

**UNITED STATES DEPARTMENT OF AGRICULTURE**

**FOREST SERVICE**

**Western Wildland Environmental Threat Assessment Center**

**Sponsored by  
National Forest System  
State and Private Forestry  
Research and Development**

**Administered by  
Pacific Northwest Research Station**

**Center Charter**



Recommended 10/14/2004

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Research and Development  
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National Forest System

*/s/ Tom L. Thompson, 12/1/04*

Tom L. Thompson  
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*/s/ Joel D. Holtrop, 12/1/04*

Joel D. Holtrop  
Deputy Chief  
State and Private Forestry

*/s/ Ann Bartuska, 12/1/04*

Ann Bartuska  
Deputy Chief  
Research and Development

**Title: Western Wildland Environmental Threat Assessment Center  
(Research, Development, and Application Program)  
Prineville, Oregon**

**Primary Participating Units:**

USDA Forest Service Research, Pacific Northwest Research Station (Lead)  
USDA Forest Service, State and Private Forestry  
Forest Health Protection  
Fire and Aviation Management  
USDA Forest Service, National Forest System  
Forest and Rangeland Management  
Pacific Northwest Region, Ochoco National Forest

**Responsible Forest Service Organization:**

USDA Forest Service, Pacific Northwest Research Station (PNW)

**Center Location:**

Ochoco National Forest Headquarters,  
Prineville, Oregon

**Center Director:**

Jerome S. Beatty

**Justification**

Wildlands (forest and rangelands) of the western United States are vulnerable to environmental stresses such as fire, insect infestation, epidemics of disease, invasive species, drought, and development. Often times, the disturbances caused by these stresses, alone or in combination, are uncharacteristically severe and result in significant and lasting effects on ecological and socioeconomic values.

The wildlands of the West supply a variety of services such as a consistent supply of high quality water for human consumption (including irrigation and generation of electricity), suitable habitat for both terrestrial and aquatic species, forest products, recreation, and grazing.

Currently, prediction, detection, and assessment of the impact of environmental stresses is piecemeal. There is a need to develop integrated approaches to deal with the interaction of the multiple stresses that may affect wildlands so that land managers may anticipate disturbances and take action to prevent or ameliorate the effects.

In late 2003, Representative Greg Walden and Senator Ron Wyden of Oregon brought this to the attention of Congress, the Department of Agriculture, and the Forest Service. They sought to establish a center that would “*carry out a program using geospatial and information management technologies (including remote sensing imaging and decision support systems) to inventory, monitor, characterize, assess, and identify forest stands and potential forest stands...*” on both federal and private lands to address the issues of early detection, identification, and assessment of multiple environmental threats such as insect, disease, invasive species, fire, loss or degradation of forests, and weather-related risks and other episodic events.

They further suggested that:

*In carrying out the program, the Secretary shall develop a comprehensive early warning system for potential catastrophic environmental threats to forests to increase the likelihood that forest managers will be able to--*

- isolate and treat a threat before the threat gets out of control; and*
- prevent epidemics...that could be environmentally and economically devastating to forests.*

This Charter, and the Center established through it, responds to the needs identified by the legislators, Secretary, and the Chief of the Forest Service. The Charter expands the focus beyond forested lands to all wildlands, including rangelands, because over much of the west they are intermixed. That intermixing, and the associated interactions between vegetation types, is critical to the function of many ecosystems and determines the ultimate response to environmental stress.

To fulfill the needs identified above, a Research, Development, and Application Center is established through this Charter. The activities and products of the Center will serve the needs of land managers in the Forest Service, Bureau of Land Management, National Park Service, Tribes, state agencies, industry, and the public at large. In addition, the activities of the Center will support the development of science-based policy to protect wildlands in the West from severe biotic and abiotic disturbances.

