



UNIVERSITY *of* WASHINGTON

School of Forest Resources

RESEARCH NEWSLETTER ISSUE TWO, VOLUME 2

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NEWS AND INFORMATION

New Facilities and Administration rates have been announced, following a very protracted negotiation with the Department of Health and Human Services. The agreement is dated November 16, 2010. New rates are applicable from FY 2010 through FY 2014 and are effective immediately. As in the past, there are several categories that do not apply to what SFR does, but please note that there is a new category: "other sponsored activity." This is defined as anything that is not research or teaching. It will apply to things as varied as putting on conferences or analyzing data; it will be utilized for many of the contracts and agreements with state and municipal agencies. The rate is 33.8%. Now that there is a rate for non-research sponsored projects, OSP will probably not be flexible on allowing other rates on these.

Summary of New Rates

On-campus organized research: **54%** (FY 2010-2012) and **54.5%** (FY 2013-2014)

Off-campus organized research: **26%** (FY 2010-2014)

South Lake Union: **66%** (FY 2010); **68%** (FY 2011); **72%** (FY 2012); **73%** (FY 2013); and **74%** (FY 2014)

Applied Physics Lab: **17%** (FY 2010-2014)

Regional Primate Center: A rate = **42%**; A+B rate = **78%**; and A+B+C rate = **83%** (FY 2010-2014)

Vessel: **25%** salary/wage base (FY 2010-2014)

Other sponsored activity (new): **33.8%** on-campus and 26% off-campus (FY 2010-2014)

Instruction: **53.0%** on-campus and **26%** off-campus (FY 2010-2014)

Retroactive Changes for Certain Awards

New externally funded awards made *after* June 30, 2009 at the on-campus provisional F&A rate of 56% will be retroactively adjusted to the new rate of 54% (54.5% in FY 2012 or later). In most cases, the incremental difference in claimed F&A costs between 54% (54.5% in FY 2012 or later) and 56% will be re-budgeted from indirect costs to direct costs. Future expenditures on these awards will be assessed at the new rate of 54% (54.5% in FY 2012 or later). This means that in general the direct costs on projects will increase and the corresponding indirect costs will be decreased. Research Accounting and Analysis and Office of Sponsored Programs will make these adjustments in the coming weeks and will communicate with departments throughout the readjustment process.

Any award made on June 30, 2009 or *before* will remain at the awarded F&A rate. In most cases for on-campus research, that rate is 56%.

GIM 13 Update

Grants Information Memorandum 13 will be updated shortly as will administrative and other institutional systems, such as FAS and SAGE.

CHANGE IN GRANT SUBMISSION DEADLINES

Effective January 2, 2011, OSP will be using new deadlines for submission of sponsored research proposals. This was triggered by a change in how Health And Human Services reviews proposals, but will be applied to all UW grants. The old deadlines were for 10, 5 and 2 days prior to the submission deadline. The 10 day deadline no longer applies; the 5 day has been changed to 7, and the 2 day to 3. The 7 day deadline requires a final of all business documents (budgets, letters of collaboration from outside the University, etc.) and a draft of the Scope of Work ("SOW") However, the SOW must be far enough along to allow for the accurate identification of any potential compliance issues vis-à-vis export controls or the use of humans or animals in the research. The 3 day deadline is actually only pushed back by half a day – presently, the deadline is 12:00 noon 2 days prior to submission, but after the first of the year, it will be 5:00 p.m. 3 days prior to submission.

Non-competitive renewals and supplements will be reviewed and submitted within 5 days of submission of a complete package to OSP. This will be true even if there is a deadline sooner than the 5 days, so we will need to be aware of that when doing the end-of-fiscal-year flurry of proposals.

NO-COST EXTENSIONS ON ARRA AWARDS

If you have an ARRA award that may not be spent out by the end of the award period, we need to check with the sponsor for an extension well in advance – some ARRA funds will not permit NCEs.

OPPORTUNITIES

Program Name: Integrated Assessment of Greenhouse Gases and Climate Impacts

Program URL: <http://www.epa.gov/air/grants/rfp-epa-oar-ccd-10-13.pdf>

Type of Scientists Funded: Junior Faculty, Administrator, Senior Scientist/Faculty

Program Description: This notice announces the availability of funds and solicits proposals to advance comprehensive, integrated modeling and assessment of multiple greenhouse gases and air pollutants, and to also enhance understanding of climate change impacts and their economic implications to assist decision makers and the public to effectively respond to the challenges and opportunities posed by climate change. The total estimated funding for this competitive opportunity is approximately \$2 million. The Environmental Protection Agency anticipates awarding approximately one or three assistance agreements from this announcement. The closing date and time for receipt of proposal submissions, regardless of mode of submission is 7 January 2011.

