Professor Bruce Bare and Martin Liermann) is modeling forest watershed management, including spatial relations, harvest flow, roading, and environmental and wildlife constraints. The model uses hierarchical planning methods.

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Silvicultural Systems. In the project Vegetation Structure and Dynamics (project leaders: Dr. Douglas Maguire, Dr. Robert Curtis, and Mark Redlin, University of Washington; and Dr. David Hann, Oregon State University), forest growth models are being developed for projecting the structure and dynamics of vegetation in forests dominated by Douglas-fir. Impacts of traditional and non-traditional silviculture on growth, yield, and subcanopy vegetation of these forests will be explored with simulations produced by the resulting models.

Wildlife Management. The overall goal of the study Owl Use of Stand Structure (project leaders: Professor Jerry Franklin and Malcolm North, University of Washington), is to provide managers with information on providing habitats for owls as well as for many other species. Project workers are examining the structure of forest stands which have been substantially disturbed within the last one hundred years and are used by spotted owls. Statistical analysis will help determine which stand structures correlate most highly with owl use.

Landscape Patterns/Cumulative Effects.  
The project Biodiversity Management (project staff: Jerry Franklin and Joshua Greenberg) was developed to improve the analytical methods available to managers for maintaining biological diversity on the landscape level. Toward this end, The Siouxon Basin of the Gifford Pinchot National Forest will be examined and a percentage of the landscape selected for reservation from logging. Using GIS technology, an explicit decision key designed to maintain biological diversity is being developed and applied.

### Stand Management Cooperative.

The purpose of the Stand Management Cooperative (SMC) is to provide information and develop techniques that can be used in planning and evaluating stand management strategies. To accomplish this, the SMC is developing a database that supports modeling efforts to synthesize and integrate information on the effects of a range of treatments and treatment combinations on

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tree growth, stand development, product quality, and product value. Research results will be synthesized into an overall framework for prediction of stand development under the full spectrum

of silvicultural treatments, to develop improved growth and yield projections, to integrate product characteristics and quality information with yield estimates, and to support reliable biological and economic evaluations of stand management alternatives. The integrated program was initiated in January 1991, and took advantage of existing research efforts of the Regional Forest Nutrition Research Project (RFNRP) and the SMC. The RFNRP was initiated in 1969 as a cooperative effort to conduct forest nutrition and fertilization studies, and became the Nutrition Project in the integrated cooperative. The SMC was formed in 1985 to provide a continuing source of information on the long-term effects of silvicultural treatments and regimes on stand and tree development and wood and product quality. Cooperators in these programs directed development of a well-integrated, long-term program for addressing research goals into the next century and approved plans for research in forest nutrition, silviculture, wood quality, and modeling in an integrated program. Stand Management Cooperative research activities are in managed stands selected to represent a wide range of site conditions and geographic areas. Plantations or natural stands receiving treatments early in the rotation are included in field trials, and wood quality studies use samples taken from such stands. Geographic scope of the program includes forests west of the Cascade crest in Oregon and Washington, and in coastal British

Columbia. In 1993, the SMC continued to expand the database on effects of silvicultural treatments. SMC accomplishments of the past year are highlighted in this report. Brief summaries of the four component projects – Silviculture, Nutrition, Wood Quality, and Modeling – are included, along with updates on the Canadian Forest Service western hemlock modeling project and collaborative work in forest pruning.

### **Coordination of Research and Teaching**

Besides contributing to the understanding of forest systems and the variety of products and services that forests produce, the College's research program also significantly supports the educational goals of both graduate and undergraduate education. The fruition of the research effort is realized through the incorporation of graduate students into the program and the infusion of new knowledge into both graduate and undergraduate teaching. The faculty serve as Principal Investigators on research projects, often involving the same students they serve as graduate advisors. Many graduate students receive financial support through research assistant appointments and/or hourly employment in connection with the College's research efforts. Because the College receives no regular state funds for research appointments, all money to support graduate students as research assistants must be generated from outside sources. The granting of research assistantships has many advantages to the student and to prospective employers. The recipient of a research assistantship receives training in the process of scientific research and, in the course of a project receives close direction and supervision from highly qualified faculty members.