## **Mission, Goals, and Objectives**

*Mission.* The mission of the Western Wildland Environmental Threat Assessment Center is to generate and integrate knowledge and information to provide credible prediction, early detection, and quantitative assessment of environmental threats in the western United States..

*Goal.* The goal of the Center is to support effective policy for and management of potential and existing environmental threats to western wildlands with the desired outcomes of:

- reduced likelihood of severe disturbances through better informed management strategies;
- amelioration of the effects of disturbances on the multiple values associated with forests and rangelands;
- improved efficiency and access to information through a centralized source;
- improved tracking of changes in hazard, risk, and consequences of disturbances over time and space; and
- funding strategies and prioritizations based on better informed management decisions.

*Objectives.* The objectives of Center efforts are to:

- Evaluate the effects and consequences of multiple interacting stresses on western wildland health;
- Increase knowledge and understanding of the risks, uncertainties, and/or benefits of multiple environmental stresses on western ecological conditions and socioeconomic values;
- Provide science-based decision support tools for policy formulation and land management in the western United States; and
- Provide land managers with credible predictions of potential severe disturbance in the west with sufficient warning to take preventative actions.

## **Resume of Work to Meet Objectives**

The primary focus of the Center is to deliver threat assessment products for the western United States at multiple spatial and temporal scales in a variety of formats that include, but are not limited to:

- syntheses of existing knowledge and ongoing efforts to forecast the timing, potential extent, and severity of environmental threats;
- identification of gaps in knowledge related to assessing cumulative risk of multiple interacting disturbances;
- quantification and analysis of the cumulative risk from multiple interacting threats using probabilistic models to predict, with estimates of uncertainty, the likelihood of severe or uncharacteristic disturbances;
- assessments of the range of potential ecologic and socioeconomic consequences of severe or uncharacteristic disturbances; and
- delivery of Center products through a variety of user-friendly technology transfer mechanisms useful to land managers including narrative analysis, summaries, graphics, and maps in sufficient lead time for agencies to take preventive actions.

## **Schedule of Accomplishments**

### **Year 1**

- Gain Washington Office (WO) approval for the Center Charter
- Establish an organizational and support infrastructure with WO, PNW and Region 6, including fiscal support
- Recruit and Hire the Center Director
- Establish an agency oversight group
- Establish cooperative intra-agency relationships among western Forest Service regions and research stations
- Augment and refine the Charter with specific integrated western threat priorities to be addressed during first 5 years
- Develop detailed staffing, equipment and facilities, operational, budget, and technical study plans for pursuit of Center work focusing on those priorities
- Staff and equip the center

## Year 2

- Compile, synthesize, and publish existing approaches for prediction, detection and assessment of western environmental threats, both individually and in integrated fashion; identify gaps in knowledge and/or analytical protocols
- Initiate research and development on new or refined detection and ecological and or socioeconomic impact assessment protocols and systems that address multiple, interacting threats to western wildlands
- Initiate research on probabilistic modeling of risks of priority, integrated environmental threats
- Initiate data collection and coordination and database construction (including strategies to acquire missing data) to support prediction, detection and assessment efforts in the west
- In cooperation with partners, develop a technology and information transfer program for dissemination of Center products to western land managers, policy-makers and other clientele in an accessible, user-friendly fashion

## Year 3

- Produce, publish, and disseminate first generation probabilistic risk assessment models and model outputs (products) for integrated priority threats to western wildlands
- Integrate risk assessment models with early detection and ecologic and or socioeconomic impact protocols to develop (and publish) first generation decision support systems and tools for western land managers and policy-makers
- Implement ongoing technology and information transfer program to distribute Center products to western land managers, policy-makers and other clientele in an understandable and usable fashion
- Continue development of probabilistic models
- Continue data collection and database development

## Year 4

- Evaluate and refine first generation prediction, detection and assessment models, protocols and systems
- Continue development of probabilistic models
- Continue data collection and database development

## Year 5

- Produce, publish, and disseminate second generation prediction, detection and assessment products addressing integrated priority threats to western wildlands
- Continue development of probabilistic models
- Continue data collection and database development
- Evaluate overall Center performance and impact through the first five years
- If Center has succeeded, review, revise, and extend the Charter; develop of priorities and plans for subsequent years

### **Environmental Analysis.**

Research and development activities to be conducted under this Charter are covered either by categorical exclusion or as the responsibility of the land owner/manager on whose land the work will be conducted.

