

Cooperative Ventures

An update of activities from the Pacific Northwest
Cooperative Ecosystem Studies Unit

Spring/Summer 2004

Progress in Development of the National Ecological Observatory Network (NEON)

Jerry F. Franklin

College of Forest Resources, University of Washington
Seattle, WA 98195 (jff@u.washington.edu)

For years environmental scientists have been talking about NEON. The concept of a national network of field-based ecological observatories is an exciting one. With a massive increase in financial resources and national direction and coordination NEON offers the potential of finally having the resources to conduct ecological science at dimensions sufficient to effectively address important issues at regional and national scales.

Despite much initial enthusiasm, progress has been slow. NEON funding was proposed in the National Science Foundation (NSF) budget in 3 of the last 4 years. It failed to “make the cut” in congress although it was consistently deleted “without prejudice”—meaning it was OK to try again next year. In the FY2004 appropriation, however, congress authorized NSF to go ahead and develop a comprehensive plan for NEON. NSF responded by soliciting proposals for a \$6 million/2 year project to design NEON, one of which it will fund in September 2004.

So, after all of the dialogue and waiting, **NEON is finally going to happen! The major challenge now is determining the content of the program!** What questions will be addressed? What infrastructure will be created and where? How will NEON be managed and by whom? The community of ecological scientists and educators has the primary responsibility for answering these questions—and in the next
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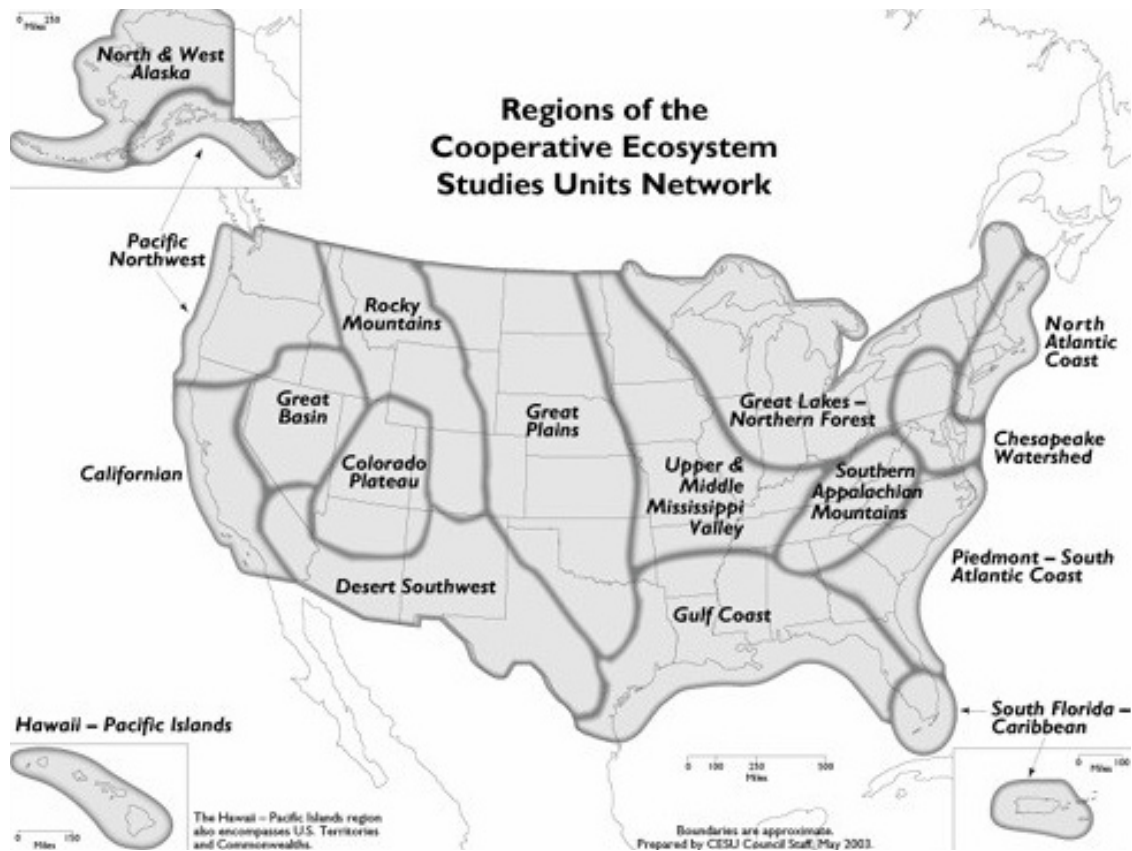
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Mission Statement

The Pacific Northwest Cooperative Ecosystem Studies Unit (PNW CESU) is a partnership for research, technical assistance and education to enhance understanding and management of natural and cultural resources.