To allow for efficient management of the competitive process, EPA requests submittal of an informal notice of an Intent to Apply by December 17, 2010 to Lesley Jantarasami at integratedassessmentrfp@epa.gov. Submission of Intent to Apply is optional; it is a process management tool that will allow EPA to better anticipate the total staff time required for efficient review, evaluation, and selection of submitted proposals.

National Science Foundation

[Major Research Instrumentation Program](#) Deadline: January 27, 2011

The Major Research Instrumentation (MRI) program serves to increase access to shared scientific and engineering instruments for research and research training in our nation's institutions of higher education, museums, science centers, and not-for-profit organizations. This program especially seeks to improve the quality and expand the scope of research and research training in science and engineering by providing shared instrumentation that fosters the integration of research and education in research-intensive learning environments. Development and acquisition of research instrumentation for shared inter- and/or intra-organizational use are encouraged, as are development efforts that leverage the strengths of private sector partners to build instrument-development capacity at academic institutions. To accomplish these goals, the MRI program assists with the acquisition or development of shared

research instrumentation that is, in general, too costly and/or not appropriate for support through other National Science Foundation (NSF) programs. Instrument acquisition or development proposals that request funds from NSF in the range \$100,000 to \$4 million will be accepted from all eligible organizations. Proposals that request funds from NSF less than \$100,000 will also be accepted from all eligible organizations for the disciplines of mathematics or social, behavioral, and economic sciences and from non-Ph.D.-granting institutions of higher education for all NSF-supported disciplines. The estimated number of awards is 175. The anticipated total funding amount is \$90 million.

Program Name: Specialty Crop Research Initiative

Program URL: http://www.nifa.usda.gov/funding/rfas/specialty_crop.html

Deadline: January 31, 2011

Program Description: The Specialty Crop Research Initiative (SCRI) was established to solve critical industry issues through research and extension activities. SCRI will give priority to projects that are multistate, multi-institutional, or transdisciplinary; and include explicit mechanisms to communicate results to producers and the public. Projects must address at least one of five focus areas: (1) research in plant breeding, genetics, and genomics to improve crop characteristics; (2) efforts to identify and address threats from pests and diseases, including threats to specialty crop pollinators; (3) efforts to improve production efficiency, productivity, and profitability over the long term; (4) new innovations and technology, including improved mechanization and technologies that delay or inhibit ripening; and (5) methods to prevent, detect, monitor, control, and respond to potential food safety hazards in the production and processing of specialty crops. There is no commitment by the United States Department of Agriculture to fund any particular application or to make a specific number of awards. Approximately \$47.3 million will be available to fund SCRI applications in fiscal year 2011.

AWARDS

Application Number: A59678

Faculty Member: Jonathan Bakker

Role: Principal Investigator

Title: **Fire histories of Turn Point and Kellett Bluff, San Juan Islands, Washington**

Agency: USDI Bureau of Land Management

Period: 10/1/2010 - 9/30/2012

Amount: \$8,000

New

The purpose of this project is to determine the frequency, variability, extent, and seasonality of historic fire activity at two sites in the San Juan Islands that are administered by the Bureau of Land Management. The sites are Turn Point (Stuart Island) and Kellett Bluff (Henry Island). This information

will be incorporated into a forthcoming set of management guidelines for the San Juan management area.

Application Number: A62249

Faculty Member: Jonathan Bakker

Role: Principal Investigator

Title: **Grazing and Afforestation Effects on Understory Community Composition and Diversity in Uruguayan Grasslands**

Agency: Weyerhaeuser Company

Period: 5/1/2009 - 4/30/2012

Amount: \$15,000

Non-Competing Supplement

The landscape of Uruguay is dominated by the South American Campos ecoregion, 85% of which is considered natural grassland and composed primarily of perennial grass and herb species, although shrubs and trees can be sparsely present. The Campos is important for the country's livestock production; currently, it supports 10 million head of cattle and 13 million head of sheep. Although its climate is suitable for forest development, the Campos has not been forested. Grazing is the primary factor maintaining the Campos as grassland, essentially creating an herbaceous pseudoclimax phase. Afforestation efforts began a few decades ago. To date, little research has been conducted on the effects of afforestation or the combined effects of grazing and afforestation on vegetation community dynamics. The objectives of this research are to:

