



UNIVERSITY *of* WASHINGTON

School of Forest Resources

RESEARCH NEWSLETTER ISSUE TWO, VOLUME 8

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News

OSP has developed new guidelines on closing out awards. The GIM 39 primarily affects close out of federal awards. [GIM 39, Closeout of Sponsored Programs](#), was published and effective May 13, 2011.

OSP began sending e-mail notifications the week of May 16 to PIs with federal awards ending the week of June 27th. The e-mails serve as reminders on the closeout responsibilities for federal funding.

Federal sponsors typically require that all closeout reports be submitted within ninety (90) days after the award end date.

If OSP does not receive a copy of the final technical report by 120 days past the award end date, OSP will not submit new proposals on behalf of the delinquent PI. OSP has implemented GIM 39 to ensure that federal sponsors do not withhold funding or otherwise penalize the University for delinquent final reporting. Please contact the OSP Closeout Specialist at closeout@uw.edu if you have questions on reporting requirements

Opportunities

National Science Foundation

[Earth Sciences: Instrumentation and Facilities](#)

The Instrumentation and Facilities Program in the Division of Earth Sciences (EAR/IF) supports meritorious requests for infrastructure that promotes research and education in areas supported by the division. Planned research uses of requested instruments, software, and facilities must include basic research on Earth processes supported by the division of earth sciences. Support is available through grants or cooperative agreements awarded in response to investigator-initiated proposals. Human resource development and education are expected to be an integral part of all proposals submitted to EAR/IF. The estimated number of awards is 30 to 50. The anticipated funding amount is \$7 million. Please see the full announcement for more information.

Deadline: 2012-07-26

Awards

Application Number: A63895

Faculty Member: David Briggs

Role: Principal Investigator

Title: **Stand Management Coop**

Agency: Green Diamond Resource Company

Period: 1/1/2011 - 12/31/2011

Amount: \$21,590

Supplement and Extension

2011 Stand Management Coop Membership Dues for Green Diamond Resource Co.

Application Number: A64866

Faculty Member: David Briggs

Role: Principal Investigator

Title: **Stand Management Coop**

Agency: Campbell Group, Inc.

Period: 1/1/2011 - 12/31/2011

Amount: \$23,781

Supplement and Extension

2011 Membership dues to Stand Management Coop from Campbell Group.

Application Number: A65453
Faculty Member: David Briggs
Role: Principal Investigator
Title: **Stand Management Coop**
Agency: International Forestry Consultants, Inc.
Period: 1/1/2011 - 12/31/2011
Amount: \$7,234
Supplement and Extension

2011 Membership dues payment to Stand Management Coop from International Forestry Consultants, Inc.

Application Number: A66008
Faculty Member: David Briggs
Role: Principal Investigator
Title: **Bureau of Land Management - Stand Mgt Coop**
Agency: USDI Bureau of Land Management
Period: 1/1/2011 - 12/31/2016
Amount: \$95,982
Non-Competing Renewal

This proposal renews the Bureau of Land Management's membership in the UW Stand Management Cooperative. Per Bureau policy, this will be a five year agreement, 2011-2016.

Application Number: A66362
Faculty Member: David Briggs
Role: Principal Investigator
Title: **Stand Management Coop**
Agency: WA Department of Natural Resources
Period: 1/1/2011 - 12/31/2011
Amount: \$24,581
Non-Competing Renewal

2011 Membership Dues for WA State Dept of Natural Resources to Stand Management Coop.

Application Number: A66495
Faculty Member: David Briggs
Role: Principal Investigator
Title: **Stand Management Coop**

Agency: GMO Renewable Resources, LLC
Period: 1/1/2011 - 12/31/2011
Amount: \$8,352
Supplement and Extension

Payment of 2011 Membership dues to Stand Management Coop from GMO Renewable Resources, LLC

Application Number: A62246
Faculty Member: Sharon Doty
Role: Principal Investigator
Title: **Development of willow transformation protocols**
Agency: Consortium for Plant Biotechnology Research
Period: 6/1/2010 - 12/31/2011
Amount: \$30,000
New

Project goal is to develop efficient transformation protocols for willow. Research team has nearly a dozen willow clones that have exhibited superior performance in the field as well as native willow plants in the Pacific NW. Using plant tissue culture and Agrobacterium-mediated plant transformation methods, project will continue to test various parameters to develop protocols that are the most effective for willow transformation. Particle bombardment will be used to optimize conditions for efficient willow transformation. Project hypothesis is that the reasons for the lack of successful transformation of this genus is that the plants mount a strong defense response against any wounding or auxins and that they regenerate shoots from callus at low frequency. Research team hypothesizes that blocking this necrotic response will result in successful transformation and regeneration of willow plants.