The PNW CESU and the CESU National Network



The **Pacific Northwest Cooperative Ecosystem Studies Unit** encompasses a region extending across 5 states (Washington, Oregon, Northern California, Western Idaho and South East Alaska) and is hosted by the University of Washington. As a member of the National CESU Network, the PNW CESU is a working partnership among leading academic institutions, federal, state and non-governmental organizations.

The **CESU National Network** is organized around biogeographic regions across the United States. Each Region is served by a distinct CESU, with all CESUs linked together in the National Network. The goal of the Cooperative Ecosystem Studies Unit Network is to improve the scientific base for managing federal lands by providing resource managers with high quality scientific research, technical assistance and education through their working partnerships.

PNW CESU Program Staff

Darryll Johnson
PNW CESU Co-leader and
NPS Research Coordinator
darryllj@u.washington.edu
(206) 685-9150

Gordon Bradley
PNW CESU Co-leader and UW
College of Forest Resources Faculty
gbradley@u.washington.edu
(206) 685-0881

Tracy Woodman
PNW CESU Program
Coordinator
woodmant@u.washington.edu
(206) 616-4850

(NEON, Continued from Pg 1) two years. The decisions that are made will have consequences for ecological science halfway into the 21st century.

The current status of NEON is the subject of this report. My purpose is to update interested parties—participants and potential stakeholders—about what is happening and why so that each can begin making decisions about the role that they want to play in the definition and creation of NEON.

Background

NEON was conceived as a highly networked system of field-based ecological research “observatories”, which would facilitate ecological research as well as create the capacity to address major regional and national environmental issues. Each observatory was to represent a different region to provide full geographic coverage of the nation. Large initial investments in infrastructure as well as annual operational funding were planned (\$20 and \$3 million/observatory were commonly cited). These facilities would be made available to a broad array of users including academic and non-academic scientists and students.

Funding for NEON will be from NSF’s Major Research Equipment and Facilities Construction (MREFC) account. MREFC is the pathway for funding major investments in scientific infrastructure, facilities that cannot be provided through regular NSF programs. The MREFC account has been utilized heavily by physical scientists for expensive infrastructure, such as a radio telescope array, but not by biological scientists.

Although not well understood by many NEON proponents until recently, MREFC projects have some very specific and detailed planning and management requirements, which differ greatly from regular NSF research grants. Most fundamental is the requirement for a comprehensive plan for the proposed facility (i.e., NEON). This plan must include the scientific

questions that are to be addressed and, based on those questions, a definition of the required infrastructure—prior to any funding.

Another common feature of MREFC funding is the establishment of a non-profit corporation (i.e., “NEON, Inc”) to create and manage the facility (NEON). This single corporation is fiscally responsible to NSF for the construction and operation of the entire facility. The University Corporation for Atmospheric Research, which manages the National Center for Atmospheric Research (NCAR) in Boulder, CO is an example of such a non-profit corporate entity.

Development and Funding History

In 2004 Congress authorized NSF to spend regular program funds to develop an implementation plan for NEON as part of the FY2004 budget. As a result, in late January 2004 NSF issued a program solicitation for “*National Ecological Observatory Network (NEON): Development of NEON Coordinating Consortium (NCC) and Project Office*”, to which I will return.

NSF realized in 2002 that it needed additional assistance in developing the NEON concept in order to be better able to respond to questions about the program raised by a variety of sources, including congressional committees. Consequently, the American Institute of Biological Sciences (AIBS) was asked to facilitate activities of a broadly representative scientific group called the “Infrastructure for Biology at Regional to Continental Scale Working Group” (IBRCS). After working for many months IBRCS issued a report on the “*Rationale, Blueprint, and Expectations for the National Ecological Observatory Network*” (IBRICS I) in March 2003.

