

United States
Department of
Agriculture



Forest Service
Eastern Region

NON-NATIVE INVASIVE SPECIES

Eastern Region Program Accomplishments 2011



Buckthorn (Rhamnus cathartica)



Zebra mussel (Dreissena polymorpha)



Goatsrue (Galega officinalis)



Emerald ash borer (Agrilus planipennis)



Feral pigs (Sus scrofa)



USDA Forest Service - Eastern Region Invasive Species Management 2011 Program Accomplishments

CARING FOR THE LAND AND SERVING PEOPLE ... 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. Further, the Forest Service advocates a conservation ethic in promoting the health, productivity, diversity, and beauty of forests and associated lands; to that end the control of non-native invasive species is paramount to the agency's mission. On December 5, 2011 the Forest Service announced the publication of its first ever national-level direction on the management of invasive species across aquatic and terrestrial areas of the National Forest System. "Invasive species cost the American public an estimated \$138 billion each year. They deplete water supplies, destroy recreation opportunities and damage landscapes across the country" said U.S. Forest Service Chief Tom Tidwell. "We are taking this bold approach to better protect our nation's forest and water resources from the threat of invasive species." As follows is a summary of this document.

FSM 2900–Invasive Species Management. Amendment no. 2900-2011-1. Effective Date = 2/5/2011. This new chapter replaces FSM 2080 (noxious weed management). Management activities for aquatic and terrestrial invasive species are based upon an integrated pest management approach on all areas within the NFS and on areas managed outside of the NFS under the authority of the Wyden Amendment, prioritizing prevention and early detection and rapid response actions as necessary. All NFS invasive species management activities will be conducted within the following strategic objectives: 1) Prevention 2) Early detection & rapid response 3) Control & management 4) Restoration 5) Organizational collaboration. Also relevant to our Forests is the discussion about Regional Forester, Forest Supervisor, and District Ranger responsibilities.

The Forest Service is also developing a handbook to accompany the recently released FSM 2900. This handbook (FSH 2900) will provide detailed instruction for implementing invasive species management on National Forests and other NFS units. Furthermore, the agency is also revising the National Invasive Species Strategic Framework (formerly known as the National Invasive Species Strategy) with a target completion date of late 2012.

FS Eastern Regional accomplishments:

Midwest Invasive Plant Network (MIPN) Partnership Agreement (\$20,000): MIPN's mission is to reduce the impact of invasive plants in the Midwest. MIPN includes a diverse group of participants and partners and currently has five committees: Green Industry, Early Detection & Rapid Response, Education, Research, and Fundraising. The Network is guided by a Board of Directors and an Advisory Council. In December 2011 MIPN partnered to offer presentations in conjunction with the 66th Annual Meeting North Central Weed Science Society. Hosted in Milwaukee, WI, a number of FS Eastern Region Forest employees were able to participate. <http://mipn.org/> MIPN also received funding via the Great Lakes Restoration Initiative (GLRI), an interagency program led by the Environmental Protection Agency. The purpose of the GLRI is to protect, maintain, and restore the chemical, biological, and physical integrity of the Great Lakes. Funds allocated to MIPN for the GLRI were used for priority projects in the following areas: Accountability, Monitoring, Evaluation, Communication, and Partnerships.

Guidance for Eastern Region NNIS Best Management Practices: This is now in draft stage, to be released in the next several months.

White-Nose Syndrome (WNS) in Bats: The Eastern Region is home to 14 bat species. WNS, a disease fatal to many bats, has now affected seven species and spread to 15 states within the Eastern Region. The Region responded to the crisis by: closing access to hibernacula; helping to develop the interagency National WNS Plan; accessing pre-WNS maternity season populations; and preparing the Region's WNS Regional Response Plan. The Region has set aside 'special emphasis funds' to address key national WNS Plan goals. The Eastern National Forests allocated nearly \$475,000 for WNS projects and partners contributed \$86,000.

Outreach and Education Partnerships:

Wildlife Forever - The Eastern Region is working with Wildlife Forever, and others, to reach the hunting and angling community about the invasive species issue. Wildlife Forever is the national non-profit conservation arm of the North American Hunting Club and North American Fishing Club whose combined members total 1.3 million sportsmen and women. Wildlife Forever is able to focus on multi-species - aquatic and terrestrial - projects and with conservation education as a primary mission orientation. Outreach projects in FY2011 included the production and airing of a conservation education television program about invasive species in the Great Lakes region; presentations and dissemination of printed materials at trade shows, outdoor expos, and fishing tournaments; and a billboard campaign that reached tens of millions of people. Financial support for this partnership in FY2011 included \$20,000 from NFWF01 and \$411,000 from the inter-agency Great Lakes Restoration Initiative (NFXFAG).

National Professional Anglers Association (NPAA) - The Eastern Region also worked cooperatively with NPAA to teach youth and their families about the threat of aquatic invasive species and steps that individuals can take to prevent their spread. This partnership reached hundreds of people in the region as NPAA pros and Forest Service staff hosted fishing derbies and provided information about aquatic resources and aquatic invasive species.

Discovery World - The Eastern Region partnered with non-profit Discovery World in Milwaukee, Wisconsin to support the development and delivery of a dedicated public education program about aquatic invasive species called the "Great Lakes Most Unwanted" (GLMU). Targeting audiences from grades K-12, the GLMU program meets school curriculum standards by enlisting student participation in workshops presented by the Great Lakes Water Institute, a Building the Water Generation Lecture Series co-funded by corporate partner AT&T, Spring Break and Summer Camps, and experiential education schooner voyages to learn about aquatic organisms on Lake Michigan. A permanent Asian Carp tank and educational display was also installed at Rieman Aquarium using support provided by Forest Service and Wisconsin Department of Natural Resources. Over 230,000 people benefitted from this integrated, multi-dimensional learning program. Funds from the FY2010 Great Lakes Restoration Initiative (\$48,000) were placed in this partnership, with the majority of the work performed in FY2011. The Forest Service contribution to this project leveraged over \$70,000 in non-federal funds.

