

# Cohesive Approach for Invasive Species Management in the Northeastern U.S.


USDA Forest Service  
March 2007



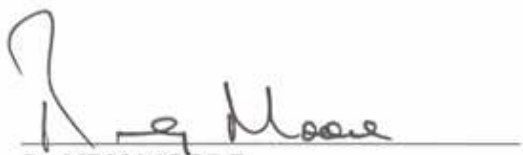
# Cohesive Approach for Invasive Species Management in the Northeastern U.S.

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## Executive Summary

This document outlines a coordinated approach to implement the Forest Service *National Strategy and Implementation Plan for Invasive Species* in the 20 states bounded by Minnesota, Maine, West Virginia,

the Northeast, the Forest Service *National Strategy and Implementation Plan for Invasive Species* in the Northeast. The Northeast refers to Virginia, and Missouri.



The development of this document was supported by State and Private Forestry, the Acting Director of Eastern Regional (R9) Forester of the National Forest System (NA memo 1310/1900/2070/2080 of January 13, 2006).

the Director of Northeastern Area (NA) the Northern Research Station (NRS) and the Forest System (NA memo 1310/1900/2070/2080

Each administrative branch of the Forest Service in distinct skills, resources, partnerships and authorities. Additionally, each branch has ongoing acts and supporting documents. Coordinated activities are informal or impromptu basis.

the northeastern US (R9, NA, NRS) has the ability to bring to bear on the issue of invasive species activities guided by previous planning efforts are common, but these often occur on an

To achieve national goals for addressing non-native coordinated actions among the Forest Service branches recognizing a Regional Invasive Species Issue Team

invasive species through sustained, efforts, this document recommends officially (RISIT) and oversight structure that will:

- Facilitate collaboration to address invasive species,
- Capitalize on the diverse program capabilities and authorities of the National Forest System, S&PF, and Research and Development,
- Convert discussions into targeted action plans, and
- Ensure leadership oversight.

authorities of the National Forest

## Introduction

The areas served by the Eastern Region of the National Station and Northeastern State and Private Forestry the Nation's forestlands, and is home to over 43 percent of the Nation's forests is predominantly (73%) in water-rich portions of the country. These forests are valued for goods (e.g., timber and non-timber wildlife habitat, recreation, and quality of life) and that they provide. Invasive species represent a serious threat to the integrity of these systems.

al Forest System, the Northern Research spanstwentystates, supports 25 percent of percent of the nation's population. This quarter on-federal ownership and is one of the most and watershed support local economies and forest products) and services (clean water, that they provide. Invasive species represent a

An *invasive species* is defined as a plant, animal, or microbe, including its seeds, eggs, spores or other biological material that is non-native to the ecosystem under consideration and whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health (Executive Order 11312).

The northeastern U.S. is host to a number of invasive species. Exotic insect infestations of national concern include: *Gypsymoth*, *hemlock woolly adelgid*, *Asian longhorned beetle*, *emerald ash borer*, and *Sirex noctilio*. Some of the invasive plant species of greatest concern include *purple loosestrife*, *garlic mustard*, *Japanese barberry*, *kudzu*, *spotted knapweed*, *buckthorn*, *leafy spurge*, and *Japanese stiltgrass*. Important exotic pathogens include *oak wilt*, *Dutch elm disease*, *butternut canker*, *beech bark disease*, and *white pine blister rust*. Aquatic infestations include species such as *zebra mussels*, *rusty crayfish*, *spiny water flea*, *European water milfoil*, and *non-native fish*, including four species of *Asian carp*. Invasive animals such as feral hogs are also of concern in the east. Addressing invasive species is within the mission of the USDA Forest Service:

***“The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations” (Forest Service Strategic Plan for Fiscal Years 2004-2008).***

Three Forest Service administrative units have responsibilities in the northeastern United States.