Subsequently, AIBS coordinated an effort to design a national structure for NEON. A revised committee membership, which included several individuals involved in management of large facilities, was established. Their report, “*A Plan for Developing and Governing the National Ecological Observatory Network*” (IBRICS II) was issued in December 2003. Both reports

are available on the AIBS Web site (<http://ibrcs.aibs.org/>).

In 2002 NSF also realized that NEON had not been reviewed by the National Research Council (NRC), a process that is traditional for MREFC projects. NSF requested this review and the NRC complied with a report, "*NEON: Addressing the nation's environmental challenges*" (National Research Council 2003). The NRC committee strongly endorsed the need for a NEON program to address national environmental issues:

- Biodiversity, species composition, and ecosystem functioning;
- Ecological aspects of biogeochemical cycles;
- Ecological implications of climate change;
- Ecology and evolution of infectious diseases;
- Invasive species; and
- Land use and habitat alteration.

It recommended organizing NEON around these environmental issues. The NRC committee criticized the then current NSF NEON concept of building regional observatories two at a time, recognizing that there needed to be a national network from the beginning of a NEON program.

The second IBRICS report incorporated aspects of the NRC NEON report into its final recommendations. A strong national NEON organization built around defined scientific questions was proposed from initiation of NEON. However, the AIBS group also recognized that regional scientific questions and geographic groupings of scientists and facilities are important elements of NEON. The concept emerged of building NEON incrementally by sequentially adding scientific questions and capacity to a network that had national coverage from the outset.

NSF initiated the formal planning process for NEON by posting an RFP on January 27, 2004 requesting proposals to develop the operational plan for NEON with a closing date of April 26, 2004; the amount of the award is expected to be \$6 million over two years. The awardees will

develop a plan for NEON that would meet the requirements of MREFC funding. Deliverables include:

- Science plan (12 mos);
- Networking and Informatics Baseline Design (12 mos);
- Establishment (incorporation) of NEON, Inc. (15 mos); and
- Preliminary Project Execution Plan (21 mos).

Although congressional funding for building NEON would theoretically await completion of the Project Execution Plan, the proposed FY 2005 NSF budget includes funding for NEON.

Proposals submitted to NSF are currently undergoing peer review. An award is expected in September 2004. At that point the ecological community is committed to an incredibly challenging set of tasks—for better or for worse! These include selecting and refining the scientific questions that NEON will address, identifying the essential infrastructure, creating a blueprint for construction of NEON, and establishing the non-profit corporation that will carry NEON forward.

NSF wants very broad participation in the NEON planning process by the ecological community. ***However, given NSF's schedule for deliverables, individuals, institutions, and regional working groups need to be well prepared prior to the award to engage in this intense, time-bound process of NEON definition.***

Activities in the Pacific Northwest

The challenge to PNW environmental scientists and educators and to stakeholder institutions is to prepare ourselves to participate in the NEON planning process, which will begin in September of this year. Important tasks will include:

- Participating in the identification and refinement of the scientific questions that will be the rationale for NEON; and
- Providing the national NEON planning effort with information on important existing facilities, data

- bases, and programs that could be incorporated into NEON; and
- Creating a regional NEON consortium.

The participation in the NEON design will take several forms. One activity is to identify and nominate scientists and educators from the PNW as primary participants in the national planning that will be going on over the next two years. Only a relatively few will be involved as participants in the central planning effort due to logistical and financial limitations. But I expect all interested parties to be able to participate on a real-time basis in NEON planning activity via the WEB—and this will be critical if we want NEON to reflect our ambitions for it.

We have already made considerable progress in organizing a regional NEON consortium in the Pacific Northwest with meetings during 2001 and 2002, which were supported by University of Washington, Oregon State University, and Portland State University. Currently our proposed area of interest includes Washington, Oregon, the Redwood region and southern Cascades of northern California, and southeastern Alaska. The Wind River Field Station has been identified as one potential observatory site. Leadership is currently be provided by Dr. Mark Harmon at Oregon State University (mark.harmon@oregonstate.edu) and myself at University of Washington (jff@u.washington.edu).