There have also been increasing opportunities for undergraduates to obtain hourly employment on various research projects. For example, in Winter Quarter 1995 Professor Frances Greulich started a U.S. Forest Service-funded HOETHIN project. Working on the project is senior forest engineering student Eric Bieker, whose duties include conducting a literature review, contacting equipment manufacturers for equipment specifications and collecting information relevant to mathematical modeling of the operation, among others.

### **Anticipated Changes in Research Program**

University-wide perspective. The 1994 report of the President's Task Force on Restructuring and Reorganization describes the climate of change in the research funding environment affecting the

University and all of its academic units. Among the changes outlined are: (1) greater competition for grants, along with increasingly complex requirements for supporting documentation and reporting procedures; (2) changing ground rules for matching contributions required in proposals to federal agencies; (3) the slowing rate of growth in federal agency budgets and an increasing emphasis on targeted as opposed to basic research; and (4) an increase in the University's responsibilities for monitoring conflicts of interest and in overseeing auditable budgeting practices. All of these changes may require serious analysis and rethinking of research priorities. The 1994 report also points out that National Science Foundation data suggest that the University spends less of its institutional and state funds to support research than any other of the top twenty research institutions in the nation. Implicit in this observation is a concern that the University must do a better job of informing the state government and the public of the benefits of high quality graduate education and research programs. Another significant recommendation put forth in the 1994 report is that the traditional reliance on individual and group faculty initiative in determining the focus of research and service efforts may need to be augmented by institutional leadership in support of research opportunities.

College perspective. Given the current climate of financial difficulties in the forest industry and decreases in federal research funding levels, the faculty of the College of Forest Resources have been very successful in the competitive grant process. However, since the majority of research funding for the College is derived from specific grants and contracts, these funding sources provide little flexibility in addressing new forestry issues or in taking advantage of new research opportunities in forestry. Funding through the existing competitive grant processes can often take a long period of development (typically, six to twelve months), limiting the ability of the College to adequately respond to immediate forestry issues.

The 1985 self-evaluation study reported that the College would like to release McIntire-Stennis funds obligated to faculty salaries in order to expand research program support and to provide a pool of more flexible research funds that could be used to address current forestry issues and develop new research programs in a timely way. The report recognized that this will not occur until the State and the University are in an improved financial situation. In 1995, the College is essentially in the same position with regard to McIntire Stennis funds as it was ten years ago.

The 1985 report also expressed concern about the general lack of research support through the private sector. Private sector support, as a percentage of total external funding, has decreased over the last ten years from 18 percent in 1985-86 to 6 percent in 1993-94; the total dollar amount, however, has increased in the last five-year period from \$418,819 in 1990 to \$1,580,748 for 1994. There has also been an increase in the amount of money given to gift or endowment funds that are earmarked either for specific research grants or are given to research centers like the Center for Streamside Studies.

The College attempts to assist faculty involvement in new emerging research areas. However, only limited funds (Dean's Reserve, College overhead, recovery funds, etc.) can be directed toward selected program development.

### **Continuing and Public Education Programs**

Continuing education and public outreach plays an important role in the overall mission of the College. The Continuing and Public Education program is charged with developing and offering credit and noncredit courses, symposia, institutes, workshops and conferences for a variety of professional and public clients. Continuing education opportunities are often critical to government and industrial resource management professionals whose decisions and policies impact the social, economic and environmental standards in the State and region. These

professionals also look to the College to provide forums that (1) aid in resource conflict resolution, (2) link research to management and technology implementation, (3) serve as testing grounds for new ideas and theories, (4) facilitate exchanges of information, and (5) increase awareness of current issues among colleagues and students. The scope of programs ranges from large international and national symposia on such interdisciplinary topics as ecosystem management to small, hands-on public education workshops offered through the Center for Urban Horticulture.

In 1983, the College adopted a policy in which continuing education was formally recognized as part of the teaching activities of the faculty. However, such activities are not included in the University academic accounting system (and thus reflected in budgets) unless formal registration and student credit hours are generated. Since 1984, the College of Forest Resources and Washington State University Cooperative Extension have pursued a cooperative Continuing Education Calendar of Events. In 1992, Oregon State University joined this effort to produce a Pacific Northwest regional continuing education calendar. Many of the events listed in the calendar are held at the College's facilities.