***The Eastern Region’s National Forests*** provide leadership, coordination, strategic planning, and monitoring for management of 15 national forests/prairies totaling more than 12 million acres. National Forest Management authorities, policies and objectives relevant to invasive species management include: Protecting and managing the National Forests and Grasslands so they best demonstrate the sustainable multiple-use management concept while advocating a conservation ethic in promoting the health, productivity, diversity, and beauty of forests and associated lands. (FSM 1020, FSM 2080)

***The Northern Research Station*** develops and disseminates scientific knowledge and tools for the sustainable management of forests. Forest Service Research authorities, policies, and objectives relevant to invasive species management include: Discover or develop principles necessary for sustainable management of forests, rangelands, and grasslands, and the use and protection of products, amenities, and values derived from these lands. (FSM 4020)

**The Northeastern Area for State and Private Forestry** provides all federal agencies, tribal lands, and state and local governments with technical and financial assistance in support of sustainable forest management and use within the 20 northeastern states and the District of Columbia. Forest Service State and Private Forestry authorities, policies, and objectives relevant to invasive species management include: To provide national leadership and technical and financial assistance to State organizations, forest landowners, operators and processors of forest products, urban forestry interests, and others to: Protect and improve the quality of air, water, soil, open space, and the environment (FSM3010).

Each of these Forest Service units has distinct skills, resources, partnerships, and authorities to bring to bear on the issue of invasive species. The purpose of this document is to define a structure and process by which each administrative unit can: share their respective distinct values, highlight the existing efforts of each unit, and increase coordinated efforts for Forest Service actions addressing the invasive species issues of the northeastern United States.

## Administrative Foundation

A number of laws, regulations, and policies relate to invasive species management. They can be found on the federal invasive species website along with associated links at: <http://www.invasivespeciesinfo.gov/laws/main.html>

The Forest Service Strategic Plan for Fiscal Years 2004-2008 identified six goals to support the Forest Service mission. Goal Two specifically relates to invasive species:

***“Reduce the impacts from invasive species: restore the health of the Nation’s forests and grasslands to be resilient to the effects of invasive insects, pathogens, plants, and pests.”***

To accomplish this goal the Forest Service proposes to:

- Implement and support actions to detect and monitor both established populations and new introductions of invasive plants,
- Manage populations of established invasive species using prevention, suppression, and restoration tactics to reduce impacts and restore ecosystems,
- Involve partners in developing an nationally consistent risk-modeling approach that enhances using risk maps at national, state, regional, and local scales,
- Implement risk-based detection surveys to identify forest vulnerability to invasive species based on availability of susceptible hosts, suitable environmental conditions for invasion, and likely movement pathways of invasive species,
- Cooperate with other Federal, State, tribal, and non-governmental partners in conservation education efforts that increase public awareness of invasive species and encourages support and participation in management actions.

As further guidance, in 2004 the Forest Service developed the National Strategy and Implementation Plan for Invasive Species Management.

Earlier but separate Forest Service documents that addressed invasive species include the North Central and Northeast Research Stations and Northeastern Area State and Private Forestry Exotic Invasive Species Strategic Plan (January 2000), the Eastern Region Non-native Invasive Species (NNIS) Framework (2003), the Eastern Region Aquatic Invasive Species Program of Work (2005), and the Eastern Region Native Plant Framework (2004). All of these documents acknowledge the importance of a coordinated effort to deal with invasive species, but none of these documents describe a way to help make this happen.

Under the leadership and direction of the Washington Office, all regions (as organized by NFS) have been directed to establish Regional Invasive Species Issue Teams (RISIT) involving all three Forest Service administrative units. The purpose of the RISIT is to facilitate communication about plans, activities, and accomplishments that deal with invasive species. Awareness about the existence of the RISIT has been limited to date. Many RISIT members have been self-nominated. Beyond communication, expectations of the RISIT have been limited.

## **Overview of Major Current Activities by Administrative Unit**

### **Eastern Region National Forest System Non-native Invasive Species Activities :**

The Eastern Region's (R9) Invasive Species Program has been active since the 1970's with initial emphasis on noxious weeds found on rangelands in the western U.S. Invasive plant species of greatest concern in the east include purple loosestrife, garlic mustard, Japanese barberry, kudzu, spotted knapweed, buckthorn, leafy spurge, and Japanese stiltgrass. Accurate infested acreage figures are just beginning to emerge on the R9 Forests/Prairies that have completed their initial inventories and entered into the corporate NRIS databases. Treatment of non-native invasive plants has increased six-fold in the last decade, with approximately 5600 acres treated in 2006. Treatment acres are expected to increase exponentially as additional forests complete NEPA documents for integrated pest management, additional partnerships, and cooperative weed management areas emerge with continued emphasis on integrated programs to achieve restoration goals.