1. Quantify changes in vegetation structure and function associated with afforestation,
 2. Examine community composition and response to management over multiple scales and grazing histories: across regions and between similar sites within regions,
 3. Determine if grasslands are able to re-establish following tree harvest, and
 4. Compare the vegetation responses of Uruguayan and Pacific Northwest grasslands to afforestation and tree harvest.
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Application Number: A59031

Faculty Member: David Briggs

Role: Principal Investigator

Title: **Bureau of Land Management - Stand Mgt Coop**

Agency: USDI Bureau of Land Management

Period: 1/1/2010 - 12/31/2010

Amount: \$80,000

Non-Competing Supplement

Bureau of Land Management membership dues for 2010 in the UW Stand Management Cooperative.

Application Number: A61854
Faculty Member: David Briggs
Role: Principal Investigator
Title: **Bureau of Land Management - Stand Mgt Coop**
Agency: USDI Bureau of Land Management
Period: 10/1/2010 - 9/30/2011
Amount: \$80,000
Supplement and Extension

Bureau of Land Management membership dues for 2011 in the UW Stand Management Cooperative.

Application Number: A61583
Faculty Member: Christian Grue
Role: Principal Investigator
Title: **Biodiversity Inventory Project**
Agency: WA Department of Fish and Wildlife
Period: 9/30/2010 - 6/30/2011
Amount: \$30,000
New

Project goal is to assist the WA Department of Fish and Wildlife development and implementation of the Biodiversity Inventory Project.

Application Number: A61276
Faculty Member: Soo-Hyung Kim Faculty Member: Sarah Reichard
Role: Principal Investigator Role: Co-Investigator
Title: **Climate Change Monitoring Garden at the University of Washington Botanic Gardens**
Agency: Chicago Botanic Garden
Period: 11/1/2009 - 12/31/2012
Amount: \$4,500
Non-Competing Supplement

Informal (free-choice) science education is becoming increasingly important but has been challenged to inspire interest in science, and, subsequently transform this interest into active participation in science-based initiatives. As one of the five pilot sites across the country, the University of Washington Botanic Gardens (UWBG) will partner with the Chicago Botanic Garden (CBG) in establishing a network of climate change monitoring gardens as a platform to engage citizen scientists in informal science education. The aim of climate change monitoring gardens is to provide opportunities for the general public as well as students to discover and understand how their environment, especially plant

communities, is changing relative to climate, while collecting useable data that is of utmost importance to climate change researchers. Specifically, this project aims to introduce the public to the issues of global climate change by integrating exhibits, internet-based interactions, self-driven citizen-science initiatives, and informal, community-based, and youth programs. UWBG will participate in the following activities of the project: 1) establish and maintain an interpretive display garden (“climate change monitoring garden”), 2) involve UW students and local community organizations in plant phenology monitoring, 3) collect and archive plant data on a central server. Kim will lead this effort at UWBG and collaborate with researchers at CBG and other participating botanic gardens on developing proposals for further funding opportunities. Funds from CBG will be used to set up and manage the climate change monitoring garden at UWBG.

Application Number: A59570
Faculty Member: L. Monika Moskal
Role: Principal Investigator
Title: **Tacoma canopy cover assessment**
Agency: WA Department of Natural Resources
Period: 8/1/2010 - 8/1/2011
Amount: \$29,888
New

Project goal is development of a workshop to be held at the University of Washington, Seattle that will provide free guided analytical training to urban foresters, land managers, and city planners in an innovative technique to accurately quantify tree canopy cover using high-resolution aerial imagery and to calculate forest change pattern metrics. The workshop fills a need for city and county personnel in the state of Washington, who may not otherwise be able to afford training in the use of these new technologies to protect natural resources in their communities. Workshop participants will be provided with: 1) multiple dates of preprocessed sample imagery (1990s-2009); 2) an accurate technique for analyzing these data that is repeatable on future dates, other locations, or other datasets (e.g., canopy cover, impervious surfaces, agriculture, land-use land cover LULC); 3) skills in quantifying and assessing the accuracy of the technique; 4) skills in producing and understating landscape metrics for multi-temporal change analysis; and 5) a summary report of their findings. After the workshop, the workshop module (description of method, training exercise, and report template) will be freely available online to the general public. Project will also prepare a comparative report of findings for all communities that participated in the workshop and incorporate revisions to the protocol based on feedback provided by participants; these materials will be available on the project website hosted by the Remote Sensing and Geospatial Analysis Laboratory, a part of the UW School of Forest Resources’ Precision Forestry Cooperative.

