

Oregon State University - 2005

Sun Grant Initiative

Submitted by: Thayne Dutson, Dean, College of Agricultural Sciences
Funding Requested for FY 2005: \$25,000,000; \$4,500,000 for Oregon

Likely Source of Federal Funds: United States Department of Agriculture - CSREES

Authorizing Language Citation: HR 2673 (H. Rept. 108-401), FY04 Consolidated Appropriations bill

Project Summary: Creation of a national network of land grant universities and Department of Energy laboratories to implement a biobased research program. The responsibilities of the land grant institutions would be broadened beyond traditional food-production issues. The Sun Grant institutions will be charged with making significant advances in biobased industries for the benefit of independent farmers, rural communities and the public at large. The mission of the Sun Grant Initiative will be to: 1. Enhance national energy security through the development, distribution and implementation of biobased energy technologies. 2. Promote biobased diversification and environmental sustainability of America's agriculture. 3. Promote opportunities for biobased economic diversification in rural communities. 4. To enhance the efficiency of bioenergy and biomass research and development programs through improved coordination and collaboration between the U.S. Department of Agriculture (USDA), the Department of Energy, and the land-grant colleges and universities. Five regional land grant universities will lead the Sun Grant Initiative. Based on biomass production potentials and current involvement in bioenergy research, center universities will be South Dakota State University, Oklahoma State University, the University of Tennessee – Knoxville, Oregon State University, and Cornell University. The regional centers will emphasize research, Extension, and higher education programs on renewable energy and biobased non-food industries. Each center would receive base funding to solidly establish them as leading institutions to implement the biobased economy. These centers would also be responsible for facilitating a federally funded competitive grant program for their respective regions. Moreover, the centers would serve as the primary liaison with DOE research laboratories at Oak Ridge TN (ORNL), Golden CO (NREL) and others. Both USDA and DOE will be key agencies for Sun Grant activities. The DOE-USDA Interagency Council on Biobased Products and Bioenergy will serve as an advisory council for the Sun Grant.

Oregon State University, as the Western Regional Center, will emphasize research, Extension, and education programs on renewable energy and biobased industries based in rural communities. The Western Regional Center will use competitive grant program evaluating and funding projects which embrace the multi-state, multi-function, multi-disciplinary integrated approach that is at the heart of the land-grant method of addressing problems. Parts of the Western Region are culturally diverse, have great diversity of crops, are characterized by rural and remote "island" systems with large distances between population centers, have limited production scale and limited infrastructure, and have technology transferable to developing countries. There are wide variations in the environments and ecosystems, and large amounts of waste or residues available. Waste utilization is critical or some of these areas will be buried in their wastes. Therefore, Western Regional Center will support projects which are designed to provide solutions to these unique regional needs.

The Western Regional Center will use an efficient committee structure to manage our programs. This will include administrative, technical, and stakeholder committees.

Legislative History: S.3016 – Sun Grant Initiative for Renewable Energy and Biobased Products Act. Amendment was introduced on September 30, 2002 in the 107th Congress. It contained language of authorization for \$100 Million annually until 2020.

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S.1427 – Sun Grant Research Initiative Act of 2003. Amendment added to the Senate Agriculture Appropriation Bill in the 108th Congress. It contains authorization language of authorization of \$25 Million for 2005, \$50 Million for 2006, and \$75 Million annually for 2007 until 2010. It passed by voice vote on November 5, 2003. The same language was added to the House Omnibus Appropriations Bill which passed by voice vote on December 8, 2003. The Senate passed, by a vote of 65-28, the Conference Report on the Consolidated Appropriations bill for fiscal year 2004 on January 22, 2004, and President Bush signed it on January 23, 2004. Authorization for this new initiative is done, and we need to work on the appropriation.

Contact :

Thayne Dutson, Dean
College of Agricultural Sciences
Oregon State University
Corvallis, OR 97331
(541) 737-2331
Fax: (541) 737-4574
thayne.dutson@oregonstate.edu

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Establishment of a Sustainable Plant Research Center
Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences
Funding Requested: \$825,000

Likely Sources of Federal Funds: Cooperative State Research Education and Extension Service (\$500,000) and Natural Resources Conservation Service (\$325,000). - *Continuing*

Summary: The goal of establishing a Sustainable Plant Research Center is to conduct and sponsor research and development of plant materials that support sustainability of our environment. This research will provide new information about which plant materials are most effective in wetland conditions for wastewater purification, which plant materials are most effective along freeways for hydrocarbons removal. In addition, new businesses may be generated to produce mitigating plant materials. This new center will be established at The Oregon Garden in Silverton, Oregon. The Garden offers the opportunity for on-site research to be conducted in most areas of interest with regard to use of plant materials for sustainable environment. There are numerous opportunities for plant experimentation as part of wetlands as well as other aspects of plant use. This project will provide much needed research support for an important clientele, citizens of Oregon, served by the College.

Partnerships and Collaboration: The Sustainable Plant Research Center (SPRC) has proposed to be formed through a partnership with Oregon State University, Oregon Garden Foundation, Oregon Association of Nurserymen, Natural Resources Conservation Service (USDA), and the Oregon Department of Agriculture. Each of the partners is committed to working cooperatively to support research and development efforts for plant material used to address environment problems and support a sustainable environment. Additional partners will be invited to participate in the research and development efforts. Approaches will be made to the Oregon Watershed Enhancement Board (OWEB), Oregon Graduate Center and Chemeketa and Clackamas Community Colleges. Cities in Oregon that are considering a natural treatment system or major stream bank restoration efforts will be invited to participate. Approaches will be made to the City of Salem and City of Portland Bureau of Environmental Services.