In the next few weeks we plan to establish a WEB site for the PNW NEON consortium to facilitate communications with regards to both the national and regional NEON planning efforts! The goals for the WEB site and other communication efforts this summer include:

- Informing and involving the community of PNW scientists, educators, managers, and decision makers in the development of a regional consortium;
- Compiling a regional directory of field sites, programs, databases, experiments, and individuals for consideration in the national

- planning effort; and
- Facilitating the participation of the PNW scientific and educational community in the national planning effort, including identification of candidates to populate the national NEON planning effort.

Federal Role in NEON

NEON is expected to play a significant role in facilitating natural resources research and its application on federal and state lands. One specific role that NEON may play would be as primary location for archiving, documenting and facilitating access to important data sets collected by federal agencies--i.e., as a communication node for researchers and managers concerned with PNW ecosystems. Another role may be to make available unique scientific capacities to federal scientists.

Of course, the degree to which NEON is a valuable partner to Federal research and management programs will be strongly influenced by the level of agency participation in NEON design and implementation. Participation by federal scientists in the selection of scientific questions and initial design of the program is critical. Participation by federal agencies as part of the consortium represented by NEON, Inc. will also be critical.

Participation is a key to influencing how well NEON is integrated with agencies research and management programs. Stay tuned and prepare to participate!

For Further Information:

[NSF Web Site](#) (general information and NSF presentations on NEON planning made at the February 27, 2004 briefing for prospective principle investigators on the NEON planning grant)

[AIBS Web Site](#) (IBRCS reports on NEON)

[National Research Council](#) web site

PNW CESU Featured Project

Survey and Manage Species Assessments The Oregon Natural Heritage Information Center (ORNHIC), Institute of Natural Resources, Oregon State University and Bureau of Land Management

Jimmy Kagan

Director, Oregon Natural Heritage Information Center Oregon State University

Background: The Survey and Manage Program was part of the President's Forest Plan, managed by the BLM and US Forest Service as their effort to implement a recovery program for the Northern Spotted Owl. The program addressed forests in all of western Oregon, western Washington and northwestern California, covering the range of the owl. The focus of the Survey and Manage Program was to assure that all old-growth forest obligate species were protected, not just the spotted owl and marbled murrelet, the two federally listed birds that were driving the process.

To assure that all other potentially at-risk species were addressed, the Forest Plan initially identified about 350 species of fungi, lichens, and mollusks which occurred within the range of the owl, and were considered to be old-growth forest obligate species. The Survey and Manage Program established rules to protect and inventory for these species, which included requirements that all timber sales and projects occurring within the forest plan area were inventoried for these species. The requirements greatly expanded funding for studies of lichens and fungi in the Pacific Northwest, with a significant amount of the work occurring at the Forest Sciences Laboratory at OSU, and the mycology lab at the University of Washington.

The program provided for annual updates, and for the creation of the first interagency species information system. Additional information can be found at the Survey and Manage Web Page (<http://www.or.blm.gov/surveyandmanage/>). However, as a result of a timber industry lawsuit, the BLM and USFS initiated an Environmental Impact Statement to evaluate the entire Survey

and Manage Program. The lawsuit required that an overall program be developed rapidly, and the CESU provided the BLM with the ability to get this rapid assessment completed.

Survey and Manage Species Assessment project: The focus of the EIS was an evaluation of the Survey and Manage Species, and an attempt to answer three questions posed by the lawsuit:

1. Did the Survey and Manage Program create a separate (and unlawful) Sensitive Species Program for the BLM and USFS?
2. Did the species on the Survey and Manage represent species that were truly at-risk?
3. Could the BLM and Forest Services' normal sensitive species program adequately address these Survey and Manage species?

...the CESU provided the BLM with the ability to get this rapid assessment completed ...the Oregon Natural Heritage Information Center was given barely 2 months to put together a team of experts to evaluate the status of each of the 312 species throughout their entire global range, as well as in each of the three U.S. States (Washington, Oregon and California) covered by the Forest Plan.