Regional Inter-Agency Coordination. The Eastern Region participates actively in two regional panels of the Aquatic Nuisance Species (ANS) Task Force. The ANS Task Force is an intergovernmental organization dedicated to preventing and controlling aquatic nuisance species, and implementing the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990 and the National Invasive Species Act (NISA) of 1996. Our participation in the Great Lakes Panel and the Mississippi River Basin Panel of the ANS Task Force help us to coordinate our efforts for dealing with aquatic NIS with those of other state and federal government agencies and nongovernment organizations. Regional panels meet bi-annually and have issue-oriented committees and work groups that interact on a more regular basis.

FS Northeastern Area State and Private Forestry. Forest Health Protection programs emphasize protecting the long-term health and sustainability of our forests. Our major responsibilities are to assist the States with implementing their forest health programs and to provide forest health support on National Forests and other federal lands. Activities include identification and evaluation of insect and disease problems, provision of resource materials and management recommendations in forests and nurseries, training in hazard tree management, and assistance with major forest pest control projects. For Eastern Region information and activities relating to: emerald ash borer; hemlock woolly adelgid; Asian longhorned beetle; beech bark disease, etc. please refer to the following link: <http://www.na.fs.fed.us/fhp/index.shtm>

The following Northeastern Area employees have expertise and knowledge of area programs for specific important invasive insects and diseases: Rick Turcotte - Hemlock woolly adelgid (biological and chemical controls); Nate Siegert - Emerald ash borer (management responses to EAB); Brad Onken - Beech bark disease (genetic resistance and management responses); Kevin Dodds - Asian longhorned beetle (species preference and insect behavior); and Manfred Mielke - Thousand canker disease (introduction); Butternut canker (genetic resistance and marking guides).

FS Northern Station. There is a critical lack of information on how to detect invasive pests, how to minimize their impact and how to develop resistance. The Northern Research Station is addressing some of these needs for important invasive pests. The following Northern Station employees have research programs dealing with specific important invasive insects and diseases: Leah Bauer - Emerald ash borer (biological control); Mike Ostry - Butternut canker (genetic resistance); Kathleen Knight - Emerald ash borer (ash population dynamics); and Jennifer Koch - Emerald ash borer (possible genetic resistance) Beech scale (genetic resistance).

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Allegheny National Forest

2011 Invasive Species Accomplishments

Non-native Invasive Plant Treatments: Non-native invasive plant (NNIP) treatment projects occurred across the Allegheny National Forest (ANF) and totaled 53.4 acres. Through Stewardship contracting and with members of the prison crew, Youth Conservation Corps (YCC), and ANF staff, chemical and mechanical treatments were completed, including: herbicide application with backpack sprayers; hand pulling/digging; and digging with a back hoe. Control emphasized the removal/reduction of plants/seed sources in order to limit expansion of extant populations. Targeted species included: garlic mustard, goatsrue, multiflora rose, Japanese barberry, Canada thistle, Morrow's honeysuckle, glossy buckthorn, and purple loosestrife.



Goatsrue (*Galega officinalis*)

Hemlock Woolly Adelgid Monitoring: Using existing hemlock classification and hemlock woolly adelgid (HWA) risk (susceptibility and vulnerability) maps, surveys started in the southeast corner of the ANF (portion of the ANF in closest proximity to nearest known HWA site in Pennsylvania) and moved northwest assigning priority to stands with large influxes of recreation users. In total, 32 stands comprising 293 acres were surveyed and no evidence of HWA was detected.

Allegheny National Forest

4 Farm Colony Drive

Warren, PA 16365

Contact: Collin Koers 814.728.6142 or ckoers@fs.fed.us

Zebra Mussel Monitoring: To prevent introduction of zebra mussels into the Allegheny River, 825 boaters were randomly screened at two Forest Service boat launches using a predetermined set of questions developed to ensure boats with a high risk of harboring the species were not launched. Also, for boats that were launched without being screened, their trailers (1,749) were inspected in parking lots for evidence of aquatic vegetation that might harbor zebra mussels. In addition to the boat screening and trailer surveys, seven Forest Service boat launches and approximately 2.25 miles of adjacent shoreline were surveyed for zebra mussels during the reservoir's annual drawdown. No evidence of the species was detected.



Zebra mussel (*Dreissena polymorpha*)

| Species Targeted | Accomplishment | Funding | Fund Code |
|------------------|---------------------------|----------|------------------------------|
| NNIPs | 53.4 acres | \$16,148 | NFWW, NFWF, CMRD, NFRW, GSRV |
| HWA | 293 acres | \$3,000 | NFIM |
| Zebra mussel | 825 boats, 1,749 trailers | \$4,000 | NFIM, NFWF, NFRW |
| | 7 launches, 2.25 miles | \$1,000 | NFIM |



Chequamegon-Nicolet National Forest

2011 Invasive Species Accomplishments

Control efforts on the districts were primarily focused on garlic mustard, wild parsnip, European swamp thistle, and Canada thistle. Canada thistle was manually removed from a site with the federally threatened plant species, Fassett's locoweed. Over 1600 acres were treated across the Forest at numerous locations including roadsides, campgrounds, and trails. Two new weed species were documented on the Forest, including brown knapweed (Washburn District and Eagle River-Florence District) and Burnett saxifrage (Washburn).

Award Winning Work: The Eagle River-Florence District received a National Invasive Species Program Award for "Excellence in Invasive Species Partnership Development" for their involvement with formalizing two Cooperative Weed Management Areas (CWMAs) on the district. Our CWMA partners received "Invader Crusader" awards from the Invasive Plant Association of Wisconsin: "Volunteer Award" to Carol Ave Lallemond for her work with the Upper Chippewa CWMA and the "Professional Organization" award to the Wild Rivers Invasive Species Coalition.

The Chequamegon and Nicolet Title II Resource Advisory Committees approved grants for three invasive species projects. The Wild Rivers Invasive Species Coalition hired two interns to operate a portable boat washing station in Florence and Forest Counties. They washed 663 boats and educated over 1,500 people on aquatic invasives. The Northwoods CWMA worked with ten towns within Ashland and Bayfield counties to survey and map roadside invasive plants on over 500 miles of road. They provided half-day training sessions to each of the towns' road crews to teach them weed treatment techniques. The Upper Chippewa Invasive Species Cooperative hired 2 co-coordinators to lead the invasives education and control efforts for their CWMA, including garlic mustard, parsnip, thistle, and knotweed control, and numerous informative presentations to schools and public events.