Contact:

Thayne Dutson, Dean
College of Agricultural Sciences
Oregon State University
Corvallis, OR 97331
(541) 737-2331
Fax: (541) 737-4574
Thayne.dutson@orst.edu

Other Organizations/Community Leaders who Support this Project:

Oregon Department of Agriculture
Katy Coba
635 Capitol St. NE
Salem, Oregon, USA
97301-2532
(503) 986-4552
kcoba@oda.state.or.us

Natural Resources Conservation Service
(USDA)
Bob Graham
NRCS Oregon State Office
101 SW Main Street, Suite 1300
Portland, OR 97204
Phone (503) 414-3200
Fax (503) 414-3103
bob.graham@or.usda.gov

Oregon Watershed Enhancement Board
Geoff Huntington
775 Summer Street NE, Suite 360
Salem, OR 97301-1290
(503) 986-0180
Fax: 503-986-0199
geoffrey.m.huntington@state.or.us

Oregon Association of Nurseries
Mark Krautmann
4194 71st Ave. SE
Salem, OR 97301
Tel: 503-585-9835
Fax: 503-371-9688
mark@heritageseedling.com

Oregon Garden Foundation
Jack Long
PO Box 155
Silverton, OR 97381
(503) 873-6566
(503) 873-5541
j-lnursery@msn.com

The Oregon Garden
Rob Miller
P.O. Box 155
Silverton, Oregon, 97381
Phone: (503) 874-8100
Fax: (503) 874-8200
mtieffersonfarms@aol.com

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Hatchery Research Center

Submitted By: W. Daniel Edge, Department of Fisheries and Wildlife
and Gil Sylvia, Coastal Oregon Marine Experiment Station

Funding Requested: \$1,000,000 per year for 10 years

Likely Sources of Federal Funds: U.S. Department of Commerce, NOAA Fisheries; U.S. Department of Agriculture, ARS; and U.S. Department of Interior, U.S. Fish and Wildlife Service - *New project*

Summary: Naturally produced native salmon and steelhead in the Pacific Northwest have declined in abundance from historical levels; many populations are now protected under State and Federal ESA listings. A variety of human activities have contributed to these declines, including over-harvest, loss of habitat, construction and operation of dams and water diversions, hatchery operations, and reduced water quality and quantity. Changes in climate, ocean conditions and predators have also contributed to declines. In response, millions of public and private dollars are spent annually to restore wild salmon and steelhead populations.

The use of hatcheries to continue providing fishing opportunities and to aid recovery of ESA-listed salmon and steelhead runs is controversial. Hatcheries have been an important tool for fisheries management in Oregon for over 100 years, and this is unlikely to change. In addition to the traditional harvest role, hatcheries are now expected to enhance (or at least not impair) wild fish numbers or to provide a genetic refuge. These new objectives add another level of complexity to hatcheries because producing adults may be only one of several objectives. For some hatchery programs, these adult fish must also be able to spawn and produce progeny that persist in natural environments and are fully compatible with existing wild populations. In addition to these changing fish management objectives, there is also a heightened expectation for hatcheries to be ecologically compatible with the watersheds around them.

The Hatchery Research Center (HRC) will be a cornerstone in Oregon's progress in refining and reforming the hatchery tool to best meet today and tomorrow's expectations and challenges. The information provided by the Research Center, in concert with other research in the Pacific Northwest, will help ensure hatchery reform is scientifically based, effective and a wise use of public resources. The Research Center will be a state-of-the-art cooperative experimental laboratory where partners in salmon restoration can develop an understanding of the mechanisms that create differences between hatchery and wild fish and devise the tools to manage the differences. Thus, the focus will be on development and evaluation of tools and the critical uncertainties associated with implementation of those tools for the varied types of hatchery programs in Oregon. The Research Center will also have a strong education mission. The educational facilities at the Research Center combined with the research function will offer an ideal educational setting. Formal educational opportunities at the center include training related to A.S. in Fisheries and Aquarium Technology, B.S. in Fisheries and Wildlife; M.S. and Ph.D. degrees in Fisheries; Post-Doctoral training; and professional development for ODFW, U.S. Fish and Wildlife Service, other state and federal agencies, and private aquaculture firms. These educational opportunities will include on-site classes, internships, and thesis research projects. Informal educational opportunities at the Research Center include both active and passive educational programming. A concept paper for the Research Center (previously named the Fall Creek Hatchery Research Center) is available upon request.

The 2003 Oregon Legislature approved the use of \$4 million for construction of the HRC. In October 2003, the Independent Multidisciplinary Science Team led a workshop to identify short- and long-term research questions to inform the design of the center. The Research Center will be operational 1 July 2005. Maintenance and basic operation of the Research Center will be funded by ODFW. Federal Initiative funds are requested to support short- and long-term research and educational programs at the center.

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The National Laboratory for Molluscan Broodstock (CSREES)
Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences
Funding Requested for FY 2005: \$400,000

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

The National Laboratory for Molluscan Broodstock (CSREES). This laboratory is based at the Hatfield Marine Science Center (HMSC), Oregon State University. The West Coast is the biggest regional producer of oysters in the U.S. According to NOAA statistics for 2001, harvested West Coast, Pacific oysters had a dockside value of \$22 million compared with \$69 million for all other U.S. oyster production. Domestic supply does not meet demand and in 2001 there was a net trade deficit of about \$24 million for oyster products. In contrast to many other U.S. agricultural commodities, there has been no long-term, federally-funded research program to genetically select and manage Pacific oyster broodstock for enhanced production. In response to this need, the Molluscan Broodstock Program (MBP) was established in 1995 at Oregon State University as a Special Project of USDA-CSREES in order to implement a selective breeding program to improve broodstock and increase commercial production of Pacific oysters on the West Coast, U.S. Since MBP's inception, about 600 oyster families have been planted and evaluated at commercial grow-out sites from Alaska to California. Results show that yields of oysters derived from genetically selected MBP broodstock are 9.4% greater than those derived from "wild" unselected broodstock after only one generation of selection. Commercial hatcheries have started to use MBP broodstock for large-scale seed production. Federal funds of \$400,000 are requested in FY2004 to continue the MBP selective breeding program for Pacific oysters on the West Coast, U.S. These funds will be used 1) to select top performing, third generation broodstock, 2) to determine optimal genetic selection procedures and 3) to implement effective broodstock management strategies at commercial oyster hatcheries. (Funded in the past to OSU at the HMSC in Newport and has CSREES/USDA support. Industry is the key partner.)