Emerald ash borer, gypsy moth, hemlock woolly adelgid, oak wilt, and other forest pests are managed with technical assistance and treatment recommendations from State and Private Forestry.

The Eastern Region has been active in The Great Lakes Regional Collaboration Initiative, an outcome of Executive Order 13340 (2004). The initiative, supported by the Great Lakes governors, mayors and tribal authorities addressed issues related to terrestrial habitat-species and aquatic invasive species. Aquatic and terrestrial animal acreage estimates are not available at this time although zebra mussels, rusty crayfish, spiny water flea, Eurasian water milfoil, non-native fish, including four species of Asian carp, and exotic earthworms are of particular concern. An Aquatic Invasive Species Program of Work was implemented in FY05-06 focusing on education and outreach related to water based recreational activities highlighted in the Great Lakes Regional Collaboration Strategy.

The R9 Non-native Invasive Species Framework encourages integrated budgets and programs and has resulted in increased opportunities since inception. Partnerships with local agencies and organizations have expanded. Training has been provided on non-native invasive species management, native plant restoration, Aquatic Organism Passage, Cooperative Weed Management Area, and NRIS Inventory. Collaboration between National Forest Systems, State and Private Forestry and Research has increased.

The Region helped establish the Midwest Invasive Plant Network through a partnership with The Nature Conservancy and has represented the agency with the Midwest Natural Resources Group, which represents senior leaders of federal agencies in the Midwest and includes a terrestrial invasive species team. Acre treatments have increased and numerous communication tools such as field guides, non-native invasive species learning kits and displays, online templates for local brochures, signs, and web pages have been developed since the framework's release.

National Forests/Prairies focus for future years includes continued emphasis on interdisciplinary prevention measures, completion of initial inventoried acres and NEPA to facilitate increased treatment acres. With the intermixed ownership in the east, partnerships and Cooperative Weed Management Areas, or similar efforts, are essential.

The Region has been the recipient of Native Plant landmarks and has initiated projects on nine of sixteen National Forests/Prairies to implement its Native Plant Framework (2004).

### **Northern Research Station Invasive Species Activities:**

The Northern Research Station was formed through the merger of the Northeastern Research Station and the North Central Research Station. Six research work units have primary responsibility for the study of invasive species, but more than 13 research work units contribute to the study of a diversity of exotic insects, diseases, pathogens, weeds, and vertebrates from basic biology, to control methods, to economic and social impacts. Studies are conducted by research scientists including biologists, ecologists, entomologists, plant pathologists, social scientists, and botanists. Research focuses primarily on exotic insect and diseases, though invasive weeds are commanding more attention.

Notable subjects of research include, but are not limited to, Asian longhorned beetle, buckthorn, butternut canker, emerald ash borer, exotic *Phytophthora* spp. (including the causal agent of sudden oak death), Dutch elm disease, exotic bark beetles, gypsy moth, hemlock woolly adelgid, honeysuckle, oak leaf scorch, oak wilt, Sclerotinia canker, tree of heaven, and Japanese stiltgrass. With respect to invasive species, the mission of the Northern Research Station is to provide new scientific and technical knowledge on pathways, life histories, impacts, and management of invasive pests to improve and sustain the health, diversity, and productivity of forests and grasslands in the northern and neighboring regions of the United States.

NRS collaborates with the National Invasive Species Council, USDA Animal and Plant Health Inspection Service, USDA Agricultural Research Service, USDA Forest Service, USDIBureau of Land Management, USDINational Park Service, Oak Ridge National Laboratory, The Nature



Conservancy, state departments of natural resources, state departments of agriculture, universities (domestic and international), private companies, and international research partners.