Great Lakes Restoration Initiative projects: Through a partnership with the Northwoods CWMA, we were able to treat two off-Forest gravel pits that supply a large amount of gravel (and potential non-native invasive species to the Forest. With GLRI funding, the Northwoods CWMA was able to engage over 200 people through outreach programs, target over 20 different species and treat approximately 77 acres of invasive plants with the help of 100 volunteers.



The Upper Chippewa CWMA purchased this billboard with Pulling Together Initiative funding through the National Fish and Wildlife Foundation

| Fund Code | Acres Treated | |
|--------------|---------------|-------------------|
| CWKV | 155 | |
| NFVW | 1374 | \$241,693 funding |
| NFMG | 36 | |
| SSCC | 68 | |
| Total | 1634 | |



The Wild Rivers Invasive Species Coalition provides AIS education and boat washing

Chequamegon-Nicolet National Forest
500 Hanson Lake Road
Rhineland, WI 54501

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Chippewa National Forest

2011 Invasive Species Accomplishments

The Chippewa National Forest (CNF) Invasive species program focuses on prevention and control of high priority invasive species that threaten ecosystems. Most of the lands managed in the CNF are part of the Leech Lake Indian Reservation. The Leech Lake Band of Ojibwe (LLBO) is our primary partner in all invasive species management efforts.

Protecting and Restoring Forests from Invasive Insects and Diseases: We are preparing for likely introduction of emerald ash borer, a destructive insect that has devastated ash forests elsewhere in the country; we are developing Dutch elm disease tolerant cultivars with local genetics for restoration purposes. The Forest received a National Forest System Invasive Species Program Award for work with landscape restoration and rehabilitation against invasive species. The Forest was recognized for high level of leadership in restoration of lowland hardwood forests, mitigating the effects of Dutch elm disease and emerald ash borer and reducing impacts from invasive plants on forested lowland areas. The landscape scale approach to restoration incorporates broad partnerships between public and private stakeholders, and a sustainable holistic design with a goal of protecting and restoring lowland hardwood ecosystems across northern Minnesota.



Nursery planting of Dutch elm disease tolerant elm trees

New Bio-control Program: A new program of bio-control for spotted knapweed began in 2011, with release of insects at five sites in a pilot study.

Holding the line on garlic mustard: We are working to contain an isolated population of garlic mustard with potential to spread to millions of acres of surrounding hardwood forest. The CNF worked with the LLBO and the Conservation Corps of Minnesota (CMMI) to hand-pull approximately 80 acres of garlic mustard. This effort also benefits local communities through tribal employment.

Chippewa National Forest
200 Ash Ave. NE, Cass Lake
MN 56633

Contact: Todd Tisler, 218.335.8629 or ttisler@fs.fed.us

Parsnip Partners: the LLBO initiated a partnership between the CNF, Onigum Local Indian Community, Cass County Minnesota, Turtle Lake and Shingobee Townships to manage common parsnip on roadsides. Parsnip is a threat to public health and safety. A grant from the Resource Advisory Committee will provide employment and job training to local Ojibwe youth.

Loosestrife Partnership Yields Added Benefits: We continued our partnership with Itasca Waters Legacy Partnership (IWLP) in 2011 to perform survey and control actions on 126 purple loosestrife sites. Our partnership with IWLP is the basis for a new Invasive Species Management Area, a partnership between Federal, State, Local Tribal and nongovernmental agencies to manage invasive species across boundaries in Itasca County.

Earthworms-Managing the Menace: Invasive earthworms are widespread on the CNF and have caused untold harm to soil and native plant communities. In June 2011 we conducted training by Great Lakes Worm Watch for CNF and LLBO staff on exotic earthworm rapid assessment tool. We are developing and implementing best management practices to prevent further spread of invasive earth-worms on the CNF.

Putting the Lid on Gravel: The CNF Monitoring, Inventory, and Survey Team (MIST) surveyed 42 gravel pits for invasive and noxious weeds to assess for treatment. This produced data essential for planning rehabilitation and treatment of gravel pits. In the past weed seeds in gravel have been a source of weed infestation throughout the CNF.

After extensive work with the LLBO to address concerns about herbicide use, we published an environmental assessment of invasive plant prevention, control and restoration in October 2011. The CNF sponsored a workshop on management and restoration of utility corridors, rights-of-way and permanent openings March 15 2011. We worked towards building a consensus from managers and biologists in how to best manage these often neglected and weed-infested lands.

To help prevent further spread of garlic mustard, we installed boot brushes & interpretive signs at the Stony Point nature trail





Green Mountain & Finger Lakes National Forest

2011 Invasive Species Accomplishments

Program highlights on the Green Mountains NF:

- Joint ARRA-funded project with state of Vermont resulted in hiring contractors to treat NNIP at state parks and on NFS lands
- Retained receipts funded Vermont YCC to do manual control of infestations in the Nordic project area
- The Upper White River CWMA applied for and received two grants that will fund work in FY12
- Education, outreach, and development of an EDRR team continue for Forest Pests, none of which are yet found on the GMNF. (Partners: UVM, VT Depts. of Forests, Parks, and Rec., Dept. of Agric., APHIS, and S&P Forestry)

Program highlights on the Finger Lakes NF:

- Great Lakes Restoration Initiative funds covered the majority of the cost to:
 - Treat knapweeds and thistles on > 1,000 acres of grasslands with broadcast herbicide
 - Treat riparian areas within grasslands with foliar spot spraying of herbicide
 - Inventory for future treatments
- Beetles previously introduced to control Hemlock Woolly Adelgid were monitored; research and education are ongoing (Partners: Cornell U., U. Mass., FL PRISM, NYS DEC, S&P Forestry)



Figure 2: As part of the joint ARRA-funded NNIS project with the state of Vermont, Japanese knotweed was cut to the ground in early summer, then hand-sprayed in early autumn.