Contacts:
at OSU, Dr. CY Hu (541) 737-1915
at USDA-CSREES, Meryl Broussard (202) 401-6438

Enhance USDA-ARS Shellfish Research Program at Oregon State University (ARS)
Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences
Funding Requested for FY 2005: \$300,000

Likely Source of Federal Funds: from the USDA, Agricultural Research Service (ARS)

Shellfish aquaculture on the West Coast is an important source of income for many economically depressed coastal communities that are suffering from severe declines in forestry and capture fisheries. The West Coast is the biggest regional producer of oysters in the U.S. with an annual value of some \$69 million. Domestic shellfish production does not meet national demands and significant quantities of oysters, clams and mussels are imported; for example, in 2001 there was a net trade deficit of \$24 million for oyster products alone. The US Dept. Agriculture - Agriculture Research Service (USDA-ARS) has established a national aquaculture program with the goal of facilitating the formation of a globally competitive, sustainable aquaculture industry in the U.S. The USDA-ARS was appropriated \$240,000 in FY2002 and continues to support a shellfish genetics program at Oregon State University focusing on shellfish genomics and complementing the USDA-CSREES funded Molluscan Broodstock Program. Together, these programs have proven of significant benefit to address high priority research issues for the shellfish industry. As envisioned, however, the multi-state ARS program for West Coast shellfish research would also address shellfish ecology and food quality. Threats to the estuarine environments supporting molluscan aquaculture require ecological studies to understand interactions of molluscan aquaculture with burrowing shrimp and the impacts of introduced species, such as *Spartina*. The requested funding of \$300,000 would support the establishment of the shellfish ecology program at Oregon State University. This addition to the ARS program would focus on shellfish ecology and will complement the existing genetics research based at the Hatfield Marine Science Center, Oregon State University.

Contacts:
at OSU, Dr. CY Hu (541) 737-1915
at OSU/HMSC George Boehlert (541) 737-0211

Multi-Commodity Agricultural Marketing Research (CSREES)
Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences
Funding Requested for FY 2005: \$500,000

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

This research provides a better understanding of the technical, economic and social relationships that define Oregon's value-added agricultural sector, and provides direction through applied research that will improve the economic performance of this sector. The project assesses the potential for enhancing competitiveness and expanding the economic value-added component in Oregon agricultural products through improved production, processing and trade. Drawing upon recent developments in food science, food processing technology, sensory science, package engineering, marketing and business planning, this project is developing an integrated body of practical knowledge, which through extended education facilitates foster innovations in value-added agriculture, especially as they relate to new markets. The results of this work will assist decision-makers in the agricultural sector to develop products, packaging, and marketing and business development strategies to further the economic development in the region. (Funded for over 10 years with OSU at the lead institution and has CSREES/USDA support. Industry is the principal partner.)

Contacts:
at OSU, Dr. John Henry Wells (503) 872-6650
at USDA-CSREES Mark Bailey- (202) 401-1898

Regional Barley Genome Mapping Project (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$1,000,000 with approximately \$100,000 for Oregon.

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

The North American Barley Genome Project (NABGP) is a collaborative partnership between university and USDA-ARS scientists from throughout the US. Barley has unique quality attributes for malting and brewing, as an animal feed, and as a human food. The long-term goal is to completely characterize the structure and function of the barley genome. Barley productivity can be enhanced by increasing yield potential and by removing yield constraints. The goal in this area is to fully understand the genetics of growth and development (yield potential) and resistance to abiotic/biotic stresses (yield constraints). Understanding and manipulating the genes that determine economically important traits will enhance the profitability and sustainability of U.S. barley production. NABGP researchers are locating and manipulating new genes that will add value, maximize grain quality, and ensure a more productive and competitive barley industry. Accomplishments include: extensive germplasm and molecular resources for genetic mapping, characterization of QTLs for all economically important traits; development of a barley unigene microarray; development of bioinformatics tools; cloning genes of economic importance; and sequencing of critical gene-rich regions. NABGP researchers are involved in the spectrum of national plant genomics projects and initiatives, e.g., USDA/CSREES/NRI and NSF programs - in order to maximize outputs and to preclude redundancy. The NABGP has developed collaborative international partnerships of mutual benefit. All NABGP germplasm, data, and molecular tools are in the public domain. (Funded for over 12 years with OSU as the lead institution and has CSREES/USDA support. Funds are distributed across the USA in a competitive grants program based on established priorities and research proposals submitted. Industry and university/ARS scientists are partners.)

Contacts:

at OSU, Dr. Pat Hayes (541) 737-5878

at USDA-CSREES, Marie Thro- (202) 401-6702

Meadowfoam Research (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$300,000

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

The goal of this research program is to increase the supply of renewable industrial oils for United States manufacturers through use of the crop plant meadowfoam. Meadowfoam is a newer crop in the Pacific Northwest (PNW) that produces an oil with unique chemical properties that are exploited by manufacturers of personal care products; industrial lubricants, oils and fuel additives; plastics for medical, industrial and other uses; and pharmaceutical products. Meadowfoam meal, a by-product of oil extraction, also has unique properties and research into use of meal and meal extracts as biological pesticides is underway. These materials may be of use in organic crop production systems. This project supports research in breeding and management practices for this alternative crop in the PNW as well as investigation into potential uses of meal. Presently, the United States is the sole supplier of this oil and meal. (Funded for the last three years and has CSREES/USDA support. Industry and USDA-Agricultural Research Service (ARS) are principal partners.

Contacts:

at OSU, Dr. Russ Karow (541) 737-5857

at USDA-CSREES, Carmel Bailey (202) 401-6443

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Wood Utilization Research Center at OSU

Submitted by: Stephen D. Hobbs, Associate Dean for Research, College of Forestry
Anticipated Funding Request for FY 2005: \$800,000

Likely Source of Federal Funds: USDA Cooperative State Research, Education, and Extension Service (CSREES) - Special Grants Program

Summary: This is a continuing program of the Forest Research Laboratory. It has been continually (annually) funded by USDA-CSREES since FY 1985. OSU is one of the original and lead institutions in this program, which now involves universities in Mississippi, Michigan, Maine, North Carolina, Minnesota, Tennessee, Montana, Washington, Idaho, Alaska, and West Virginia.

The USDA-CSREES administers and supports this project. The FY 2003 total funding was \$6,200,000 with about \$795,000 coming to OSU's Forest Research Laboratory. The FY 2004 funding request for \$6,700,000 is still pending final congressional action and the program is currently governed by a continuing resolution at the FY2003 funding level. It is anticipated the FY 2005 funding request will be \$10,000,000. All 12 states will be contacting their Congressional Delegations to support this program in FY 2005 and there is much continuing interest and support for this program from industry clientele in each of the 12 states involved. It would be highly desirable for this program to be a permanent budget line item.

Partnerships and Collaboration: The forest industry collaborates on many of the individual studies supported by this program.