Application Number: A64012
Faculty Member: Richard Gustafson
Role: Principal Investigator
Title: **CORRIM**
Agency: Consortium for Research on Renewable Industrial Materials
Period: 1/1/2009 - 6/15/2011
Amount: \$20,000
Supplement and Extension

Under the supervision of co-PI Richard Gustafson, processing models for biochemical biofuel processing will be developed detailing all the inputs and outputs needed to develop LCI/LCA burdens for the production of ethanol and other co-products sourced by a biomass feedstock of clean hardwood chips with bark in the mix. The LCI/LCA for the feedstock will be provided by other biomass collection

participants under this same master grant so that an integrated cradle to gate LCI/LCA can be developed. There will be collaboration with other institutions on the process model development, including North Carolina State University and Mississippi State University, as well as other CORRIM module participants.

Application Number: A66528

Faculty Member: Soo-Hyung Kim

Faculty Member: Gregory Ettl

Role: Principal Investigator

Role: Co-Investigator

Title: **Modeling forest ecosystem responses to climate change in Korea**

Agency: National Center for Agricultural Meteorology

Period: 3/16/2010 - 2/28/2013

Amount: \$75,000

Non-Competing Supplement

The ongoing global climate change is affecting most terrestrial ecosystems including forest ecosystems. Recent advances in our ability to predict changes in climate at relevant scales offer the opportunity to investigate complex dynamics involving interactions between biotic and abiotic components. While numerous studies have addressed the possible impacts of climate change on forest ecosystems in many parts of the world including United States and Europe, few studies addressed this issue in the East Asia including Korea. Here, we propose to study the impacts of projected regional climate change on forest ecosystems in Korea. The overall objective is to develop a structured modeling framework for assessing how climate change is likely to affect forest ecosystems in Korea through both abiotic and biotic pathways that include pest and pathogen dynamics. We will use pine forests (e.g., Korean pine [*Pinus koraiensis*], Japanese red pine [*Pinus densiflora*], and black pine [*Pinus thunbergii*]) that are particularly sensitive to pest and pathogen pressures (e.g., pine wilt nematode [*Bursaphelenchus xylophilus*], pine needle gall midge [*Thecodiplosis japonensis*]) as a model system to build this framework, with the expectation that our framework can be used subsequently for other key tree species in Korea. We will also develop climate envelope models for select native and introduced maple species to demonstrate and visualize the impacts of climate change on range shift and distribution of these trees in the East Asia including Korea.

Application Number: A60642

Faculty Member: Sarah Reichard

Role: Principal Investigator

Title: **National Arboretum collections**

Agency: USDA

Period: 11/1/2010 - 10/31/2013

Amount: \$7,000

New

Project goal is to collect specimens of horticulturally significant plants in the Pacific Northwest and to provide at least one specimen of each collection to the National Arboretum herbarium. Specimens will be prepared in the standard manner, with detailed information provided on archival quality labels. When possible duplicates will be provided to the National Arboretum for exchange with other herbaria.

Application Number: A64383

Faculty Member: Sarah Reichard

Role: Principal Investigator

Title: **Center for Plant Conservation Department of Defense seed collection 2011**

Agency: Center for Plant Conservation

Period: 2/1/2011 - 12/31/2011

Amount: \$3,520

New

Project goal is to assist the Center for Plant Conservation with collecting and preserving seeds of sensitive plant species on U.S. Department of Defence military bases. The UW's Rare Plant Care and Conservation Program will collect seeds from a *Silene spaldingii* population on Fairchild Air Force Base in Spokane, WA. The seeds will be stored at the USDA-ARS National Center for Genetic Resources Preservation in Ft. Collins, CO and the Miller Seed Vault at the UW Botanic Gardens.