Figure 1: In grasslands on the FLNF, knapweeds and thistles are treated by broadcast spraying highly selective herbicide that affects only a few plant families, leaving much of the vegetation intact.

| Project | Fund Code | Dollars | Acres/ Sites |
|---|--|---------|---|
| Finger Lakes Grassland Restoration | | | |
| Broadcast spray for thistles & knapweeds | NFWV | \$11,98 | 10 |
| | NFWF | 5 | grasslands: |
| | NXFFF6* | \$2,766 | 1047.6 |
| | | \$31,34 | acres |
| | | 4 | |
| Riparian area hand spraying for thistles & knapweeds | NXFFF6* | \$5512 | 5 grassland riparian areas: 21 acres |
| Botanical inventory in preparation for FY12 treatment | NXFFF6* | \$3541 | 2 grasslands & 2 shrub lands: 145 acres |
| Green Mountain NNIP Control | | | |
| Manual & herbicide treatments of high risk sites** | ARRA funds received by state to work with GMNF | \$40,00 | 27 sites: |
| | | 0 | 23.8 acres |
| Nordic Project NNIP Treatments | Retained receipts (stewardship contracts) | \$10,80 | 5 sites: 10.8 acres |

* NXFFF6 is the fund code for Great Lakes Restoration Initiative dollars
 **High risk sites include trail heads, parking lots, and campgrounds where infestations could easily be spread by recreational activity

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 231 North Main Street
 Rutland, VT 05701-2417

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Hiawatha National Forest

2011 Invasive Species Accomplishments

The Hiawatha National Forest (HNF) non-native invasive plant (NNIP) program focused on garlic mustard, Eurasian watermilfoil, Scotch pine, spotted knapweed, and wild parsnip. Many projects continued in 2011, such as removing invasive plants from TE sites, controlling NNIP in gravel pits, and releasing bio-control insects in spotted knapweed infestations. The Forest expanded the overall program by coordinating with two cooperative weed management areas (CWMA's), volunteers, and other HNF program areas.



Figure 1. Wildlife personnel completed Scotch pine treatment using a Fecon brush cutter.

Youth Conservation Corps removed NNIP that were impacting piping plover habitat along Lake Michigan. The EUPCWMA facilitated the project on the St. Ignace District by removing NNIP from 15 acres of habitat for piping plover (federally endangered), Pitcher's thistle, and Houghton's goldenrod (both federally threatened). Volunteers assisted with manual removal of NNIP from high priority locations, such as Grand Island National Recreation Area and garlic mustard sites. The CUPCWMA weed crew manually removed invasive plants, conducted mapping and monitoring of NNIP in Big Island Lake and Rock River Canyon wilderness areas. A complete invasive plant inventory of Round Island Wilderness Area (St. Ignace District) was also accomplished with the grant funding. The Round Island inventory detected four purple loosestrife infestations, a species not previously recorded on the island.

NNIP in timber sale areas were treated with herbicide and manual removal methods prior to seeding with native seed. Through a program supported by various resource areas, Scotch pine was removed along several major travel corridors.

Pre-harvest herbicide treatments in upcoming timber sale areas were used as a preemptive measure to prevent the spread of invasive plants from those areas. Invasive plants in gravel pits across the HNF were treated through herbicide contracts. Other projects highlighted the North Country Trail and Whitefish Bay Scenic Byway by removing invasive plants from trailheads, parking areas, campgrounds, and other popular visitor sites. The use of bio-control methods were used in wildlife openings impacted by spotted knapweed and to control Eurasian watermilfoil at Steuben Lake. The first boot cleaning station was installed on Grand Island NRA at William's Landing as part of a partnership with the Grand Island Marathon and the HNF Native Plant program.



Figure 2. EUPCWMA garlic mustard identification workshop and removal project at Cut River Bridge

| Fund code | Funding | Acres | Comments |
|--------------------------------|----------|-------|--|
| NFVW | \$97,174 | 244 | Main Program – Also Funded completion of 2011 NNIP EA |
| CMRD | \$10,000 | 15 | Funded 2011 NNIP EA |
| RTRT, CWKV, NFWF, WFHF, NFXFE6 | | 83 | BLI's also funded inventory, monitoring, 2011 NNIP EA and outreach |

Partners/Cooperators: Eastern Upper Peninsula Cooperative Weed Management Area (EUPCWMA), Central Upper Peninsula Cooperative Weed Management Area (CUPCWMA), USFS-Northern Research, HNF Native Plant Program Volunteers, Grand Island Association, Grand Island Marathon

Hiawatha National Forest
820 Rains Drive
Gladstone, MI 49837

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Hoosier National Forest

2011 Invasive Species Accomplishments

Non-native invasive species (NNIS) treatments on the Hoosier National Forest focused plant control in Forest-designated Special Areas (SAs). Much of the work involved herbicide treatments using indefinite delivery-indefinite quantity (IDIQ) Task Orders along trails, streams, old roads, wildlife openings, or other disturbance corridors. The primary locales for Task Order work occurred in the Clover Lick, Harding Flats, Boone Creek, and Rockhouse Hollow SAs that all contain globally rare barrens communities. Other Task Orders occurred along roadways and recreation areas at the Wesley Chapel SA and the Charles C. Deam Wilderness.

Treatments near barrens involved control of Japanese stilt grass, autumn olive, garlic mustard, sericea lespedeza, sweet clover, crown vetch, Johnson grass, potato vine, Japanese honeysuckle, multiflora rose, and other trailside invasive species. Control of tree of heaven, kudzu, mimosa tree, and water milfoil (Celina Lake) occurred at recreation sites. Volunteers assisted with hand pulling of garlic mustard in the Charles C. Deam Wilderness and the Pioneer Mothers' SA. Wild Turkey Federation volunteers planted native shrubs and conducted broadcast seeding in wildlife openings.

Other focal areas receiving control were various wildlife openings. At these sites, the Forest conducted clearing by bushhogging, used herbicide to spray dense infestations of tall fescue and other exotic pasture grasses then seeded these old fields with native seed using a no-till seed drill. These actions promote native plant diversity and provide a wide variety of plants for native pollinator species.



Contractor and Forest Service personnel preparing native seed for fall planting with no-till seed drill

Prescribed burning projects provided additional control of various non-native invasive species NNIS plants, primarily where infestations occurred near open barrens communities or in wildlife openings. The prescribed burning stimulated growth of native herbaceous plants and warm season grasses, especially where the Forest has seeded those areas. In these areas, the burning often was hot enough to reduce and control invasive shrubs/vines, as well as aide in promoting native plants to do a better job of competing with herbaceous nonnative plants.