A 10-year plan, entitled “A Charter for Exotic Invasive Species Research and Development in the Northern Research Station,” has been drafted and is being refined. This plan strives to achieve five outcomes:

1. Regulatory officials and natural resource managers use models and data from NRSto assess risks posed by new species or pathways and apply effective measures to prevent pest invasion.
2. Natural resource managers apply predictive models from NRSto identify high-risk areas for pest surveys and detect newly invading species with a desired degree of confidence. New methods and technologies from NRS quickly delimit the extent of the infestation and enable eradication of the population.
3. Natural resource managers use refined, integrated control methods, designed by NRSto suppress pest densities only when forest resources are truly at risk.
4. Natural resource managers use appropriate species and improved germplasm selected by NRSto restore desired structure and function to ecosystems.
5. Natural resource managers and policymakers use economic models and a heightened understanding of the social and economic dimensions of pest invasion to protect forests and grasslands by efficiently allocating resources between prediction-and-prevention, early-detection-and-rapid-response, and management-and-mitigation activities.

### **State and Private Forestry Invasive Species Activities:**

The State and Private Forestry (S&PF) branch of the Forest Service is a federal leader in stewardship of the Nation’s forests and trees. In this role, State and Private Forestry brings a broad range of technical and financial assistance and expertise to a wide spectrum of partners—including state forestry and agriculture agencies, federal agencies, tribes, local governments, nonprofit organizations, and landowners.

Within S&PF, Forest Health Protection (FHP) serves a primary role in addressing invasive species particularly insects, diseases, and invasive plants. FHP is support expertise in both forest entomology and pathology. Activities include survey and technical assistance, information transfer, technology development, and prevention, suppression and restoration treatments. Presently, about 80 percent of the forest health staff time and resources address established exotics and new introductions. A few of these include: gypsy moth; emerald ash borer; Asian longhorned beetle; Sirex wood wasp; sudden oak death; hemlock woolly adelgid; Dutch elm disease; beech bark disease; and white pine needle rust. The authorities within the S&PF FHP program provide for the following activities:

- Survey, detect, monitor, suppress, and recommend management alternatives to National Forests, other federal and tribal land-managers on insects, diseases and general forest health conditions,
- Provide pesticide coordination, training, and support for NEPA development for Forest Plan revision and project implementation to National Forests and others,





and with other state and federal partners (e.g., US Forest Service, US Fish and Wildlife Service, etc.), coordination frequently occurs on an informal basis.

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Respective leadership from the different branches of the Forest Service should remain involved with the coordinated direction of invasive species programs. Not all activities dealing with invasive species necessarily need to be coordinated. Leadership should be aware of planned and ongoing activities dealing with invasive species among the different branches of the Forest Service. When leadership agrees that greater coordination would be mutually beneficial, leadership should review, approve, and oversee the implementation of the proposed activities. 'Invasive species' should be a standing agenda item on regional leadership team meetings. Furthermore, leadership should have an opportunity to review current or revised communication structures to ensure that goals are being achieved.

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**Structure to achieve action:** The Executive Leadership of R9, NA, and NRS appoint a Regional Invasive Species Issues Team (RISIT). Team sizes should be kept to the minimum necessary to provide programmatic and technical expertise to strategically address all invasive taxa (insects, diseases, plants, aquatics, and terrestrial).

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Recommended initial members of the Northeast Region include:

al Invasive Species Issues Team (RISIT)

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#### R9

- Tommy Parker – Regional TES Biologist
- Nick Schmal – Regional Aquatic Ecologist
- Jan Schultz – Regional Botanist and Invasive Species Program Manager

#### NA

- Mike Connor\* – Entomologist
- Michelle Frank – Invasive Plants & Pesticides
- Joe O'Brien – Pathology
- Noel Schneeberger – Entomologist

#### NRS

- Jim Slavicek – Research Biologist
- Cindy Huebner\* – Research Botanist
- Jennifer Juzwik – Research Plant Pathologist
- Therese Poland – Research Entomologist
- Rob Venette\* – Research Biologist

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\*Indicates transition member to provide continuity between the development and implementation of this process.