Application Number: A54418
Faculty Member: Sergey Rabotyagov Faculty Member: L. Monika Moskal

Role: Principal Investigator

Role: Co-Investigator

Title: **Collaborative Research: Northern Gulf of Mexico Hypoxia and Land Use in the Watershed: Feedback and Scale Interactions**

Agency: National Science Foundation

Period: 7/1/2010 - 6/30/2013

Amount: \$211,935

Resubmission

Oxygen-depleted hypoxic (dead) zones have increased exponentially since the 1960s and now impact over 400 coastal marine systems, with a total combined affected area of 245,000 km² (Diaz and Rosenberg, 2008). Natural processes can result in the development of marine hypoxic zones; however, the formation of many hypoxic zones can be directly linked to anthropogenic influences including riverine transport of nutrients from fertilizer and other sources (Diaz and Rosenberg, 2008). These hypoxic zones can result in greatly stressed marine and estuarine systems, including mass mortality and dramatic changes in the structure of marine communities (Diaz and Rosenberg, 1995).

Since 1985, Rabalais and others have documented the annual extent of the seasonal hypoxic zone that forms in the Northern Gulf of Mexico (Rabalais et al., 2002; Rabalais et al., 2007a; Turner et al., 2008), which is currently the largest in the western Atlantic Ocean (Rabalais et al., 2002). The 2008 Northern Gulf of Mexico hypoxic zone covered 20,720 km², which was the second largest ever recorded (LUMCON, 2008). While much remains unknown, the process has clarified the critical need for models and tools to help direct an adaptive management approach to solving this complex problem.

The recent science assessment of the hypoxic conditions in the Northern Gulf of Mexico (EPA SAB, 2007) suggests that nitrogen (N) and phosphorus (P) loads discharged from the Mississippi-Atchafalaya River Basin (MARB) are the primary cause of the Northern Gulf of Mexico hypoxic zone. The report further states that both N and P will need to be reduced by at least 45% each to achieve a target size of 5,000 km² for the zone and that the Upper Mississippi River Basin (UMRB) and the Ohio River Basin (ORB) are the watersheds that contribute the greatest N and P fluxes to the Gulf.

Previous studies reveal the lack of a total integrated modeling system that interfaces alternative land use and/or management scenarios in key MARB nonpoint source pollution subregions with the Northern Gulf of Mexico hypoxic zone. In this project, we propose the first complete modeling system that links land use decisions made at the field scale in the reaches of the Upper Mississippi, Ohio, and Tennessee Basins through both environmental and hydrologic components to downstream water quality effects and the size of the hypoxic zone in the Gulf. Once completed, this modeling system can be used to analyze detailed policy scenarios identifying the costs, benefits, and ancillary effects on the environment associated with various policy measures including a wide range of mitigation strategies such as those suggested by Mitsch et al. (2001) and Dinnes et al. (2002). It can also be used to investigate the post-World War II period of fertilizer. We further propose to undertake rigorous uncertainty analysis so that degree of certainty associated with the scenarios can be formally considered in policy decisions.

Several fundamental science and integrated modeling challenges will need to be met to accomplish this task: 1) existing land use and watershed models will need to be spatially refined to more accurately depict the range of options available to private landowners, 2) these models will also need to be

extended geographically to cover a larger range of the basin so that all of the highest sources of nutrients can be addressed, 3) improvements to the existing water quality and economic models must be achieved so that the full range of land use options available can be explicitly modeled, 4) explicit linkages must be developed between the upstream hydrologic and water quality model and the hypoxic zone model, and 5) the computational challenges associated with analyzing large amounts of micro-level data and finding least-cost solutions to water quality goals must be met. Our team has the experience and knowledge necessary to accomplish these tasks. Once completed, a unique and powerful set of models will allow policy makers to evaluate a wide range of scenarios.

Proposals

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 - 5/31/2011

Amount: \$30,000

New

Our overall objective is to develop efficient transformation protocols for willow. We have nearly a dozen willow clones that have exhibited superior performance in the field as well as native willow plants in our area. With our experience in plant tissue culture and Agrobacterium-mediated plant transformation methods, we will continue to test various parameters to develop protocols that are the most effective for willow transformation. We will also be using particle bombardment to optimize conditions for efficient willow transformation. The hypothesis being tested in this proposal 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. We hypothesize that blocking this necrotic response will result in successful transformation and regeneration of willow plants.