### **Center Organization, Staffing, and Oversight**

The center will be administratively housed in the USDA Forest Service Pacific Northwest Research Station (PNW) and co-located with the headquarters of the Ochoco National Forest.

*Staffing.* The Center will be staffed with a Director, responsible for overall operations, coordination, client development, stakeholder interactions, and product delivery. The Director will report to the PNW Station Director. The position requires substantial and demonstrated leadership and administrative capability, excellent communication skills, and a thorough understanding of forest dynamics relative to natural resource management.

The Director will supervise and work with a Forest Service staff with expertise in one or more fields such as forestry, ecology, entomology, plant pathology, statistics/modeling, social science, decision science, or climatology. Staff will be responsible for a major focus of the center. For instance, one might lead an effort in risk modeling while another focused on remote sensing, mapping, and scaling. Skills in areas such as GIS, computer programming, remote sensing, decision support systems, and monitoring and survey will probably be needed. Specific personnel needs will be developed by the Director as study plans to implement this Charter are developed.

Every reasonable means to communicate the credible early prediction, detection, and assessment of environmental threats to western wildlands will be used to make the Center's products useful. Products, and their delivery, must be emphasized and will likely require special attention and staff skills. Delivery

systems, at a minimum, will include: user-friendly web sites where clients can search databases, maps, publications, and brochures; presentations; and workshops for land managers and/or policy developers. The Center will actively pursue innovative methods of technology transfer.

*Oversight and Client Service.* This Charter will be approved by the three Deputy areas involved in funding the Center – National Forest System, State and Private Forestry, and Research and Development. Following charter approval, the Center operations will be reviewed at least annually in its first five years of operation by an Oversight Committee. This Committee will be chaired by the Director of the PNW, and comprised of representatives of the three Deputy areas and the Supervisor of the Ochoco National Forest. The Oversight Committee will work with the Center Director and staff to assure that the Center produces high-quality credible products that are sought out and used by clients; is effective in partnering with government agencies, Tribes, states, universities, and non-governmental organizations; and remains responsive to the various user groups.

### **General Assignments and Locations of Participating Units:**

The Center is a unit of the Pacific Northwest Research Station. Administrative support will be provided by PNW-4362 (Ecosystem Processes Program) and through shared service arrangements with the Ochoco National Forest where appropriate.

### **Funding**

The Center is initially funded at a level of \$2.4 million per year, contributed in equal shares by the National Forest System, State and Private Forestry, and Research and Development. The Center staff will seek additional funding and partnerships, as appropriate, to support and expand the activities of the Center.

### **Facilities and Equipment**

The center will be co-located in the Forest Supervisor's office of the Ochoco National Forest in Prineville, Oregon. There is sufficient office space to accommodate proposed personnel, equipment and a conference room. Equipment needs, although not specifically identified at this time, will likely include multiple workstations with data management and large storage capacity, a state-of-the-art GIS facility, high bandwidth internet services, and access to remote sensing data.

### **Cooperation**

Potential interactions range from maintaining ongoing discussions, seeking advice on possible RD&A projects, and joint activities. There are many ways for the Center to interact directly with partners, the most obvious being to undertake joint projects through interagency agreements, research joint ventures, cooperative agreements, and grants. In addition, possibilities such as fellowship programs, post-doctoral appointments, and sabbatical opportunities could leverage the Center's funding, provide unique RD&A experiences for scientists and managers (regardless of employer) and assure a continual flow of fresh ideas through the organization.