**RISIT Charter:** The team's charter is to identify opportunities to collaborate on invasive species survey and detection, prevention, monitoring, education and outreach. The team will convene bi-annually to review ongoing invasive species activities and identify areas where greater cooperation and coordination would increase achievement of Forest Service strategic goals for

collaborate on invasive g, and control efforts, restoration, and nually to review ongoing invasive species tion and coordination would increase nvasive species. Where opportunities exist for

greater cooperation, the team will be responsible for the production of a brief (approx. 2 page) implementation plan. The implementation plan will describe the issue, outline roles and responsibilities, describe resources to be leveraged (e.g., existing data, field locations, personnel effort), identify anticipated outputs, describe anticipated outcomes, and provide a project timeline. The plan will also document pivotal technical experts (within Forest Service or stakeholder groups) who contributed to the development of the plan and who would be necessary in implementation activities. RISIT members will participate on all National Invasive Species Issues Teams coordinated by the Washington Office. (Northeast RISIT members would be asked to serve on the team for no more than 3 years.)

Oversight of RISIT activities will be the responsibility of Program Leadership within the respective branches. These responsibilities fall within the positions of:

- Jerry Boughton, State and Private-Assistant Director NA, Forest Health Programs,
- Nancy Berlin, National Forest Systems-Deputy Director Renewable Resources,
- James Gooder, Research-Assistant Director for Research.

This group will provide oversight to the Regional Invasive Species Issue Team, and briefings to executive leadership. Briefings of Executive leadership and review of action plan accomplishment shall occur at least annually. The organizational changes, focusing out-year resource management are within this group's responsibility. Program Leadership is encouraged to participate in all RISIT meetings.

Effective use of this Invasive Species organizational structure will require the full support of Eastern Region, Northern Station, and Northeastern Area Executive Leadership Teams. This Invasive Species organizational structure shall be assessed for effectiveness after the first year. Thereafter, it will be assessed for effectiveness and continuation by Executive Leadership every two years.

**Next steps (building on success)**: In June 2006, the Forest Service convened a national conference to address the problem of invasive species and discuss regional plans to implement the *National Strategy and Implementation Plan for Invasive Species Management*.

Many representatives from R9, NA, and NRS attended this meeting and recommended several areas for greater collaboration (Appendix A). The RISIT will provide coordination and oversight of specific, appropriate activities to address the recommendations.

**Appendix A: Action Items Identified at the Forest Service National Invasive Species Conference (June 2006)**<sup>1</sup>--Action items were identified according to the primary elements of the National Strategy and Implementation Plan for Invasive Species Management (2004). Although 38 action items were discussed, 15 items were identified as most critical, and are ranked as follows from most to least critical within each program element.

**Topic overarching all program elements**

1. Use RISIT to facilitate communication and identify specific list of people that will share information (leads: NFS, NRS, S&PF).
2. Develop websites or other infrastructure to better link the three branches, allowing organized access to existing and new products, tools, information on biology and management of invasive species (leads: NFS, NRS, S&PF).
3. Place invasive species issues as regular agenda item at Regional and combined Eastern leadership team meetings (leads: NFS, NRS, S&PF).

**Prediction and Prevention**

1. Produce pest risk assessments that are centralized, timely and anticipatory (leads: NRS, S&PF).
2. Develop voluntary codes of conduct to provide best management practices for nursery, gardeners, retailers, urban foresters - tied to the St. Louis Codes of Conduct (leads: NFS, NRS, S&PF).
3. Develop and enforce rules governing aquatic and terrestrial equipment cleaning and weed free forage. Where feasible, make these rules mandatory (lead: NFS).

**Early Detection and Rapid Response**

1. Provide training and technology transfer for other staff (all resource areas) on non-native invasive species identification, prevention, and control (leads: NFS, NRS, S&PF).
2. Develop new tools and technology for better detection of and response to new invading species (leads: NFS, NRS, S&PF).
3. Develop and implement strategy to enlist public for detection and identification of new pests and explain why quarantined items should not be moved (leads: NFS, NRS, S&PF).

**Manage and Mitigate**

1. Develop standard templates for Environmental Assessments and Environmental Impact Statements across taxa (leads: NFS, S&PF, NRS).
2. Provide additional Cooperative-Weed-Management-Area training sessions (leads: NFS, S&PF).
3. Encourage across ownership emergency response plan development (leads: NFS, S&PF, NRS).