Additional components of the College's Continuing and Public Education program include co-authorship of general public Extension bulletins, and opportunities in forestry education for Washington State University County Extension faculty. College faculty are actively involved in the authorship of articles for Forest Stewardship Notes, an educational newsletter mailed three times a year to over 16,000 non-industrial private forest landowners. One of the College's academic divisions, Urban Horticulture provides educational opportunities for both professionals and the public as part of its outreach focus. These programs are separated into three categories: (1) ProHort Seminars exclusively for urban horticulture, urban forestry, and urban ecology professionals; (2) courses, symposia, and seminars on topic areas and at an academic level of

interest to urban horticulture professionals and amateur enthusiasts; and (3) lectures, tours, and other special events of interest to amateur horticulturists and home gardeners.

During the academic year 1992-1993, a total of 225 different Continuing Education programs were held, with a total of 24,876 participants. These programs were conducted in the Pacific Northwest, some on campus and others at sites closer to the locales of the audience. Guest speakers represented local, regional and international organizations and constituencies.

Programs offered range from small, hands-on half-day workshops, large, 2-3 day symposia, 2-week long Institutes, field and site tours, poster sessions, vendor demonstrations, banquets, receptions and press conferences. Table 8.3 summarizes Continuing Education activities from 1984 to 1994 (excluding the many formal education programs for both public and professional audiences offered by the Center for Urban Horticulture). Selected data on Urban Horticulture programs during the 1993-94 academic year are shown in Table 8.4.

Programs planned for 1995 include an International Poplar Symposium, and workshops and conferences on urban forestry and stand dynamics. At a meeting of the College Council in November 1994, Professor Donald Hanley, Extension Forester at the College with the Washington State University Cooperative Education Program, reported his concern about the dwindling number of programs being planned by Continuing Education at the College. The research and public service centers within the College -- Center for Streamside Studies, Center for Urban Horticulture, Center for International Trade in Forest Products, Center for Quantitative Sciences and the Olympic Natural Resources Center -- are committed to development of continuing education programs. The ability to transfer applied research to technological and management implementation at industry and agency levels is key to the Centers' existence and reflects the importance of their Continuing Education efforts.

Continuing and Public Education Cooperative Efforts. Continuing and Public Education plays an important role in the College's mission to work cooperatively with other government agencies and institutions and to develop and maintain effective relationships with the forestry profession and the general public. An example is the College's relationship with Washington State University. The College actively sponsors, with Washington State University's Cooperative Extension Service and Department of Natural Resource Sciences, a statewide cooperative approach to program selection and scheduling for forestry related professionals. Professor Donald Hanley, Extension Forester with WSU, serves as a faculty member of the College of Forest Resources at the University of Washington and is the faculty director to the Continuing Education program. This dual appointment insures that offerings of both institutions meet the educational need of forestry professionals in Washington. Other organizations that have sponsored and cooperated in the College's continuing and public education activities include: Oregon State University; Washington State Departments of Natural Resources, Fisheries and Wildlife, and Ecology; Bureau of Indian Affairs; Bureau of Land Management; US Environmental Protection Agency; USDA Forest Service; National Park Service; Municipality of Metropolitan Seattle; and many local community colleges, technical colleges, professional associations and the local forest products industry.

One example of a successful and innovative cooperative program is the Natural Resource Forum conducted under the Olympic Natural Resources Center (ONRC). ONRC, one of the College's cooperative research facilities (operated jointly by the Colleges of Forest Resources and Ocean and Fisheries Sciences) introduced a series of education forums for the general public in 1993. The purpose of the forums was to provide interaction between the University faculty and residents of the Olympic Peninsula, an area of Washington that is heavily impacted by contemporary forestry issues. The forum was carried out in three stages: program development, implementation, and evaluation. Programs were developed based on sensing interviews with

members of the local community centered around the question "What are the most important natural resource issues facing your community?" Programs were structured to include a lecture on an identified resource topic by one or two faculty members. This was followed by questions from, and open discussion with the audience. A portion of the program was devoted to explaining the ONRC to the public and asking for questions and comments related to ONRC programs. Evaluations were conducted with the audience at the end of each program.