NNIS-IDIQ contractor performing autumn olive control using skid-steer and drum cutter/mulcher

| Fund Code | Funding | Acres | Comments |
|--------------|-----------|--------------|--|
| NFN3 | \$24,500 | 5.3 | Native seed purchase, clearing/seeding projects |
| NFVW | \$132,600 | 343.3 | NNIS-IDIQ TOs, Wildlife IDIQ TOs, native seed purchase |
| NFWF | \$24,400 | 73.7 | Wildlife IDIQ TOs for clearing, seeding drill, NNIS-IDIQ TOs, native seed purchase |
| WFHF | \$23,375 | 187.0 | Prescribed burning projects |
| CONT | \$0 | 15.4 | Volunteer Labor Contribution |
| Total | | 624.7 | |

Partners/Cooperators: Indiana Dept. of Natural Resources Fish & Wildlife, National Wild Turkey Federation, Indiana University Volunteers, Local chapter R, C, & D Volunteers, and the Southern Indiana Cooperative Weed Management Area.

Hoosier National Forest
811 Constitution Avenue
Bedford, IN 47421

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Huron-Manistee National Forest

2011 Invasive Species Accomplishments

Control emphasized garlic mustard, Japanese barberry, exotic honeysuckles, Oriental bittersweet, spotted knapweed, Phragmites, Lombardy poplar, houndstongue, eurasian watermilfoil, and purple loosestrife. Priority treatment locations included Piping plover and Pitcher's thistle (Threatened/Endangered) habitats in the Nordhouse Dunes Wilderness in Mason County, Karner blue butterfly (Threatened/Endangered) habitat in Oceana County, Indiana bat (Threatened/Endangered) habitat in Manistee, Mason, and Wexford Counties, Regional Forester Sensitive Species Showy Orchis habitat in Iosco County, the Loda Lake Wildflower Sanctuary in Newaygo County, and Lake Mitchell (aquatic treatment) in Wexford County. The Forests' three botanists work in collaboration with the following Partnerships and with funds from the Great Lakes Restoration Initiative. We heartily thank them for participating in the following activities.

Great Lakes Restoration Initiative actions

- Support for the Huron Pines CWMA.
- Support for the Northwest Michigan CWMA.
- Phragmites treatment, 17 acres.

Consumers Energy Cost Share Agreement actions

- Garlic mustard treatment, 10 acres.

Michigan Garden Club Partnership actions

- Autumn olive treatment, 40 acres.
- Pollinator garden NNIP treatment, 7 acres.

North Country Trail Association Partnership actions

- NNIP treatment, 1 acre.

The Forests' Botanists also provided presentations to interested and affiliated groups, including the Lake Bluff Audubon Society, Sustainable Forestry Initiative, and Pine River Association.

Cooperating Partners are the Northwest Michigan CWMA, Huron Pines/Northeast Michigan CWMA, Consumers Energy, Lake Mitchell Improvement Board, Michigan Garden Club, North Country Trail Association, and Stewardship Network.



Loda Lake Wildflower Sanctuary hand treatment with Michigan Garden Club volunteers.



USFS personnel, Oriental Bittersweet Treatment

| Fund Code | Treatment Acres | Monitoring Acres | Comment |
|---------------|-----------------|------------------|-----------------------|
| CWKV | 24 | | |
| NFWW | 576 | | T/E and RFSS habitats |
| NFXF | 40 | | T/E habitat |
| CWFS | 21 | | 20 ac aquatic |
| ALL | | 746 | |
| TOTALS | 661 | 746 | |

Huron-Manistee National Forest
1755 S. Mitchell St.
Cadillac, MI 49601

Contact: Matt Sands, 231-775-5023 ex 8760 or msands@fs.fed.us



Mark Twain National Forest

2011 Invasive Species Accomplishments

The Mark Twain National Forest removed over 3,900 acres of invasive plants in 2011. Following is a breakdown of what was accomplished:

Non-Native and Invasive Plants

- Invasive plant treatments involved:
- utilizing permitted livestock on 2,475 acres to contain and/or reduce *Sericea lespedeza* and multiflora rose
- mowing and brushing *Sericea lespedeza*, autumn olive, non-native thistles and spotted kapweed on 993 acres
- 320 acres of herbicide treatment on *Sericea lespedeza*.
- Approximately five acres of Kudzu were prescribed burned as a pretreatment for herbicide. Additional invasive treatments (mowing) were completed by grazing permittees as part of conservation practices on grazing allotments.

Feral Hogs

In 2011, The Mark Twain in partnership with the Animal and Plant Health Inspection Service (APHIS) removed 104 feral hogs from nine trap sites on national forest or adjacent private lands.

- Fourteen feral hogs were captured in April.
- Ten more were captured in June.
- The Missouri Department of Conservation (MDC) helped the Forest catch a large male feral hog (boar) on private land, two miles south of Bell Mountain. This particular boar had been fitted with a GPS-radio collar in December 2010. It traveled three miles northeast of the trap site and was eventually killed two miles west of the capture site on Forest Service property.
- In January, five feral hogs were captured along the Big Piney River on private property just east of the Eck track and bordering NFS lands.



Feral hog in trap

Aquatic Invasives

The Forest in cooperation with the Department of Conservation has posted educational and prevention signs at all major fishing and river access points for Zebra mussels, Asian carp species and for Didymo



The invasive alga "didymo" is present in the White River and the North Fork of the White River in Arkansas

Stop Rock Snot

After leaving this water:

CHECK: Remove all visible clumps of algae and plant material from fishing gear, leaders, clothing, waders, shoes and sensors, canoes and kayaks, and anything else that has been in the water.

CLEAN: Clean your gear in a 2% bleach solution or 5% saltwater solution or dishwashing detergent. Rinse boots and other hard items thoroughly. Boek clothes, waders and other "soft" items for 22 minutes.

Please do your part... Don't Spread Didymo!