Contacts:
at OSU, Dr. Thomas McLain (541) 737-4257;
at USDA-CSREES, Dr. Catalino Blanche (202) 401-4190

Pacific Northwest Center for Small Fruits Research Program (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$500,000 is requested with approximately \$150,000 for Oregon.

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

The importance of berry and grape production has long been recognized in the Pacific Northwest where these high value, specialty crops now make up a large component of agricultural product sales. The demand for fresh and processed berries and grapes (including wine) in both domestic and international markets continues to grow at a rapid rate. In response to the expanding demands, the Center continues to receive acclaim for its components involving cooperation between industry, state and federal research. This project consists of a highly integrated approach to research among both land-grant University and USDA-ARS scientists and their industry counterparts in the three Pacific Northwest states. Research priorities for each small fruit crop are established by the combined efforts of industry representatives and scientists. They are based on constraints on production and processing in the areas of breeding, pest management, physiology, processing/packaging and marketing. The priority setting process ensures an effective means to respond to current challenges within the small fruits industries. (Funded for over 10 years with OSU as the lead institution and has CSREES/USDA support. Funds are distributed in the PNW based on ranking of peer reviewed research proposals that address industry established priorities. Industry, Pacific Northwest universities, and ARS/USDA are partners.)

Contacts:

at OSU, Dr. Charles Boyer (541) 737-5474

at USDA-CSREES, Mike Fitzner- (202) 401-4939

Grass Seed Cropping Systems for Sustainable Agriculture (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$500,000 with approximately \$200,000 for Oregon.

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

Research and education projects have been initiated in Oregon, Washington and Idaho to identify improved grass seed crop management and conservation practices as alternatives to burning of crop residues. Projects range from improved cultivar selections and breeding, to physiological studies, water and air quality impacts, and pest control. In order to maintain the valuable grass seed industry in the PNW, research is urgently needed to reduce environmental impacts of residue burning while maintaining high productivity in several grass species. USDA-ARS cooperates in this program and receives a separate and special allocation through the USDA. (Funded for over 10 years with Washington State University as the lead institution and has CSREES/USDA support. Funds are distributed in the PNW according to industry-established priorities and research proposals submitted. Industry, Pacific Northwest universities, and USDA-ARS are partners. Research proposals are submitted.)

Contacts:

at OSU, Dr. CY Hu (541) 737-1915

at WSU, Dr. Ralph Cavalieri (509) 335-4563

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Northwest Potato Variety Development (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$2,000,000 with approximately \$600,000 for Tri-state.

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

Two-thirds of all U.S. potatoes are grown in the Pacific Northwest (PNW) where yields typically exceed the national average by about 60%. The dominant variety, Russet Burbank, is more than 130 years old but still accounts for more than 40% of the PNW acreage. Russet Burbank places a number of constraints on PNW growers and processors. It shows notable weaknesses in terms of: processing quality, pest and disease resistance, increased production inputs (agrochemicals, fertilizer, water), and tuber physiological disorders affecting usage. New varieties released in association with this project have made significant inroads on Russet Burbank acreage, but further improvement is needed in terms of processing quality, storability and increased resistance to diseases and pests, notably viruses and late blight. There is also increasing interest in varieties with unique market potential. The overall Tri-state project supports potato research in Oregon, Washington and Idaho (in cooperation with USDA-ARS workers). Funds are shared equally by the three Northwest states in order to maintain a sufficient critical mass of scientific effort. It is vitally important that this cooperative effort continue in order to insure the continued health of the leading U.S. potato-producing region. A successful PNW potato industry helps insure the continued economic health of local communities throughout the region, contributes to a favorable balance of trade through growing exports to Asian Pacific rim countries, and helps provide nutritious food for U.S. consumers. The USDA and PNW growers have funded the Tri-state program for the past 15 years. This program has CSREES/USDA support. These funds have resulted in the development and release of more than a dozen new PNW varieties in recent years (<http://www.css.orst.edu/potatoes/variety.htm>).

Contacts:

at OSU, Dr. Al Mosley (541) 737-5835

at USDA-CSREES, Ann Marie Thro (202) 401-6702

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Value-Added Seafood Product Development: A Community Seafood Initiative (DOC)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$1,200,000

Likely Source of Federal Funds: from the USDA Department of Commerce (DOC).

Value-Added Seafood Product Development: A Community Seafood Initiative: Building on successful collaboration of past research initiatives, this project will strengthen and formalize an existing network of institutions into a systematic approach designed to ensure application of research by industry and maximize local economic impact. The goal of this project is to incorporate on-going, innovative research regarding new technologies and product diversification into a research delivery model. Designed to maximize the economic impact of existing and future research on rural and distressed coastal communities in Oregon, this project will coordinate, target, and leverage a number of existing rural economic development tools and activities. Research will focus on new technologies such as high pressure processing and value-added products for oysters, shellfish and albacore tuna. The use of an electronic data-base information system will be adapted as a tool for West Coast fisheries. Direct participation in the early stages of the project will bring research and science closer to the community and individual business level, thereby involving communities in rebuilding their economy and protecting their natural resources. An important innovation, in the project design, is the linkage with a regional development institution. This linkage will provide direct access to capital and assistance by local businesses, maximizing the application and implementation of the research. Encouraged by the success of past collaborative projects involving university research, community-based development and industry groups, the investigators are interested in building a model believed to have relevance for replication in many rural areas. These goals will be accomplished through a coordinated network of institutions and industry groups that combine research, education, and community and economic development to support rural communities. There is strong industry support for this type of research, and researchers at the OSU Seafood Research Laboratory and the Coastal Oregon Marine Experiment Station will work closely with industry groups throughout the Pacific Northwest region. \$1,200,000 is requested from CSREES.

Contacts:

at OSU, Dr. CY Hu (541) 737-1915

at OSU Seafood Laboratory, Dr. Michael T. Morrissey, 503-325-4531 ext2

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Business and Information Technology (BIT) Extension Program **Submitted by:** Lyla Houglum, Dean and Director, OSU Extension Service **Funding Requested:** \$1,950,000 over two years

Anticipated Federal Funding Source: U.S. Department of Agriculture - CSREES (Farm Bill)

Summary: This pioneering outreach program will assist Oregonians in adopting leading-edge technology as an integral part of their community, business, and personal lives. Residents will gain business and information technology skill sets that are especially useful in fostering new enterprises and economic diversification. BIT Extension training includes three related elements:

Adult components - expands rural enterprise, community, government and family use of contemporary technology and business practices. This outreach will create new jobs during the next five years through small business retention, expansion and start-ups in Oregon's rural areas.