The BLM approached the Institute of Natural Resources and the Oregon Natural Heritage Information Center and requested that the program evaluate the second question for all of the Survey and Manage Species. The lawsuit required that the BLM and USFS develop this information and complete the EIS in less than six months. As a result, the Information Center was given barely 2 months to put together a team of experts to evaluate the status of each of the 312 species throughout their entire global range, as well as in each of the three U.S. States (Washington, Oregon and California) covered by the Forest Plan. The status evaluation required the development of Heritage Global and State Ranks. Each rank was developed by evaluating the species abundance,



***Phaeocollybia gregaria* is an endemic Oregon gilled mushroom thus far verified only from the Cascade Head Experimental Forest (Lincoln County) and a 150year old BLM Reserve Forest near Pedee in near-by Polk County. Photographer Lorelei L. Norvell © 2000**

distribution, vulnerability, threats, and how well it is currently protected.

The INR coordinated the effort, developed ranks for the vascular plants and vertebrate species, and worked with private and OSU scientists, NatureServe, the Washington Natural Heritage Program, and the California Natural Diversity Database to develop standard global and national ranks for all the survey and manage species. These include fungi, lichens, mosses, snails, plants and animals which were considered to

possibly be at risk due to their association with old-growth forests. The results of these assessments are available at http://oregonstate.edu/ornhic/survey_manage.html

Current Status of the Program

The information provided to the BLM and the USFS allowed these agencies to complete their Environmental Impact Statement. Their final Record of Decision was published on March 23, 2004 (http://www.or.blm.gov/nwfpnepa/FSEIS-2004/ROD/SM_ROD-2004FSEIS.pdf). As a result of this decision, the Survey and Manage Program was significantly changed. All of the taxa on the list that ORNHIC characterized as at-risk, or meeting the normal requirements of the BLM and USFS for being included in their sensitive species program, were added to these sensitive species lists. The assessment identified that only 35 of the 312 Survey and Manage taxa are clearly not at risk, barely 10%. The assessment also shows that almost one-third of the species (95 of the 312 taxa) are at-risk throughout their entire range. These species should be, and have been, added to the sensitive species lists of the BLM and USFS and the species not considered to be at risk were removed from consideration.

The final date for the publication of the federal agencies revised sensitive species lists is April 29th, 2004. The revised list will better reflect the survey and manage species that are most in need of attention, and hopefully their sensitive status will allow the agencies to adequately protect their habitat. This will be the first time that the BLM and USFS have included taxa of fungi and lichens on their sensitive species lists; an expansion of the concept of what constitutes a sensitive species. Hopefully, this will provide continued focus of research and conservation on these poorly known but ecologically critical species. Please visit the ONHRC web site for further information. Other data available on the web site includes:

- [List of Experts](#) who ranked and reviewed the Survey and Manage taxa ranks
- Definitions of the [ranks](#) and the detailed [ranking procedure](#) used
- Download PDF reports for all [fungi](#), [lichens](#), [bryophytes](#), [plants](#) and [animals](#)

The Oregon Natural Heritage Information Center (ORNHIC) is part of the Oregon State University [Institute for Natural Resources](#), in the [Research Office](#) of OSU. It's mission is to identify the plant, animal, and ecological community resources of Oregon. As part of the [Natural Heritage Network](#) and [NatureServe](#), the Oregon Natural Heritage Information Center contributes to a better understanding of global biodiversity and provides tools for managers and the public to better protect our vanishing species and communities.

[Denise Lach](#), Co-Director, Center for Water and Environmental Sustainability, is Oregon State University's representative to the PNW CESU. OSU has been involved in many CESU projects totalling over 2.5 million dollars. The majority of that project funding has come from BLM with NPS a close second.

Reporting On PNW CESU Projects What's Required?

Project results should be sent to the PNW CESU office for inclusion on our web site. We need your cooperation in order to collect project information and create an effective on-line project results library. Specific reporting requirements follow:

For projects with agencies *other than* the NPS: Send an electronic abstract of project results to woodmant@u.washington.edu. A short summary of final results/activities is still required even when projects culminate in a training or workshop rather than a final report. Whatever the project activity, we want to know what happened and be able to share that information with our partners. Please forward this material promptly upon project completion.