Proposals

Application Number: A66405

Faculty Member: Jonathan Bakker

Role: Principal Investigator

Title: **Regional Native Seed Project**

Agency: The Nature Conservancy

Period: 8/1/2009 - 7/31/2012

Amount: \$15,773

Supplement and Extension

This is the second phase of a multi-year project building on more than a decade of habitat restoration in native westside prairies. It specifically supports and improves the burgeoning native seed development efforts to restore habitat for rare plants and butterfly species in these prairies. It has three components: 1) Seeding technique and rate assessment, 2) Seed production, coordination and development, and 3) Planting technique development for golden paintbrush.

Application Number: A66640

Faculty Member: David Briggs

Role: Principal Investigator
Title: **Stand Management Coop**
Agency: Roseburg Resources Company
Period: 1/1/2011 - 12/31/2011
Amount: \$21,726
Non-Competing Renewal

2011 Membership Dues payment to Stand Management Coop by Roseburg Forest Products

Application Number: A64866
Faculty Member: David Briggs
Role: Principal Investigator
Title: **Stand Management Coop**
Agency: Campbell Group, Inc.
Period: 1/1/2011 - 12/31/2011
Amount: \$23,781
Supplement and Extension

2011 Membership dues to Stand Management Coop from Campbell Group.

Application Number: A66891
Faculty Member: Robert Harrison
Role: Principal Investigator
Title: **Environmental Science 100: A University Course Delivered in Washington State High Schools**
Agency: US EPA Office of Research and Development (ORD)
Period: 9/16/2011 - 9/15/2013
Amount: \$99,999
New

This project addresses the EPA Environmental Priority “Expanding the Conversation on Environmentalism and Working for Environmental Justice.” The five high schools partnering in this project represent a wide range of communities in Washington State, including an independent tribal school, poor rural schools with high percentages of Hispanic immigrants, and urban schools with a high diversity of cultures and spoken languages. These communities may be more impacted by climate change and other environmental issues, and have fewer resources to address environmental challenges. To expand the conversation and solutions to these challenges, these communities must be informed on environmental issues and skilled in critical-thinking and problem-solving. This course will prepare the high school students in these communities to become informed citizens engaged in environmental decisions. For Washington State and the Pacific Northwest region, broader participation is critical in implementing effective solutions to local and regional environmental challenges.

The project centers on two primary goals. First, this project will engage high school teachers and students from diverse communities with environmental science. Through the partnership of UW with high schools, the teaching and learning of environmental science will be established as a relevant and rigorous component of the high school curriculum. Teachers and students will recognize the environmental issues in their community and better understand these issues through the systems approach and critical-thinking skills taught in the course. Second, the project will motivate students to take action and consider programs of study and careers in environmental fields. Students will experience the rigor of a college-level course, reinforcing their confidence in succeeding in higher education. Students will also learn about and apply skills appropriate to environmental programs of study and careers at the UW and in Washington State.

Application Number: A66528

Faculty Member: Soo-Hyung Kim

Faculty Member: Gregory Ettl

Role: Principal Investigator

Role: Co-Investigator

Title: **Modeling forest ecosystem responses to climate change in Korea**

Agency: National Center for Agricultural Meteorology

Period: 3/16/2010 - 2/28/2013

Amount: \$75,000

Non-Competing Supplement

The ongoing global climate change is affecting most terrestrial ecosystems including forest ecosystems. Recent advances in our ability to predict changes in climate at relevant scales offer the opportunity to investigate complex dynamics involving interactions between biotic and abiotic components. While numerous studies have addressed the possible impacts of climate change on forest ecosystems in many parts of the world including United States and Europe, few studies addressed this issue in the East Asia including Korea. Here, we propose to study the impacts of projected regional climate change on forest ecosystems in Korea. The overall objective is to develop a structured modeling framework for assessing how climate change is likely to affect forest ecosystems in Korea through both abiotic and biotic pathways that include pest and pathogen dynamics. We will use pine forests (e.g., Korean pine [*Pinus koraiensis*], Japanese red pine [*Pinus densiflora*], and black pine [*Pinus thunbergii*]) that are particularly sensitive to pest and pathogen pressures (e.g., pine wilt nematode [*Bursaphelenchus xylophilus*], pine needle gall midge [*Thecodiplosis japonensis*]) as a model system to build this framework, with the expectation that our framework can be used subsequently for other key tree species in Korea. We will also develop climate envelope models for select native and introduced maple species to demonstrate and visualize the impacts of climate change on range shift and distribution of these trees in the East Asia including Korea.