Youth components - in which 4-H Youth learn skills in order to create businesses, teach their families to use technology and conduct technology projects in their communities.

OSU Student component – to provide a paid summer BIT Extension Internship experience for undergraduate students at rural OSU Extension field offices where they mentor 4-H Youth and infuse technology into small rural enterprises, communities and families.

Partnerships and Collaboration: A grant from the Engineering Technology Industry Council (ETIC) is supporting BIT Extension in pilot areas. This biennium, ETIC will be increasing its grant funding to BIT Extension. This reflects BIT Extension achievements including:

- BIT Extension faculty: The nation's first BIT Extension field positions were recruited and began outreach from OSU Extension offices in Eastern, Southern & Central Oregon.
- BIT 4-H Youth Camps: In 2002 and 2003, BIT summer camps were conducted at OSU in partnership with 4-H, technology industry and the Colleges of Business & Engineering.
- Engaged Students: Business and technology college students participated in the first BIT Extension Internships. Located in OSU Extension field offices, the intern's technology projects benefited youth, adults and rural enterprises.

Summer BIT 4-H camps for underserved youth are also attracting support from the Hewlett-Packard Company. Intel Corporation has provided over \$200,000 in equipment and 2000 professional hours of technology mentors in support of a 4-H Technology Club of Hispanic teenagers. To conduct business technology outreach in remote underserved areas, corporate sponsorship is pending for a technology learning center on wheels – known as "BIT Mobile."

Strategic Directions: BIT Extension is aligned with the OSU-2007 goal to develop excellence within the thematic area of "Engineering, Technology and Business." This focus will strengthen and expand Oregonian's technical and business skills for advancing the state's knowledge economy - including families presently associated with natural resource enterprises.

The OSU Extension Service is funding BIT Extension as a strategic initiative for 2002-05. The OSU College of Business's strategic plan also identifies BIT Extension as a priority initiative with provision of funding support to advance this outreach.

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Hatch Formula Funds (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences
Funding Requested for FY 2005: \$3,000,000 Oregon

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

Continuing support is needed for Hatch Formula funding that is provided to various Experiment Stations in each state. This is a nationally supported program with funds from the NASULGC organization and various commodity and grower organizations in each state. These funds provide each state basic infrastructure, scientific expertise, and facilities for conducting research.

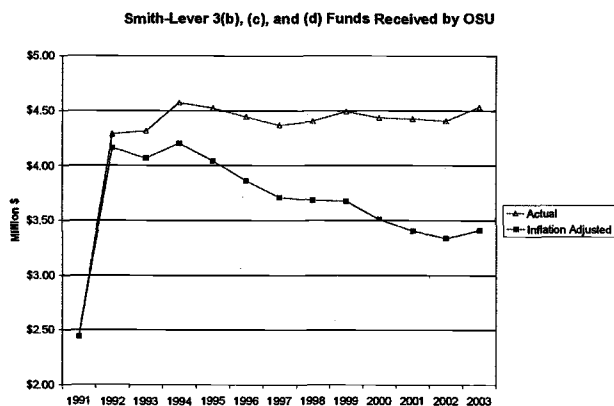
Contact:
at OSU, Dr. CY Hu (541) 737-1915

Smith-Lever Formula Funds [3(b), 3(c) and 3(d)] USDA Cooperative Research, Education, and Extension Service (CSREES)

Submitted by: John Winder, Assistant Director, OSU Extension Service
Funding Requested: Anticipated Funding for FY 2005 - \$4,530,482

Source of Federal Funds: USDA CSREES

Summary: Oregon State University has received federal funding for Extension Service educational programs since 1915. Extension is a funding and program partnership among the USDA, Congress, the Oregon State Legislature, and governments and agencies in 36 counties in Oregon. Annual federal funding requests for nationwide Extension programs come from USDA/CSREES. The USDA is supportive of continuing funding for its Extension programs at all land grant institutions. The level of request is determined by CSREES and the amount for Oregon State University is determined by formula. Actual funding has been essentially level over the past decade. However, when inflation is accounted for, funding has declined by almost 20% since 1993. In addition to support from NASULGC and its member institutions, economic development, agriculture, forestry, marine, youth, family nutrition, health, and environmental interest groups will support the Extension budget request. Current Extension education programs are emphasizing economic recovery, sustainable agricultural, forestry, and marine production methods, limited income nutrition and health, rural economic development, and homeland security.



Partnerships and Collaborations: Extension is a funding and program partnership among the USDA, Congress, the Oregon State Legislature, and government and agencies in Oregon's 36 counties. Additional support and collaboration comes from state agencies, K-12 schools, and agricultural, forestry, marine, youth, family, nutrition, health, environmental, and economic development interest groups and organizations in Oregon. Oregon State University Extension Service personnel also collaborates with Extension Services, Agricultural Experiment Stations, and other appropriate organizations and agencies in neighboring states to increase efficiency and impact of programs.

Contacts:

Lyla Houghlum
Dean and Director
OSU Extension Service
101 Ballard Extension Hall
Corvallis, OR 97331-3606
Phone: 541-737-2713
Fax: 541-737-4423
Lyla.houghlum@oregonstate.edu

Mary L. Mann
Fiscal Officer
OSU Extension Service
106 Ballard Extension Hall
Corvallis, OR 97331-3602
Phone: 541-737-4128
Fax: 541-737-4095
Mary.l.mann@oregonstate.edu

Oregon State University - 2005

National Research Initiative Competitive Grants Program (NRI) (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences, Dr. Hal Salwasser, Dean and Stephen Hobbs, Associate Dean for Research, College of Forestry

Funding Requested for FY 2005: \$180,000,000 Nationwide

Likely Source of Federal Funds: USDA Cooperative States Research, Education and Extension Service (CSREES).

Summary: The National Research Initiative Competitive Grants Program (NRI) is charged with funding research on key problems of national and regional importance in biological, environmental, physical, and social sciences relevant to agriculture, food, and the environment on a peer-reviewed, competitive basis. Oregon State University's College of Forestry/Forest Research Laboratory and the College of Agricultural Sciences/Agriculture Experiment Station do very well in this program each year. For example, the College of Agricultural Sciences has received an average of \$1.5 million dollars each year in the past three years, and the College of Forestry has received, on average, about \$672,000 in project funds annually. The appropriation for NRI in FY 2004 is \$164,027,000. The President's FY 2005 Budget requests \$180,000,000.