For NPS projects: Unless otherwise noted, complete copies of all final products must be sent to the CESU office c/o the NPS Research Coordinator for archiving. In addition, three copies of all final deliverables must be sent to the NPS Columbia Cascades Support office. These requirements are clearly outlined in all NPS Task Agreements. In addition, please send a short electronic abstract of results for inclusion on our web site to woodmant@u.washington.edu.



Photo from a University of Idaho/NPS project final report: Bear Element Assessment Focused on Human-Bear Conflicts in Yosemite National Park

Co-Leader's Corner

Fiscal year 2004 promises to bring another increase in project activity. To date, projects have been initiated with USGS, BLM, NPS and hopefully soon the Fish and Wildlife Service and Forest Service. We are very pleased by the diversity of partner institutions and agencies using the CESU agreement in the Pacific West region. A full reporting of this year's projects will be provided at our annual meeting scheduled for November 9-10 2004 at the University of Washington's Center for Urban Horticulture in Seattle. This year's annual meeting will host a symposium on Human Dimensions in Public Land Management as well as a half day executive committee meeting devoted to PNW CESU business.

The symposium is intended to provide our partners with a look at some of the most innovative and successful research and technical assistance projects in the region dealing with public lands and social science/cultural resource issues. Likewise, the goal is to showcase the expertise available at member institutions in these fields. A request for participation will be sent out by the end of June. Please take the opportunity to solicit ideas for participation from other managers and researchers in your organizations. Given the depth of resources and talent available throughout the PNW CESU, we are planning for an exceptional day of presentations and discussion.

On another note, PNW CESU membership continues to grow with the imminent addition of the Natural Resources Conservation Service, soon to become our 8th federal agency. Following up on discussions at last year's annual meeting, we have been exploring the possibility of additional North West Native American groups joining the CESU. It would be a great benefit to our partnership to bring additional Native groups on board who could serve the mission of the CESU. These discussions are in their initial stages but look for action in this area over the next year.

Finally, a consortium of federal land grant University representatives drafted a legislation proposal for \$1.275 million dollars in base funding for the CESU Network. If approved the funds would be distributed evenly between each region totaling roughly \$70,000 in base funding per CESU. This much needed financial assistance would help support the base administrative costs associated with running the PNW CESU office. We will keep all members updated on the appropriations bill as it works its way through the legislature.

Gordon Bradley and Darryll Johnson
PNW CESU Co-leaders

PNW CESU Partners

Federal

US Bureau of Reclamation
US Forest Service (PNW Research Station)
National Park Service
Environmental Protection Agency
Bureau of Land Management
US Geological Survey
US Fish and Wildlife Service

**Contact information for all our
representatives can be found on our
web site: [www.cfr.washington.edu/
research.cesu](http://www.cfr.washington.edu/research.cesu)**

University

University of Washington (host)
Oregon State University
Southern Oregon University
AK Native Science Commission
University of Vermont
Tuskegee University
Heritage College
University of British Columbia
University of Alaska - SE
University of Alaska - Anchorage
Washington State University
Western Washington University
University of Oregon
Alaska Department of Fish and Game
University of Idaho

CESU Program News and Announcements

November 9-10, 2004 PNW CESU Annual Meeting : *Human Dimensions in Public Land Management*

The PNW CESU annual meeting will be held November 9 - 10 at the University of Washington's Center for Urban Horticulture in Seattle. Agenda details forthcoming.

The meeting will provide the opportunity for discussion about research, technical assistance and education needs of member agencies in the realm of Human Dimensions and Public Land Management as well as showcase our university partner's expertise in this area. A full day discussion and project symposium will be followed by a half day executive committee meeting attending to business details of the PNW CESU.

Please consider attending with multiple representative from your agency or institution to engage managers and planners in the discussion. Our goal is to make this a useful and worthwhile exercise for our partners. Please watch for more information about the annual meeting soon.