Application Number: A67121

Faculty Member: Joshua Lawler

Role: Principal Investigator

Title: **Using Climate Change Vulnerability Assessment Tools to Plan**

Agency: USDI Fish and Wildlife Service

Period: 9/28/2011 - 9/26/2013

Amount: \$93,957

New

The Pacific Northwest Vulnerability Assessment team is producing databases of climate sensitivities for species and habitats, as well as projections of vegetation shifts due to climate change. Case studies have been planned to put these products in the hands of managers but key questions remain on how to best structure them. Our project will build on the existing work of the Vulnerability Assessment to develop and implement up to three case studies in the North Pacific LCC, in order to 1) engage users in the application of climate adaptation tools and obtain feedback on the design and utility of the databases and products, 2) test the application of climate adaptation tools in specific areas with different climate shifts predicted in the future, and 3) test the application of climate adaptation tools across different spatial scales (small to large landscape extents).

For each case study we will work with our partners to produce the following deliverables, in addition to written reports: 1) a Climate Adaptation Plan that identifies its specific objectives and makes management recommendations based on the outcomes of the case study, 2) a list of specific recommendations for refinement of Vulnerability Assessment products and tools, and identify key information needs for the future, and 3) an evaluation of the outcome of the case study.

Application Number: A66467

Faculty Member: Joshua Lawler

Role: Principal Investigator

Title: **Assessing the vulnerability of species and ecosystems to projected future climate change in the Pacific Northwest**

Agency: USDI US Geological Survey

Period: 8/1/2010 - 7/31/2012

Amount: \$136,309

Non-Competing Supplement

To develop effective adaptive management plans, conservation and natural resource managers need to know how climate change will affect the organisms and ecosystems they manage. To meet this need, we will model potential shifts in the distributions of at least 12 focal animal species (chosen in discussions with land managers) and assess the vulnerabilities of species and managed lands to future climate change. We will summarize the projected changes in climate and biota for the entire study region as well as for specific land management units including: national parks, fish and wildlife refuges (both state and federal), and The Nature Conservancy (TNC) owned and managed sites. This research contributes to USGS Science Strategy science directions, "Understanding Ecosystems and Predicting Ecosystem

Change” and “Climate Variability and Change” (USGS Circular 1309) and USGS contributions to the U.S. Climate Change Science Program Strategic Plan Question 8.3 (Product 3) by enhancing our understanding of potential climate-change effects on important ecological systems.

Application Number: A66619
Faculty Member: Joshua Lawler
Role: Principal Investigator
Title: **Climate Wizard Data Analysis, Mapping and Visualization**
Agency: The Nature Conservancy
Period: 4/8/2011 - 12/31/2011
Amount: \$39,881
New

Research ways to improve the Climate Wizard climate change data analysis and visualization tool (<http://ClimateWizard.org>) by: 1) incorporating newly created data sets into the tool; 2) developing additional analytical capabilities for the tool, and 3) improving the computational performance of the tool. Develop guidance and best practices documentation for how to use the tool. Develop training material to help others learn how to use the tool. Create demonstrations analyses showing how the tool can be used for assessing climate change impacts in major watersheds around the world.