Get more information:
Contact the
Mark Twain National Forest
at 573-364-4821
or visit:
www.fs.fed.us/arkansas/



| Fund Code | Acres | Comments |
|--------------|---------------|---|
| CWFS | 60 | Invasive - Mechanical/Physical |
| NFRG | 551 | Invasive - Mech, Physical, Herbicide |
| NFWW | 3160 | Invasive - Livestock, Mechanical/Physical |
| NFWF | 30,172 | Invasive - Mechanical/Physical (feral hog trapping) |
| Total | 33,947 | |

Mark Twain National Forest

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Rolla, Missouri

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Green Mountain & Finger Lakes National Forest

2011 Invasive Species Accomplishments

Program highlights on the Green Mountains NF:

- Joint ARRA-funded project with state of Vermont resulted in hiring contractors to treat NNIP at state parks and on NFS lands
- Retained receipts funded Vermont YCC to do manual control of infestations in the Nordic project area
- The Upper White River CWMA applied for and received two grants that will fund work in FY12
- Education, outreach, and development of an EDRR team continue for Forest Pests, none of which are yet found on the GMNF. (Partners: UVM, VT Depts. of Forests, Parks, and Rec., Dept. of Agric., APHIS, and S&P Forestry)

Program highlights on the Finger Lakes NF:

- Great Lakes Restoration Initiative funds covered the majority of the cost to:
 - Treat knapweeds and thistles on > 1,000 acres of grasslands with broadcast herbicide
 - Treat riparian areas within grasslands with foliar spot spraying of herbicide
 - Inventory for future treatments
- Beetles previously introduced to control Hemlock Woolly Adelgid were monitored; research and education are ongoing (Partners: Cornell U., U. Mass., FL PRISM, NYS DEC, S&P Forestry)



Figure 2: As part of the joint ARRA-funded NNIS project with the state of Vermont, Japanese knotweed was cut to the ground in early summer, then hand-sprayed in early autumn.



Figure 1: In grasslands on the FLNF, knapweeds and thistles are treated by broadcast spraying highly selective herbicide that affects only a few plant families, leaving much of the vegetation intact.

| Project | Fund Code | Dollars | Acres/ Sites |
|---|--|---------|---|
| Finger Lakes Grassland Restoration | | | |
| Broadcast spray for thistles & knapweeds | NFWV | \$11,98 | 10 |
| | NFWF | 5 | grasslands: |
| | NXFFF6* | \$2,766 | 1047.6 |
| | | \$31,34 | acres |
| | | 4 | |
| Riparian area hand spraying for thistles & knapweeds | NXFFF6* | \$5512 | 5 grassland riparian areas: 21 acres |
| Botanical inventory in preparation for FY12 treatment | NXFFF6* | \$3541 | 2 grasslands & 2 shrub lands: 145 acres |
| Green Mountain NNIP Control | | | |
| Manual & herbicide treatments of high risk sites** | ARRA funds received by state to work with GMNF | \$40,00 | 27 sites: |
| | | 0 | 23.8 acres |
| Nordic Project NNIP Treatments | Retained receipts (stewardship contracts) | \$10,80 | 5 sites: 10.8 acres |

* NXFFF6 is the fund code for Great Lakes Restoration Initiative dollars
 **High risk sites include trail heads, parking lots, and campgrounds where infestations could easily be spread by recreational activity

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Monongahela National Forest

2011 Invasive Species Accomplishments

Invasive species management on the Monongahela in 2011 focused on protection of habitat for threatened, endangered, and sensitive species. The control of infestations that threaten to invade timber sale areas, compete with tree regeneration, and threaten Forest Service facilities was also emphasized. Multiple species were treated using a combination of cooperative agreements and force account labor.

Potomac Highlands Cooperative Weed and Pest Management Area projects:

- Treated 390 acres of infestations to reduce threats to nearby populations of threatened, endangered, and sensitive plants. Treatments targeted viper's bugloss, nodding thistle, spotted knapweed, Japanese stiltgrass, pale yellow iris, and garlic mustard.
- Treated 722 acres of infestations to reduce competition to regenerating trees in old harvest units and ecosystem restoration areas. Species treated included spotted knapweed, tree of heaven, autumn olive, and Morrow's honeysuckle.
- Treated a 2.1-acre emerging infestation of mile-a-minute vine (currently the only known infestation on the Forest).
- Treated 11 acres of garlic mustard to shield an adjacent back country area from invasion.



CWPMMA crew member treating mile-a-minute vine

Force Account projects and cooperative projects with West Virginia Division of Forestry:

- Treated 124 acres of infestations that threatened Forest Service facilities, range allotments, and resource management projects (garlic mustard, nodding thistle, Morrow's honeysuckle, Japanese stiltgrass, autumn olive, tree of heaven, reed canary grass, crown vetch).
- Leveraged volunteer time to pull 13 acres of garlic mustard for the Garlic Mustard Challenge.
- Treated 86 acres of garlic mustard and Japanese stiltgrass to prevent further spread by timber harvest.
- Removed tree of heaven from 1.4 acres of habitat for shale barren rockcress (rare plant).
- Treated hemlock trees for hemlock wooly adelgid at 6 recreation and administrative sites.

| Fund Code | Funding | Acres | Comments |
|------------------|----------|--------------|--------------------------|
| NFV W | \$26,500 | 1,141 | CWPMMA crew and FS staff |
| NFW F | \$3,400 | 31 | FS staff funding |
| NFT M | \$3,700 | 86 | FS staff funding |
| RTRT CWK 2 | \$4,600 | 43 | WV DOF crew |
| NFR W | \$3,300 | 8 | FS staff funding |
| Total | | 1,352 | |

Partners/Cooperators: The Nature Conservancy, Potomac Highlands Cooperative Weed and Pest Management Area, West Virginia Division of Forestry, Appalachian Forest Heritage Area, volunteers from the local community.

Monongahela Twain National Forest

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Ottawa National Forest

2011 Invasive Species Accomplishments

Control emphasized garlic mustard, Japanese barberry, exotic honeysuckles, glossy buckthorn, Eurasian watermilfoil, and purple loosestrife. Local road commissions were contracted to mow roadside valerian and chervil infestations. Youth Conservation Corps treated marsh thistle in Sylvania Wilderness. Biocontrol insects were raised and released, targeting purple loosestrife and spotted knapweed. Using a National Forest Foundation grant, the Yellow Dog Watershed Preserve controlled invasive plants in McCormick Wilderness. Approximately 284 new invasive plant sites were mapped.

Great Lakes Restoration Initiative (GLRI)

There were several GLRI projects to prevent the spread of aquatic invasive species.

- 4 portable pressure washers staffed at boat launches across the Western Upper Peninsula. A total of 6,893 people received "Clean Boats/Clean Waters" education; 1,554 boats were washed.
- 41 large aquatic invader signs installed at boat launches.
- 2 "Stop Aquatic Hitchhikers!" highway billboards.
- A construction contract was awarded for a permanent, self-service, boat washer at Hagerman Lake.
- Surveys in 22 lakes for Aquatic Invasive Species were contracted.