**Restore and Rehabilitate**

1. Develop resistant stocks/genetic resources, seed sources, native species and describe available resources in a common database (leads: NFS, S&PF, NRS).
2. Describe Best Management Practices for non-native invasive species control projects (leads: NFS, S&PF, NRS).
3. Provide updated, standardized guidelines for monitoring site restoration at local and regional scales (leads: NFS, S&PF, NRS).

<sup>1</sup> Forest Service representatives from the Northeast who identified and ranked action items: Judith L. Antipin (NA), Jerry Boughton (NA), Michael Connor (NA), Michelle Frank (NA), Noel Schneeberger (NA), J. Robert Bridges (NRS), Jessie Micales Glaser (NRS), Cynthia Huebner (NRS), Melody Keena (NRS), Kathleen Shields (NRS), Jim Slavicek (NRS), Robert Venette (NRS), Teena Ligman (R9), Christopher Matrick (R9), Paul Momper (R9), April L. Moore (R9), Nick Schmal (R9), Jan Schultz (R9), Mike Welker (R9), Richard Reardon (WO), Yun Wu (WO), Robert Rabaglia (WO)

## **Appendix B: Related Reference Documents**

- Environmental Law Institute, Washington DC. 2002. Halting the Invasion: State Tools for Invasive Species Management. 112 pp plus cdrom. Website: <http://www2.eli.org/research/invasives/index.cfm>
- Executive Order 11312 of February 3, 1999 - Invasive Species. 1999  
Website: <http://www.invasivespecies.gov/laws/execorder.shtml>)
- Executive Order 13340 of May 18, 2004 - Establishing the Great Lakes Interagency Task Force and Promoting regional collaboration of national significance with regard to the Great Lakes. Website: <http://www.fws.gov/laws/lawsdigest/eoindex.html>
- Great Lakes Regional Collaboration Strategy to Protect and Restore the Great Lakes. 2005. 70 pp. Website: [http://www.glrc.us/documents/GLRC\\_Strategy.pdf](http://www.glrc.us/documents/GLRC_Strategy.pdf)
- USDA Forest Service. 2000. Exotic Invasive Species: A Strategic Plan. North Central and NER Research Stations and NA State and Private Forestry. Unpublished. 22 pages.
- National Invasive Species Council. 2001. Meeting the Invasive Species Challenge: National Invasive Species Management Plan. 80 pp. Website: <http://www.invasivespecies.gov/council/mpfinal.pdf>
- Parmesan, C. and Galbraith, H. 2004. Observed impacts of global climate change in the U.S. Pew Center of Global Climate Change, 55 pp. Website: <http://www.pewclimate.org>
- USDA Forest Service. 1995. Forest Service Manual, National Forest Resource Management Amendment 2000 - 95-5, Zero Code 2080 Noxious Weed Management  
Website: <http://fswb.wo.fs.fed.us/directives/fsm/2000/2080.rtf>)
- USDA Forest Service. 1998. Stemming the Invasive Tide: Forest Service Strategy for Noxious and Noninvasive Plant Management. Washington DC. 31 pp Website: [http://www.fs.fed.us/r6/weeds/fs\\_strat\\_doc.pdf](http://www.fs.fed.us/r6/weeds/fs_strat_doc.pdf)
- USDA Forest Service. 2003. Non-native Invasive Species Framework Eastern Region. Unpublished. 20 pages.
- USDA Forest Service. 2003. Weeds: The Silent Invaders. R10-TP-121. 11 pp.
- USDA Forest Service. 2004. National Strategy and Implementation Plan for Invasive Species Management.
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- USDA Forest Service. 2004. Forest Service Strategic Plan for Fiscal Years 2004-2008.
- USDA Forest Service. 2004. Native Plant Framework. Unpublished. 9 pages.
- USDA Forest Service. 2005. Northeastern Area, Invasive Species Response Plan. 13 Pages
- USDA Forest Service. 2009. Exotic Invasive Species Strategic Plan. North Central and NER Research Stations and NA State and Private Forestry. Unpublished.
- Wyden Amendment Summary. 2001. Website: [http://www.nwfireplan.gov/AgencyImplementation/ExistingAgreements/Wyden\\_Amendment.pdf](http://www.nwfireplan.gov/AgencyImplementation/ExistingAgreements/Wyden_Amendment.pdf).