Application Number: A66602
Faculty Member: Joshua Lawler
Role: Principal Investigator
Title: **National Return on Conservation Investment Analysis**
Agency: David and Lucile Packard Foundation
Period: 6/1/2011 - 1/31/2013
Amount: \$165,073
New

Much of the world’s biodiversity remains unprotected. Making wise use of limited conservation funds requires an understanding of where the highest return on conservation investments lie. However, to date, decisions on where to invest in land purchases for conserving biodiversity have been primarily driven by our limited knowledge of how species and ecological systems are distributed across the landscape. Only recently, have there been attempts to incorporate land costs and threats to biodiversity into more formal return-on-investment analyses. None of these analyses have incorporated the threat of climate change. Here, we propose to assess the potential return on conservation investment of lands across the United States in the face of threats posed by both climate and land-use change. We will produce maps and datasets that will help guide environmental NGOs, foundations, regional land trusts, and federal agencies in making conservation investment decisions.

Application Number: A66366
Faculty Member: Jim Lutz
Role: Principal Investigator
Title: **Climate Impacts on Burn Severity**
Agency: USDI US Geological Survey
Period: 7/1/2009 - 6/30/2012
Amount: \$85,434
Supplement and Extension

We will use Landsat TM data from 1984 to 2009 to quantify the fire regime in forested areas in and near Yosemite National Park (one Landsat scene). We will compare the satellite measurements of fire severity with existing ground data related to fire effects, and we will validate the spectral signature of burned areas with field measurements. Measurements of burn severity will be correlated with existing climate data (PRISM, NARR, and RAWS). Finally, climate-fire relationships in Yosemite National Park will be compared with similar relationships examined by other project participants in Glacier National Park and Yukon Charley National Reserve for a synthesis of climate-fire relationships in western North America.

Application Number: A67137
Faculty Member: L. Monika Moskal
Role: Principal Investigator
Title: **Spatiotemporal assessment of wetland in the Columbia Plateau**
Agency: USDI Fish and Wildlife Service
Period: 9/28/2011 - 8/28/2012
Amount: \$98,959
New

The project builds and refines local wetland programs guiding the increase and improvement of wetland conditions in the Columbia Plateau based on a monitoring strategy that assesses trends related to improved condition/function, as well as disseminates the use of remotely sensed spatiotemporal indicators from high resolution imagery, LiDAR and satellite data using techniques piloted in Douglas County in partnership with Foster Creek Conservation District. Our approach allows for improved availability, analytical interfaces and fundamental understanding of the causes and effects in the changes of wetlands. We aim to disseminate a protocol and training for this approach that integrates and supports other comprehensive programs for wetland protection and management through outreach efforts including workshops and online access to agencies and groups in the Columbia Plateau region and beyond.

Application Number: A67123

Faculty Member: Daniel Vogt

Role: Principal Investigator

Faculty Member: Kristiina Vogt

Role: Co-Investigator

Title: **Project Integration with the Cultural, Social and Long-term Energy Goals of the Coquille Indian Tribe**

Agency: Coquille Indian Tribe

Period: 9/1/2011 - 8/31/2012

Amount: \$293,434

New

The goal is to provide a platform where indigenous communities can make decisions that maintain the delicate balance between controlling one's own decisions, rooted in Native culture, and have the technological knowledge to prioritize what are appropriate technologies to develop. This proposed project is aimed to strengthen capabilities of CIT community to holistically and economically manage their resources, especially focusing on energy independence or local energy security. An important element of this project is to link the knowledge and decision-processes held by Native American tribes to facilitate this shift towards local energy security. Community level resources (water, sacred sites, sacred foods, herbs, wildlife, etc.) utilization and planning needs to ensure that any energy projects are sustainable at the community levels or it will not be viewed as viable by the tribe. The development of alternative renewable energy supplies (forest waste), derived from local ecological resources cannot be perceived as negatively impacting ecosystem services and tribal values. The development of "community-based renewable energy" would include:

- Define ecosystem characteristics including agro-diversity and biodiversity. Gather baseline data using "participatory" geospatial techniques to analyze the forest and agro-forest ecosystems that comprise the lands of the tribal community and cultural value of these ecosystems.
- Define ecological, water footprint, carbon footprints based on biomass wood waste removal
- Use participatory planning for community based energy planning. Community workshops & training to develop better understanding on biomass energy alternatives.
- Train tribal leaders and designated community members in energy planning and assessment options including a supply chain analysis for the biomass.
- Design and plan the implementation of the appropriate electric co-generation facility given community needs, feedstock, and technological assessments.