To provide maximum accessibility to residents of the Olympic Peninsula, the programs have been telecast over local public access television channels, as well as distributed in videotape format to interested individuals and organizations. Evaluations conducted by the Clallam County office of WSU Extension indicate that as many as six hundred Peninsula residents have viewed forum programs on television and videotape. Table 8.5 lists the nine original forum programs. Future events are being planned for Olympic Peninsula communities.

These forums provide significant interaction between the University, WSU Cooperative Extension, and timber dependent communities. While providing relevant research-based information to the general public, they also provide a means for communication of "local knowledge" to the University research community. The ONRC views this exchange of ideas as a key element in the development of realistic, long-term solutions to resource management problems on the Olympic Peninsula and elsewhere.

Linkages to Academic Programs. Although professional Continuing Education courses are primarily developed for individuals who have already completed an undergraduate degree, the College encourages undergraduate and graduate students to attend any program of interest. In most cases, registration fees are waived. Continuing Education programs allow students the opportunity to meet active professionals in their field of interest. They also provide a venue for

networking among others with similar professional expectations, and demonstrates a wide range of skills, including speaking and the use of audiovisual aids. Undergraduate students who attend a continuing education course can experience first hand the importance for "continuing" their education beyond the classroom as their careers expand and develop.

### **Public Service Activities**

The College makes an important and substantial contribution in terms of professional, public sector and general public service. Although most faculty participate widely in professional associations and societies and serve on numerous professional boards, committees and task forces (See Standard 4, *Faculty*, Individual Faculty Information Reports), much of this effort is poorly documented and is generally assumed to be a part of the faculty's expected professional activities.

Representative service activities engaged in by College faculty during the 1994-95 academic year include the following:

- Serving on journal editorial boards

- Serving on World Bank board

- Serving on Washington National Heritage Council

- Advising contract loggers on Forest Engineering research

- Presentations to Washington legislative and U.S. Congressional staff

- Serving on scientific panel advising British Columbia provincial government

- Presentation to Washington Forest Practices Board

- Serve as outside reviewer for Washington DNR personnel interviews

- Serve on Governor's Timber Task Force

- Serving on U.S. Forest Service expert panels

- Advise Native American tribal groups on forestry issues

- Serve on National Commission for Social Science in National Parks

Participate in Natural Resource public outreach forums

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This list is only reflective of the breadth of service contributions by the faculty of the College of Forest Resources.

### **Summary**

The University of Washington is well known as a major research institution, but one with a strong commitment to undergraduate education. The College of Forest Resources shares in this tradition, and as a professional College also maintains a strong professional and public service mandate. Even though the University of Washington is not a land grant institution, the College has long had a significant professional and continuing education program oriented to the large number of practicing forestry professionals (in all fields) within the Pacific Northwest.

Research funding is almost entirely from non-state sources. The faculty have been competitive and successful in obtaining research support, leveraging state support very effectively.

However, the University does not have a tradition for public funding for continuing education, extension or public service, all areas where external funds are much more difficult to obtain than for research. These latter programs are largely self-sustaining from program revenues (primarily registration fees). The major exceptions are scientific symposia based on major research programs where some modest funds may be utilized. The lack of state research support also means that the faculty research is opportunistic, seeking out areas where probability of funding is the greatest. This can result in an unintended bias in individual research priorities, as well as in overall long-term research planning.

The faculty have generally maintained a balance between research and academic (teaching) efforts. There is no recent history of utilizing teaching assistants for undergraduate instruction. Very limited funds have been available for this purpose, to the detriment of providing teaching

experience to graduate students. The research faculty is also the teaching faculty, with direct linkage of the research information to the classroom.

Changes in the accountability for faculty receiving state funded salary has limited the flexibility for adjusting faculty schedules between teaching and research -- a particular problem looming relative to the summer quarter when many faculty have traditionally been engaged in research and when teaching needs are greatly reduced. Nevertheless, University requirements now require all faculty receiving any state salary to be engaged in regular teaching for that academic term. In the longer term, it may be possible for faculty to include a portion of their salary in research grants and contracts, and thus to "buy" back time from the state supported budgets.

Faculty incentive and reward systems have not, in general, provided positive encouragement for nontraditional teaching and participation in continuing education and related activities. While the College has established a continuing education policy in support of formal recognition of these functions as part of the faculty workload, the lack of recognition by the University of a tradeoff against traditional teaching (student credit hours) and the limitations on separate compensation have been perceived as disincentives.