The NRI supports a spectrum of research ranging from basic, fundamental questions relevant to agriculture in the broad sense to research that bridges the basic and applied sciences and results in practical outcomes. Competition is open to scientists at all academic institutions, Federal research agencies, private and industrial organizations, and those individuals qualified but not affiliated with one of the aforementioned organizations.

NAPFSC, NASULCG, and all states and territories support this program through their congressional delegations.

Partnerships and Collaboration: Federal agencies and the forest industry are often collaborators on individual studies supported by NRI funds.

Contacts:

at OSU, Dr. CY Hu (541) 737-1915

at OSU, Dr. Stephen Hobbs (541) 737-8477

at USDA-CSREES, Dr. Mark Poth (202) 401-5244

Oregon State University - 2005

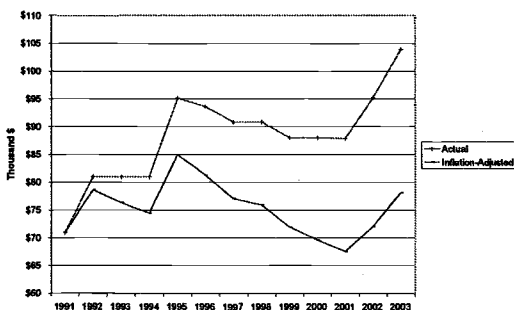
Renewable Resources Extension Act (RREA Program)

Submitted by: Stephen Hobbs, Associate Dean for Research, College of Forestry and John A. Winder, Assistant Director, OSU Extension Service
Anticipated Funding Request for FY 2005: \$4,093,000

Likely Source of Federal Funds: USDA Cooperative State Research, Education, and Extension Service (CSREES)

Summary: This program is administered and supported by CSREES. A complementary program to renewable resources research, The Renewable Resources Extension Act was passed in 1978 with annual appropriations since the early 1980s. The total appropriation in FY 2003 was \$4,516,000. The FY 2004 appropriation was reduced ten percent after a long-term continuing resolution to \$4,040,000. The formula-based distribution should result in an allocation to OSU of approximately \$104,000. These funds will be used to enhance outreach education principally focused on eastern Oregon forest and rangeland ecosystems and fisheries and wildlife. Both 1862 and 1890 Land Grant universities share in increased FY 2003 and FY 2004 appropriations that also included setting aside a pool of competitive funds geared towards web-based education. A new western US Forestry Extension Coordinating Committee will establish outcome indicators and priority issues for RREA funds beginning in 2004. Forestry-related interests are requesting a significant increase in national RREA funding. This effort seeks to increase the national allocation from \$4.5 million to \$15 million for FY 2005.

Extension RREA Funding Received by OSU



Primary support for this program comes from NAPFSC, NASULGC, ECOP, National Association of University Fisheries and Wildlife Programs, and the National Council on Private Forestry.

Partnerships and Collaboration: Coordinated program implementation involves numerous public and private organizations, including the multi-agency Oregon Forestland Coordinating Committee, USDA, Congress, the Oregon State Legislature, and government and agencies in Oregon's 36 counties. OSU participates on an Extension Committee on Organization and Policy Forestry Task Force and the new Western Region Coordinating Committee that identifies common priority issues.

Contacts:

Scott Reed
Associate Dean
College of Forestry
119 Richardson Hall
Corvallis, OR 97331
Phone: 541-737-1728
Fax: 541-737-3008
scott.reed@oregonstate.edu

Dr. Eric Norland
USDA-CSREES
(202) 401-4926

Animal Health and Disease Research Funds (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$5,100,000 Nationwide, \$75,500 Oregon

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

This is a national program which provides formula funds for animal health research in each state. This is supported by NASULGC and various commodity growers and associations across the U.S. The scope of this research is quite broad in order that the most important issues related to animal health and disease can be addressed in each state where the funds are allocated. Research programs are used to promote the general welfare through improved health and productivity of domestic livestock, poultry, aquatic animals, and other income-producing animals.

Contact:

at OSU, Dr. CY Hu (541) 737-1915

Regional Pest Management Center (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$4,400,000 Nationwide, \$109,000 Oregon

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

This is a nationally coordinated effort to develop regional centers for pest management research/outreach, assess environmental impact of pesticides and balance this against their benefits. Oregon coordinates a Pacific-Northwest consortium of pest management centers within the Western Region Pest Management Center based at UC, Davis. The Oregon center also develops pest management profiles for crops, conducts pest management strategic planning procedures with stakeholder groups for submission to USDA and EPA as well as for the development of research efforts that are tuned to needs within a wide range of commodities. The Oregon Center also compiles toxicological information, assesses pesticide impacts on water quality and ecological health, prepares literature, conducts bi-lingual training courses in proper pesticide use, and develops close working relationships with numerous stakeholder groups.

Contacts:

at OSU, Dr. CY Hu (541) 737-1915

at USDA-CSREES, Michael Fitzner- (202) 401-4939

Solutions to Environmental and Economic Problems III (STEEP) (CSREES)

Submitted by: Dr. Thayne Dutson, Dean, College of Agricultural Sciences

Funding Requested for FY 2005: \$1,000,000

Likely Source of Federal Funds: Special Grant from the USDA Cooperative States Research, Education and Extension Service (CSREES).

This research provides a base for an agricultural research and extension education partnership to address production and environmental issues in Oregon, Washington, and Idaho. The partnership with producers, agri-industry, USDA-ARS, NRCS, conservation districts, and university research and extension personnel enhances programs on: conservation of soil quality; evaluation of reduced pesticide use and other alternatives for crop protection; management options that substitute for residue requirements in farm plans; and on-farm testing. General program objectives are: determining impact of farming practices on soil, water, and air quality; improving profitability of conservation farming systems; identifying profitable conservation policies; identifying alternative crops for conservation farming systems in the PNW; and accelerating adoption of profitable conservation farming systems. Selected major accomplishments in previous STEEP funding include: improved soil erosion prediction and management of chemicals related to ground and surface water quality; development of wheat cultivars resistant to insects and disease; quantification of economic benefits of conservation farming; and extensive educational materials and programs for dissemination of research results to growers. The project is supported by the Tri-state wheat growers and National Association of Wheat Growers. (Funded for over 10 years and has CSREES/USDA support. Industry, Pacific Northwest universities, NRCS, and USDA-ARS are partners.)