New CESU 17.5% Indirect Cost Rate now effective

ALL CESU Task Agreements are now subject to the new maximum rate

National Park Service FY 04 Task Agreement and Modification deadline is July 15th, 2004

All Task Agreements and modifications must be reviewed and submitted to the NPS Oakland Contracting office by the July 15th deadline. Please send project modification requests to Linda Whitson(linda_whitson@nps.gov) and new task agreements for review to Darryll Johnson (darryllj@u.washington.edu)

Welcome NRCS

The NRCS (Natural Resources Conservation Service) has petitioned to join the PNW CESU. The process to bring NRCS on board has begun and should be completed over the summer.

Sheryl Kunickis, National Agricultural Research Coordinator for NRCS, is facilitating their membership. Sheryl can be reached at sheryl.kunickis@usda.gov.

PNW CESU Project Activity

New Projects to-date FY 2004

PROJECT NAME	FUNDS	PARTNERS	
•Methow River Tributaries Hydraulic, Geomorphic, and Fisheries Response Study	\$77,970	UID	USGS
•Introduction, Ecological Impacts And Invasiveness Of Non-indigenous Microbial, Plant And Animal Communities In The Pacific Northwest	\$1,017,070	UW	USGS
•Joint Fire Science Project - Fuels Reduction Study under the Cooperative Ecosystems Study Unit (CESU) program	\$134,881	OSU	BLM
•Development of a Training Course for Fire Regime Condition Class (FRCC) Assessment	\$113,794	UID	NPS
•Establishment of the Upper Columbia Basin Network Inventory and Monitoring Program Support Office	\$10,000	UID	NPS
•Support Of The Klamath Network Inventory And Monitoring Program	\$20,125	SOU	NPS
•Evaluation of Genetic Structure Among Black Bear (Ursus americanus) in Kenai Fjords National Park and the Kenai Peninsula, Alaska	\$56,950	UID	NPS
•Aquatic Monitoring of Large Lakes and Rivers--A Conceptual Framework and Process for Making Reasoned Decisions	\$61,734	UW	NPS
•Modeling Distribution of High-Priority Exotic Plant Species	\$27,484	UW	NPS
•Deploy Automated Profiling Vehicle on Crater Lake 2004	\$17,757	OSU	NPS
•Technical Support of the Klamath Network Inventory and Monitoring Program	\$152,950	SOU	NPS
•Parks as Classroom Curriculum Development Partnership-Interdisciplinary Module on Ethno-Geography	\$11,750	UID	NPS
•Identification Of Rare Plant Populations Within Fuel Reduction Areas At Lake Roosevelt National Recreation Area	\$12,000	UID	NPS
•A Science Review Of The Fire Regime Condition Class Concept, Methods And Applications	\$51,069	UID	NPS
•Conservation Treatment Of Museum Objects (Bio Archeological Collection)	\$15,000	UID	NPS
•Assessment Of Coastal Water Resources And Estuarine Conditions In Selected National Parks Of The Pacific Northwest	\$105,663	UW	NPS

PNW CESU Project Activity

New Projects to-date FY 2004

(continued)

PROJECT NAME	FUNDS	PARTNERS	
•Pacific Salmon As Indicators Of Ecosystem Health	\$26,000	UAKSE	NPS
•Assessment Of Coastal Water Resources And Estuarine Conditions In Selected National Parks Of Southeast Alaska	\$69,784	UAKSE	NPS

PENDING PROJECTS

•Salmon River Geo-archaeological Project	\$22,500	OSU	USFS
•Upper Tanana Ethnographic overview And Assessment	\$59,000	ADFG	NPS
•High Resolution Climate Maps For Pacific Islands, 1971-2000	\$50,000	OSU	NPS
•Geographic Information System (GIS) And Spatial Analysis Support For The Klamath Network Inventory And Monitoring Program	\$107,500	SOU	NPS
•Geology Training And Interpretation In National Parks	\$26,200	OSU	NPS
•Architectural Analysis Of The American Camp Duplex Officer's Quarters	xxx	xxx	NPS

TOTALS

New project funds	\$2,282,981
Additional project modification funds	\$553,539
Grand Total FY 04 to-date	\$2,836,511

Visit our web site

www.cfr.washington.edu/research.cesu

Browse the on-line project library, download a project summary form
and find helpful materials for initiating a project through the PNW CESU.

email address: **pnwcesu@u.washington.edu**