Application Number: A62320

Faculty Member: Richard Gustafson

Faculty Member: Renata Bura

Role: Principal Investigator

Role: Co-Investigator

Title: **Evaluation of Crumbles Feedstocks for Bioconversion Processes**

Agency: Forest Concepts, LLC

Period: 8/15/2010 - 8/14/2012

Amount: \$80,000

New

Researchers at the University of Washington will explore the potential benefits of rotary sheared Crumbles™ wood particles for bioconversion pretreatment. The reduced particle size and favorable pore orientation of sheared particles should make them easier to fractionate by steam explosion pretreatment. A series of experiments with two Forest Concepts provided feedstocks will be performed at the University of Washington bioconversion laboratory. The efficacy of the pretreatment as a function of feedstock preparation will be assessed. In addition, we will derive bioconversion models that are appropriate for the Crumbles™ feedstock. These models will include modules for the wood processing unit operations as well as modifications to the biorefinery processing conditions that the Crumbles™ wood feedstock material enables. Outputs from the models will be used to calculate processing energy and material demands as well as process economics. These results will provide a definitive measure of the environmental and economic performance associated with use of Crumbles™ feedstock in comparison to when traditional chips are used as raw material sources.

Application Number: A62324

Faculty Member: Richard Gustafson

Role: Principal Investigator

Faculty Member: Bruce Lippke

Role: Co-Investigator

Faculty Member: Elaine Oneil

Role: Co-Investigator

Faculty Member: Renata Bura

Role: Co-Investigator

Title: **Lifecycle analysis of biofuels production from woody biomass**

Agency: Consortium for Research on Renewable Industrial Materials

Period: 9/1/2010 - 3/31/2013

Amount: \$543,713

New

We will combine biomass growth/yield models and engineering process models to characterize the inputs and outputs for specific woody biomass feedstocks and biofuel processing alternatives. Feedstocks of interest include: forest residuals, short rotation woody crops, and biomass from fire risk reduction thinning particularly on federal land. We will develop life cycle inventory data such as total carbon emissions representative of bio processing alternatives and compare the impacts with alternative fuel sources and product uses in order to support the adoption of appropriate policies, and investments to reach energy independence goals, reduce GHG emissions, and effectively use sustainably managed wood resources. We will use the research protocols and LCI/LCA information on the traditional production and uses of woody biomass already developed by the Consortium for Research on Renewable Industrial Materials (CORRIM) for wood products and biofuel produced from mill residuals, and we will develop parallel information for collection of feedstocks and production of biofuels using biochemical and thermochemical process models for prospective processing plants.

Application Number: A61672

Faculty Member: Thomas Hinckley

Role: Principal Investigator

Title: **2011 McIntire Stennis**

Agency: USDA

Period: 10/1/2010 - 9/30/2011

Amount: \$486,601

New

The McIntire-Stennis act of 1962 provides the basis for federal funding in forestry research and graduate education programs at state-certified schools of forestry in the United States. The School of Forest Resources, University of Washington, is eligible for McIntire-Stennis funding. This is a long-standing program, formerly administered by the Cooperative State Research, Education and Extension Service (CSREES); effective 10/1/2009, the program is administered through the National Institute of Food and Agriculture (NIFA). Funds are used to conduct research in areas such as: (1) ecological restoration, (2) catastrophe management, (3) valuing and trading ecological services, (4) energy conservation, biomass and bio-based materials development; and (5) ways of fostering healthy forests and a globally competitive forest resources sector. At the University of Washington research will focus on: Forest management, coarse woody debris, and soil processes, wildlife use of managed forests, modeling branch dynamics in coastal Douglas-fir and western hemlock plantations as affected by silvicultural treatments, understanding the systematics of commercial ornamental plants, and natural stand development in western coniferous forests. A proportion of the funds will be used for program administration.

Application Number: A61276

Faculty Member: Soo-Hyung Kim

Faculty Member: Sarah Reichard

Role: Principal Investigator

Role: Co-Investigator

Title: **Climate Change Monitoring Garden at the University of Washington Botanic Gardens**