Contacts:

at OSU, Dr. Charles Boyer (541) 737-5474

at WSU, Dr. Ralph Cavalieri (509) 335-4563

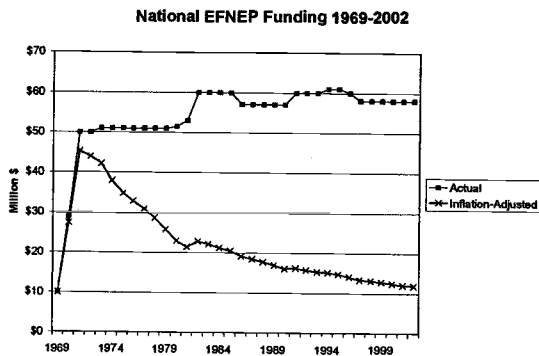
Expanded Food and Nutrition Education Program (EFNEP)

Submitted by: John A. Winder, Assistant Director, OSU Extension Service

Funding Requested: OSU EFNEP Funding Received for FY 2003 - \$469,525; desired OSU FNEP Funding for FY 2005: \$539,954

Source of Federal Funds: USDA Cooperative State Research, Education, and Extension Service (CSREES) Smith-Lever 3-(d).

Summary: EFNEP is funded by Smith-Lever 3(d) funds. The program has been highly successful in delivering food and nutrition education programs to families since 1969. This program is of high importance in Oregon which has one of the highest hunger and food insecurity rates among the states. EFNEP reduces the need for emergency food relief while enhancing the well-being of participants. The program generates savings by reducing need for emergency food aid. These savings far exceed the cost of delivery. Since the early 1970s, funding for EFNEP has been relatively flat. After accounting for inflation, EFNEP funding declined by almost 50% between 1970 and 2002. In 2003, the Extension Committee on Organization and Policy and the Board on Human Sciences recommended that funding be increased by 15% per year for the next 5 years. This effort will be coordinated by NASULGC.



Partnerships and Collaborations: USDA/CSREES, state food-related agencies and organizations. In Oregon, OSU Extension Service is the lead agency.

Contacts:

David Philbrick
Associate Dean
College of Health and Human Sciences
161 Milam Hall
Corvallis, OR 97331
Phone: 541-737-1021
Fax: 541-737-0999
david.philbrick@oregonstate.edu

Ellen Schuster
EFNEP Coordinator
College of Health and Human Sciences
161 Milam Hall
Corvallis, OR 97331
Phone: 541-737-1017
Fax: 541-737-0999
Ellen.schuster@oregonstate.edu

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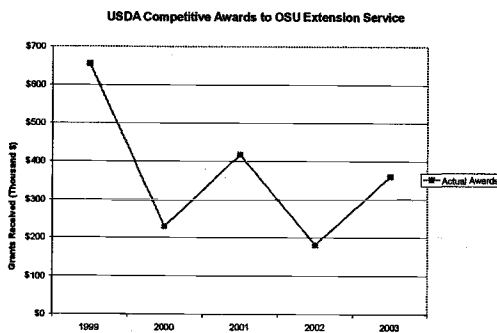
USDA Competitive Funds

Submitted By: John A. Winder, Assistant Director, OSU Extension Service

Funding Requested: Desired Funding for Fiscal Year 2005 TBA (based on success rate of proposals)

Source of Federal Funds: USDA Competitive Grants and Homeland Security Competitive Grants

Summary: Competitive USDA/CSREES programs such as the Integrated Research, Education, and Extension Competitive Grants Program and the Sustainable Agriculture Research and Education program provide funding for integrated, multifunctional agricultural research, extension, and education activities. Extension has received competitive funds from USDA for decades, and we anticipate additional funding in federal fiscal year 2004. These programs are critical as catalysts for new and innovative extension and integrated programming. USDA is supportive of this structure and uses competitive funding to attain programming goals. These programs foster innovative research, technology transfer, and empowerment of target audiences. Extension is also well positioned to deliver targeted programs that result in enhanced homeland security. Funding for these activities is also emerging through the Department of Homeland Security in the form of competitive and targeted granting programs. NASULCG is coordinating funding requests aligned with priorities put forward by the Land-Grant Board on Agriculture Assembly.



Partnerships and Collaborations: Extension is a funding and program partnership among USDA, Congress, the Oregon State Legislature, and local governments in 36 counties. Additional support and collaboration comes from state agencies, K-12 schools, and agricultural, forestry, marine, youth, family nutrition, health, environmental, and economic development interest groups and organizations in Oregon. OSUES collaborates with Agricultural Experiment Stations and Extension Services in surrounding states to increase the cost efficiency and impacts of programs. OSUES also collaborates with the Oregon Emergency Management Division of the Oregon State Police, the Oregon Department of Agriculture, and county emergency managers addressing Homeland Security.

Contacts:

Lyla Houghlum
Dean and Director
OSU Extension Service
101 Ballard Extension Hall
Phone: 541-737-2713
Fax: 541-737-4423
Lyla.houghlum@oregonstate.edu

Mary L. Mann
Fiscal Officer
OSU Extension Service
106 Ballard Extension Hall
Corvallis, OR 97331-3602
Phone: 541-737-4128
Fax: 541-737-4095
Mary.l.mann@oregonstate.edu

Oregon State University - 2005

Cooperative State Forestry Research Program (McIntire-Stennis Program)
Submitted by: Stephen Hobbs, Associate Dean for Research, College of Forestry
Anticipated Funding Request for FY 2005: \$21,884,000

Likely Source of Federal Funds: USDA Cooperative State Research, Education, and Extension Service (CSREES)

Summary: This is a continuing national program of the USDA-CSREES that supports research in forestry and related natural resource areas (products, water, wildlife, etc.) at the state/local levels. Funding is provided to all 50 states plus territories with specific amounts to each determined by a formula based on volume of timber harvested, acres of non-federal forest land, and amount of non-federal funding to support research. In FY 2004, the appropriation is \$21,755,000. From this it is estimated that Oregon State University's Forest Research Laboratory will receive approximately \$700,000. The President's FY 2005 Budget requests \$21,884,000.