Gogebic Conservation District and FS haul away cut glossy buckthorn stems.

Gogebic & Ontonagon Title II Resource Advisory Committees

Four grants for invasive species projects were approved by these committees. Friends of Sylvania hired 3 seasonal employees to survey and control invasive plants in Sylvania Wilderness, treating 185 sites and mapping 108 new sites. Long and Thousand Island Lake associations treated 150 acres of Japanese barberry. Langford Lake Association treated 39 acres of Eurasian watermilfoil. Duck Lake association treated 3.5 acres of milfoil.

Partners/Cooperators

Gogebic Conservation District, Iron County Conservation District, Western UP Invasives Coalition, Keweenaw Invasive Species Management Area, Invasive Species Control Coalition of Watersmeet, Friends of Sylvania, Yellow Dog Watershed Preserve.

More information about the Ottawa National Forest's Invasive Species Program can be found at <http://fs.usda.gov/goto/ottawa/invasive>.



Partners provide AIS education and boat washing

| Fund Code | Funding | Acres | Comments |
|--------------|-----------|---------------|---------------------------|
| CWK2 | \$10,000 | 158.5 | Funded 1 seasonal |
| CWKV | \$3,900 | 20.9 | Glossy buckthorn |
| FRRE | \$2,802 | 32.1 | Employee cross-training |
| NFND | \$0 | 0.2 | Volunteers |
| NFTM | \$4,374 | 9.6 | Treat barberry pre-sale |
| NFVW | \$114,131 | 632.2 | Main program; 2 seasonals |
| NFWF | \$2,640 | 61 | Rusty crayfish trapping |
| SRS2 | \$24,275 | 216.3 | Four RAC grants |
| NFXF | \$141,172 | 0 | Great Lakes projects |
| Total | | 1130.8 | |

Partners/Cooperators: Gogebic Cons. District, Iron County Cons. District, Western UP Invasives Coalition, Keweenaw Invasive Species Management Area, Invasive Species Control Coalition of Watersmeet, Friends of Sylvania, Yellow Dog Watershed Preserve.

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Shawnee National Forest

2011 Invasive Species Accomplishments

Accomplishments

Our core target was 310 acres of the highest priority invasive species on the Forest. We emphasized control of garlic mustard, Japanese stiltgrass, and exotic honeysuckles. We treated 120 acres by mechanical means (mainly hand-pulling and torching), 60 acres with herbicides and 130 acres with prescribed fire. Similarly, we accomplished 335 acres of integrated target with prescribed fire.

In addition to the target-specific burning, we accomplished an additional total of about 3,900 acres of prescribed fire. Fire sets back some species like Japanese honeysuckle and multiflora rose, but it can also encourage many undesirable grass species. Overall, in most cases, fire has a net positive effect in controlling invasive species. We also had about 500 acres of wildfire that help retard invasive species.

Invasive Species Program

In addition to target accomplishment, we also published an environmental assessment of the proposed Forest-wide treatment of invasive species. The decision to implement the proposal was appealed and, following a review of the appeals, the Forest Supervisor withdrew his decision in order to clarify the proposal and refine our analysis.



Openland burning benefits warm season grasses, reduces invasive species and improves habitat for quail, turkey and the Henslow's sparrow.

River-to-River Cooperative Weed Management Area

The River-to-River Cooperative Weed Management Area (CWMA) is a partnership of 12 federal and state agencies, organizations and universities that coordinates efforts and programs for addressing the threat of invasive plants in southern Illinois. The CWMA was established in 2006 and addresses both terrestrial and aquatic invasive plant species through collaborative projects and activities focused in the following areas:

- Education / Public Awareness
- Early Detection and Rapid Response
- Prevention
- Control and Management
- Research

The Shawnee works closely with the CWMA and the Illinois Invasive Species Plant Council to educate people and increase knowledge of invasives in the landscaping industry. We also have three native pollinator gardens that highlight the importance and usefulness of native plants, including the use of natives in landscaping.



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Superior National Forest

2011 Invasive Species Accomplishments

Seasonal crews focused non-native invasive plant treatments on tansy, Canada thistle, spotted knapweed, and St. Johnswort near roadsides, gravel pits, and Boundary Waters Canoe Area Wilderness (BWCAW) entry points. Additionally, scoping was completed for the BWCAW Non-native Invasive Plant (NNIP) Management Project, which proposes to treat invasive plants in the BWCAW using a combination of herbicides and hand pulling.

American Recovery and Reinvestment Act funding: During the second year of a three year agreement funded by ARRA, the Student Conservation Association manually treated 30 acres of NNIP at priority sites in the BWCAW.

Aquatic Invasive Species: The Superior used volunteers from the White Iron Chain of Lakes Association to monitor over 175 sites for rusty crayfish. The Forest also surveyed seven lakes for spiny waterflea.

Great Lakes Restoration Initiative projects: Secured GLRI funding to partner with MN SeaGrant for AIS education and outreach. GLRI funding to the Cook County Invasives Team was used for:

- County-wide naturalist programs about NNIP.
- Herbicide application seminar for private land owners.
- Invasive species program at Grand Portage Band of Lake Superior Chippewa.
- Installation of boot brushes at seven trailheads.
- Over 1700 hours of NNIP control



Conservation Corps of Minnesota students helping to clear debris and pull invasive plants at the Devil Track River Wildflower Sanctuary. (Photo: Michael Lynch).

Secure Rural Schools: This funding was used to contract NNIP treatments on the Superior National Forest Scenic Byway.

Earthworms: About 75 employees attended a training to learn to conduct rapid assessments to detect earthworm presence/absence and severity of earthworm impacts. Field-going employees started integrating this into their data collection protocols.