Agency: Chicago Botanic Garden

Period: 11/1/2009 - 12/31/2012

Amount: \$4,500

Non-Competing Supplement

Informal (free-choice) science education is becoming increasingly important but has been challenged to inspire interest in science, and, subsequently transform this interest into active participation in science-based initiatives. As one of the five pilot sites across the country, the University of Washington Botanic Gardens (UWBG) will partner with the Chicago Botanic Garden (CBG) in establishing a network of climate change monitoring gardens as a platform to engage citizen scientists in informal science education. The aim of climate change monitoring gardens is to provide opportunities for the general public as well as students to discover and understand how their environment, especially plant communities, is changing relative to climate, while collecting useable data that is of utmost importance to climate change researchers. Specifically, this project aims to introduce the public to the issues of global climate change by integrating exhibits, internet-based interactions, self-driven citizen-science initiatives, and informal, community-based, and youth programs. UWBG will participate in the following

activities of the project: 1) establish and maintain an interpretive display garden (“climate change monitoring garden”), 2) involve UW students and local community organizations in plant phenology monitoring, 3) collect and archive plant data on a central server. Kim will lead this effort at UWBG and collaborate with researchers at CBG and other participating botanic gardens on developing proposals for further funding opportunities. Funds from CBG will be used to set up and manage the climate change monitoring garden at UWBG.

Application Number: A62323

Faculty Member: Larry Mason

Role: Co-Investigator

Title: **Branding Tribal Timber**

Agency: Intertribal Timber Council

Period: 12/21/2009 - 3/31/2011

Amount: \$7,260

Supplement and Extension

A state of emergency exists in many forest-dependent Indian communities. Depressed markets for forest products have resulted in the loss of jobs, revenues to support tribal government, and threaten the health of the forests themselves, jeopardizing the water, fish, wildlife, foods, and medicines that are vital to sustain tribal lifeways. The timber crisis adds to the suffering being experienced in Indian Country during the current economic downturn. Nationwide, tribal economies have a 50% average unemployment rate (BIA Indian Labor Statistics) and tribes with gaming operations have experienced a 20% reduction in revenues.

Low lumber prices challenge Tribal milling and field operations, reduce stumpage revenues and the availability of administrative deductions to fund forestry activities, and jeopardize employment of Tribal members. For timber-dependent tribes, the entire community suffers as jobs and revenues decline and the capacity to maintain healthy forests is compromised. Many Tribal forestry programs produce logs with unique qualities, such as large diameters and tight grain. Tribal resource management is based upon a unique integration of cultural, environmental, and economic values that contribute many public benefits and ecosystem services. However, these important considerations are generally not recognized or rewarded in the marketplace where Indian forest products are sold. Historically Tribal forest products have generally been sold as commodities with little effort to distinguish or differentiate them from similar products that are manufactured by others. At the 2009 Intertribal Timber Council General Members meeting in Lewiston, there was broad support for ITC to work on the concept of developing a tribal branding/marketing strategy to help tribes contend with the hard times confronting the forest products industry.

The objectives of this research project include:

- (1) Identify the tribes interested in participating in a tribal branding program, and develop an inventory of available products (logs, manufactured products, non-timber forest products), processing capabilities, species, locations, etc.
 - (2) Determine the level of market interest in Indian forest products, identify opportunities to distinguish Indian forest products in the marketplace through branding and marketing, describe the features that could add value to tribal wood products, and quantify the magnitude of any potential market premiums.
 - (3) Identify requirements for branding tribal wood products (e.g., product standards & quality assurance controls, reporting), opportunities for regional branding, and alternatives for defraying costs (e.g., use of trademarks, labeling fees).
 - (4) Identify and evaluate alternatives and opportunities for marketing Indian forest products (e.g., individual tribal programs, regional multi-tribal consortia, internet-based matching of buyers and suppliers, fee-based brokerage & sales services), public awareness campaigns to increase market presence and shares, niche markets.
 - (5) Identify and evaluate alternatives for certification (forest and finished products) for Indian forest products, (chain of custody, sustainability for domestic and foreign markets).
 - (6) Identify other opportunities to increase income from Indian forest products and management.
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Application Number: A62956

Faculty Member: Sarah Reichard

Faculty Member: Darlene Zabowski

Role: Principal Investigator

Role: Co-Investigator

Title: **Showy Stickseed (*Hackelia venusta*) Recovery Project**

Agency: USDI Fish and Wildlife Service

Period: 4/1/2011 - 6/30/2012

Amount: \$46,704

New

The objectives of the proposed study are to characterize key aspects of *Hackelia venusta*'s preferred habitat and to develop techniques to successfully establish new populations. The focus of the habitat characterization is to target elements that most directly bear on the management and introduction of this species rather than to conduct an intensive habitat characterization. The resulting benefits include a characterization of the above and below-ground environment that *H. venusta* prefers, an evaluation of the mass wasting potential and risk, an assessment of tree and shrub encroachment into the existing population and recommendations for managing it, and propagation of 200 to 300 plants that are outplanted to three new sites.