The USDA-CSREES administers and supports the McIntire-Stennis Program. Support for this program is organized through the National Association of Professional Forestry Schools and Colleges (NAPFSC) and the Agriculture and Natural Resources sections of the National Association of State Universities and Land Grant Colleges (NASULGC) on behalf of all 50 states, participating territories, and by individuals in each state.

Partnerships and Collaboration: The forest industry and federal agencies collaborate on studies supported by the McIntire-Stennis Program.

Contacts:
at OSU, Dr. Stephen Hobbs (541) 737-8477;
at USDA-CSREES, Dr. Catalino Blanche (202) 401-4190

**The Oregon Watersheds Research Cooperative (WRC):
Calibrating Forest Practices Rules for Water, Aquatic Habitat, and Fish**
Submitted by: Hal Salwasser, Steve Tesch, Arne Skaugset, College of Forestry;
Thayne Dutson, Dan Edge, Judith Li, College of Agricultural Sciences
Funding Requested: \$2,025,000 annually for 10 years

Likely source of federal funds: Environmental Protection Agency

Summary: Water is of immense importance throughout the West. Concerns about the impacts of forestry practices on water quality and fish habitat have received much attention in the last decade, particularly with declines in many salmon and steelhead populations and perceptions those declines were influenced by forest practices. Oregon has led the nation in science-based forest policy and regulation of forest management activities to protect water and fish since the Oregon Forest Practices Act (FPA) was passed in 1971. Forest landowners have embraced the application of scientific information to guide development of rules that govern timber harvest, reforestation, road building, streamside protection, and other forestry practices that affect water and fish. However, forest protection levels have increased with each review of forest protection rules to the point where they have significantly impacted forest landowners by requiring merchantable volume be left standing, removing productive forest land from management, and increasing the costs of management activities all with no known or apparent environmental benefit.

Current forest protection rules are based on outdated research. Most available literature documenting the environmental effects of roads and harvesting on forest watersheds that is used to guide forest policy in the Pacific Northwest comes from older studies that reflect historic road construction, harvesting, and stream protection practices. These practices have changed substantially since older studies were conducted and published. For forest protection rules to function over time, the scientific information base behind them must continually evolve to reflect contemporary forest conditions, forestry practices, and societal values.

The stakes are very high. On one hand, it is imperative to protect water quality and fisheries. On the other hand, continued pressure to move state and federal forest practice rules and standards beyond the state-of-the-science has the potential to lead to needless loss of private property value and productive land base. *New long-term scientific studies are needed on contemporary practices within the context of current forest management landscapes and watersheds.*

The Plan for the Watersheds Research Cooperative (WRC) is to establish a new series of long-term paired watershed studies throughout Oregon. These will evaluate the environmental effects on water and fish of contemporary forestry practices used to intensively manage younger forests. The long-term vision is to establish three replicates of the paired watershed study experimental design across Oregon to enable stronger inferences from study data to other places. A high priority for one replicate is a long-term, robust effort located in an experimental forest setting on non-industrial forestland (e.g., ODF State land); this installation would act as a managed forest analogue to older study stands located at the H. J. Andrews Experimental Forest. This "research forest" would allow manipulative studies to be carried out on harvest-regenerated forestland that will be managed primarily for the production of wood. There is currently no such designated forest where manipulative treatments can be installed within a paired watershed infrastructure and be assured protection for long-term study.

The first installation of the WRC is the Hinkle Creek Paired Watershed Study and Research Demonstration Area located near Sutherlin, Oregon. The study area is a 5,000-acre watershed owned and managed by Roseburg Forest Products. The forest is composed of 55-year old, harvest regenerated Douglas-fir forests and contains an existing road network. The Hinkle Creek Paired Watershed Study began 18 months ago with modest county, forest industry, state agency, and College of Forestry investments. Importantly, it now represents a "proof of concept" installation on which to model future replications. All research and infrastructure

components of this paired watershed study are currently in place. The Hinkle Creek site also serves as a demonstration area to teach students and the public about the interactions of modern intensive forest management with watershed health, water quality, and fisheries. Each installation of the paired watershed study design would be initially planned for a 10-year life span.

The Goal of the WRC is to generate new data from paired watershed studies on private, industrial, and state forestlands where contemporary intensive forestry is used to manage young, even-aged and mixed-age forests. The research will focus on management impacts to water quality, fisheries, and aquatic habitat. Specific goals include:

- To investigate the on-site effects of contemporary forest practices on water quality and aquatic habitat in headwater streams.
- To investigate the cumulative effects of harvesting in headwater streams on water quality, fisheries, and aquatic habitat downstream in a fish-bearing stream.
- To investigate the watershed processes that propagate effects on water quality, aquatic habitat, and fish downstream.
- To investigate assumptions contained in the Northwest Forest Plan and other federal plans (for Forest Service and BLM lands) that practices on federal lands must be "more protective" because forest practices on non-federal lands may be inadequate to protect aquatic habitat and processes.
- To extend the knowledge and technology from these studies to forest managers and policy makers throughout Oregon and the Pacific Northwest.

Partnerships and Collaboration in the WRC: The Forest Engineering and Forest Science Departments of the College of Forestry, the Department of Fisheries and Wildlife of the College of Agricultural Sciences, and the Forest and Rangeland Ecosystem Science Center (FRESC) of the USGS are research partners at Hinkle Creek. The Oregon Department of Forestry, Oregon Department of Fish and Wildlife, Oregon Forest Industries Council, Douglas County, and Roseburg Forest Products are current cooperators in the WRC. Collectively, this partnership brings together strong and experienced science leadership with committed land management organizations and local government support.

Determination of Need for Phased-in Federal Funding: Immediate funding of \$675,000 is requested to support the existing Hinkle Creek Project. An additional \$1,350,000 is also requested for FY2005 to enable initiation of the second and third replicates. The total request is for \$2,025,000 per year for 10 years. The requested funds would supplement contributions from WRC cooperators.

Implementing Mechanism: The most appropriate approach to initiating this proposal is to work with the Oregon Congressional delegation to specifically identify funds in the EPA budget for the WRC. These funds will be phased in with funds from cooperating organizations to insure continued operation of the Hinkle Creek Paired Watershed Study site and the establishment and operation of two additional paired watershed study sites.