Student Conservation Association crew pulling NNIP in BWCAW

| Fund Code | Funding | Acres | Comments |
|--------------|-----------|---------------|--|
| SPFH | \$9,000 | 30,981 | Gypsy Moth treatments |
| NFRW | \$500 | 1 | NNIP treatments in BWCAW |
| NFWF | \$141,468 | 310 | Main program; 6 seasonals |
| NFWF | \$4,773 | 11 | Purple loosestrife treatments |
| SRS2 | \$9,000 | 16 | SNF Scenic Byway treatment |
| NFXF | \$50,000 | 5 | Great Lakes projects |
| WRHR | \$92,000 | 30 | BWCAW treatments, count toward 2010 treatment accomplishment |
| Total | | 31,354 | |

Partners/Cooperators: Cook County, Cook County Soil and Water, MN Dept. of Transportation, Grand Portage National Monument, Grand Portage Band of Lake Superior Chippewa, MN Dept. of Natural Resources, Gunflint Trail Scenic Byway Committee, Sugarloaf: The North Shore Stewardship Association, Ely Naturalists, Cook County Invasives Team, Friends of the Boundary Waters.

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Wayne National Forest

2011 Invasive Species Accomplishments

This year invasive species control efforts focused on: garlic mustard, Japanese stiltgrass, tree-of-heaven, princess tree, Japanese knotweed, autumn olive, fescue and kudzu. Treatment priorities were four Special Interest Areas and other areas scheduled for prescribed burning and timber harvest. Five new invasive species control contracts were created:

- Japanese stiltgrass control in post-timber harvest areas and mechanical control of Japanese stiltgrass on timber haul roads prior to timber harvest.
- Tree-of-heaven and princess tree control near an old wildfire site.
- Tree-of-heaven and princess tree control in Bluegrass Ridge Special Interest Area.
- Autumn olive and fescue control in reclaimed mineland areas to protect RFSS bird habitat.
- Tree-of-heaven control along a horse trail.

Integrated Pest Center (NCIPM) are to ground-truth the aerial mapping efforts, search for the potential biological control for ailanthus (*Verticillium albo-atrum*), treat areas of ailanthus and have educational workshops.



Aerial view of female Ailanthus holding seeds in winter



WNF employees at annual Garlic Mustard Contest

In 2011, the Wayne National Forest and Ohio Division of Forestry (ODOF) signed a Challenge Cost Share Agreement to aerially map the invasive tree-of-heaven (*Ailanthus altissima*). A helicopter and pilot with two ODOF spotters performed Digital Aerial SketchMapping. Surveys were conducted in early to mid-winter (leaf-off) to map female ailanthus seed-bearing trees. During the first year of the agreement 163,256 acres were surveyed. Using initial funds as leverage, members of a local Cooperative Weed Management Area wrote two grants to further fund the project and add components to the project.

One grant from the USFS State and Private funded two more years of aerial mapping. Funds through the North Central

| Fund Code | Funding | Acres | Comments |
|--------------|---------|-------|--------------------------|
| CWK2 | \$4850 | 13 | Contract and seasonals |
| CWKV | \$18563 | 33 | Seasonals |
| NFN3 | \$1600 | 10 | Native plant production |
| NFTM | \$3650 | 5 | Contract and seasonals |
| NFWV | \$78652 | 1185 | Seasonals and FT staff |
| WFW3 | \$30000 | 121 | Contract |
| NFIM | \$17284 | maps | NNIS Mapping-seasonals |
| WFHF | \$19576 | 130 | Contract |
| NFRG | \$4108 | 45 | Mechanical control |
| SPS5 | \$8000 | 40 | Contract with S&P grant |
| NCIPM | \$35000 | maps | Aerial Ailanthus mapping |
| Total | | 1592 | |

Partners/Cooperators: Iron Furnace Cooperative Weed Management Area, Southeast Ohio NNIS Interest Group (CWMA), Ohio Division of Forestry, Northern Research Station, Buckeye Hill RC&D, contractors, volunteers.

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White Mountain National Forest

2011 Invasive Species Accomplishments

Each year botany and wildlife staff work tirelessly to perform early detection and rapid response actions on priority invasive plant species infestations on the White Mountain National Forest (WMNF) and at New Boston Air Force Station via an inter-departmental agreement with the Department of Defense. In 2011, the Forest achieved approximately 58 acres of non-native invasive species (NNIS) control on the WMNF and 105 acres at New Boston Air Force Station. The Forest accomplishment is down slightly from previous years, but was still a roughly 18 acre over accomplishment from the 40 acre target received in May 2011. It is likely that a 78 acre accomplishment would have been achieved, if it were not for the end of the season disruption caused by Tropical Storm Irene.

We continue to make excellent progress in controlling, and in some cases eradicating, NNIS on the forest. Most infestations treated in 2010 were found to be reduced by 80 to 90 percent. Five small infestation locations were completely eradicated. To foster and enable greater cooperation in the treatment of NNIS on state lands surrounding the WMNF, a participating agreement between the New Hampshire Department of Resource and Economic Development and the forest was signed in September 2011. The WMNF has begun to participate and lead efforts in regional early detection and rapid response activities. To this end, the extensive NNIS data gathered by the WMNF over the past decade was uploaded into both EDDMaps and iMapInvasives online invasives mapping programs so it can be more readily analyzed in regional planning efforts.

Early detection efforts by staff and partners discovered two infestations of a new invasive plant on the WMNF. Garlic mustard (*Alliaria petiolata*) was discovered at two recreation sites. One is a very popular rock climbing site and the other at a back country shelter location. In both cases it is clear that the seeds were transported to this location by recreationists. Control efforts began at both locations immediately upon discovery thanks to the Forest-wide Invasive Plant Control Environment Assessment being signed and in place.



Foliar application to Japanese knotweed (*Polygonum cuspidatum*) in a wildlife opening on WMNF



Garlic mustard (*Alliaria petiolata*) infestation at Rumney Rocks climbing area. The sign informs climbers that the infested area is closed to foot travel

| Fund Code | Funding | Acres | Comments |
|--------------|----------|-------|---|
| NFWW | \$71,958 | 58 | Main program; 1 seasonal New Boston Air Force Station |
| NFXF | \$45,000 | 105 | Does not count towards target |
| Total | | 163 | 58 acres target |

Partners/Cooperators: New Boston Air Force Station, NH Department of Resource and Economic Development, NH Department of Transportation, Appalachian Mountain Club, NH Botanical Club, New England Wildflower Society, Invasive Plant Atlas of New England, EDD Maps, and iMap Invasives

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For more information on the Forest Service, Eastern Region's Non-Native Invasive Species program, visit:
http://www.fs.usda.gov/detail/r9/forest-grasslandhealth/invasivespecies/?cid=fsm91_054674



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