



# FOREST INSECT & DISEASE NEWSLETTER



<http://www.dnr.state.mn.us/fid/index.html>

March 13, 2009

## *The Invasives Issue*

### **Division of Forestry Report on the Firewood Restriction Law, 2007- 2008**

In April 2007, Governor Pawlenty signed into law legislation restricting the movement of firewood into state parks, forest recreation areas and day-use areas, making it unlawful to bring in firewood not purchased from a DNR approved firewood vendor. Approved firewood is currently defined as firewood purchased at a state park, harvested in Minnesota not more than 100 miles from the state land where it will be burned, kiln-dried lumber or firewood accompanied by proof that it has been treated to be free of insects. A Commissioner's Order to be used in the State Register accompanied the legislation.

The Division of Forestry along with other agency divisions (Ecological Resources, Enforcement, Fish and Wildlife, Bureau of Information and Education, Trails and Waterways and Parks and Recreation) were involved in the early stages of the firewood initiative. A technical working group made up of staff from these divisions met regularly to develop and present firewood management recommendations, draft legislative language, draft the Commissioner's Order and coordinate interagency implementation efforts.

Regional Forestry staff implemented regional meetings and mailings where the primary audience was each region's major partners and stakeholders. The purpose of the meetings was to present the implications and provide a forum for discussion of the firewood restrictions, to garner support for the restrictions and explore ways in which all stakeholders could work together to address the threat of invasive species being moved in firewood. Regional staff contacted recreation personnel at the Chippewa and Superior National Forests, Voyageurs National Park, U. S. Army Corps of Engineers, over 90 per cent of the regions' private campgrounds, and all counties and chambers of commerce to enlist support for the firewood legislation and the DNR's attempt to change public behavior.

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A firewood communications team was formed of members from the Bureau of Information and Education and Divisions of Forestry, Fish and Wildlife and Parks and Recreation to develop a firewood restrictions communications plan and to coordinate education and outreach efforts between the DNR and outside agency groups.

In addition to the DNR groups, interagency firewood management and interagency firewood communications committees met regularly to explore opportunities for partnerships and to identify and provide coordination of outreach efforts and products being used in other agencies.

#### **The 2007 Season**

Division of Forestry developed a process to approve firewood being sold by vendors for use in state-administered facilities as well as a database to maintain the list of vendors that was kicked off before Memorial Day in May. Numerous calls were fielded throughout the 2007 season from potential vendors, and at the end of the season the database of approved

firewood vendors had grown to more than 400 vendors. The Forest Health Unit conducted a survey at the end of the year to determine area foresters' impressions of the firewood approval system and to solicit their suggestions and comments. We received feedback from ten out of 20 area supervisors, including one that remarked that the system to approve firewood vendors was the simplest he'd used in 20 years. Issues raised about the system:

- Develop a way for individuals to bring from their own woodlots within 100 mi.
- Individuals have vendor approval for personal use – how to restrict to actual vendors
- Should loggers give proof of 100 mi. radius when selling to vendors?
- Renew public campaign and include all public lands
- Better system for firewood use in state forest campgrounds
- Continue emphasis on transport of more than just emerald ash borer
- People without approval might copy receipt tickets
- Prohibit firewood from out of state
- Prohibit moving *any* firewood, not just on state lands, more than a determined distance
- How to monitor the 100 mi provision
- How to monitor the vendors

Division of Parks and Recreation reported few concerns. Staff concentrated on educating the public about the risks of bringing in firewood as opposed to 100 per cent enforcement. Having said that, 220 bundles of wood were surrendered at 22 parks in 2007. The majority of firewood complaints focused on the poor quality of wood for purchase at some of the parks. There was an increase in firewood revenue at Lake Carlos and Gooseberry State Parks. The average cost in a sample of 26 parks for labor to do minimal enforcement and educate the public was reported to be \$522.00.

Division of Fish and Wildlife focused on education for staff and providing educational posters to the field to inform and educate the public. They also prepared a draft directive on firewood restrictions on WMA/AMA that has been reviewed internally.

Division of Enforcement reported no incidents.

Bureau of Information and Education developed a Firewood Communications Campaign that ran from January through December 2007.

Voyageurs National Park adopted the DNR firewood restrictions, voluntary in 2007 and mandatory in 2008. Chippewa and Superior National Forests amended regulations to include the prohibition of firewood from any state other than Minnesota.

The U.S. Army Corp of Engineers, St. Paul district, issued a new firewood policy that prohibits the possession, transportation, use or storage of firewood originating more than 100 miles from St. Paul district project lands, or the current State limit, whichever is more restrictive.

A few counties, including Aitkin, Anoka and Olmsted, also adopted DNR firewood restrictions in their parks.

### **Conclusions from 2007**

The overall opinion from Parks and Forestry perspectives is that the first season of firewood restrictions went remarkably smoothly, especially considering the short amount of time between bill enactment in April and implementation in May. There are still loopholes in the law/Commissioner's Order that need to be addressed. We continued to refine the procedures of approved firewood application where possible and to educate the public on the risks of moving firewood.

### **The 2008 Season**

By the end of season, firewood from over 600 vendors was approved for use on state lands, and lists of vendors were more easily available to the public on the DNR firewood web page and on each of the state park web pages. We began the process of developing "tailgate wraps" for DNR Forestry (and perhaps Parks) trucks to help spread a "don't move firewood" message.

The Divisions of Parks and Recreation and Forestry developed a firewood brochure mainly for use in state parks. Parks also distributed updated, detailed guidelines to staff regarding the implementation of the firewood restriction law.

The DNR, Minnesota Department of Agriculture and USDA, APHIS, PPQ developed a letter that was sent to 100,000 out-of-state residents who applied for Minnesota hunting or fishing licenses. The letter informed visitors of the risks of moving firewood and cautioned against bringing firewood into Minnesota. The mailing was funded by USDA, APHIS, PPQ. The Minnesota Department of Agriculture developed a timeline for a process to certify firewood kilns to begin in January and potentially be rolled out in May 2009.

In the Twin Cities, the Three Rivers Park District and several county parks adopted the DNR restrictions.

### Conclusions from 2008

In 2008 we concluded that it would be desirable to revise the Commissioner's Order early in 2009 to reflect what we learned in 2007 and 2008. The Forest Health Unit has drafted a revised order, and the agency-wide technical committee will convene early in 2009 to discuss the revision and workable options.

### Looking ahead to 2009

- We will continue to approve firewood vendors, although the volume of applications decreased considerably in 2008. In addition, we are researching a process to renew approved firewood vendors.
- Tailgate wraps to be deployed by the start of camping season.
- Discover ways to reach out to private campground owners.

## Emerald ash borer: Frequently asked questions

From MDA website

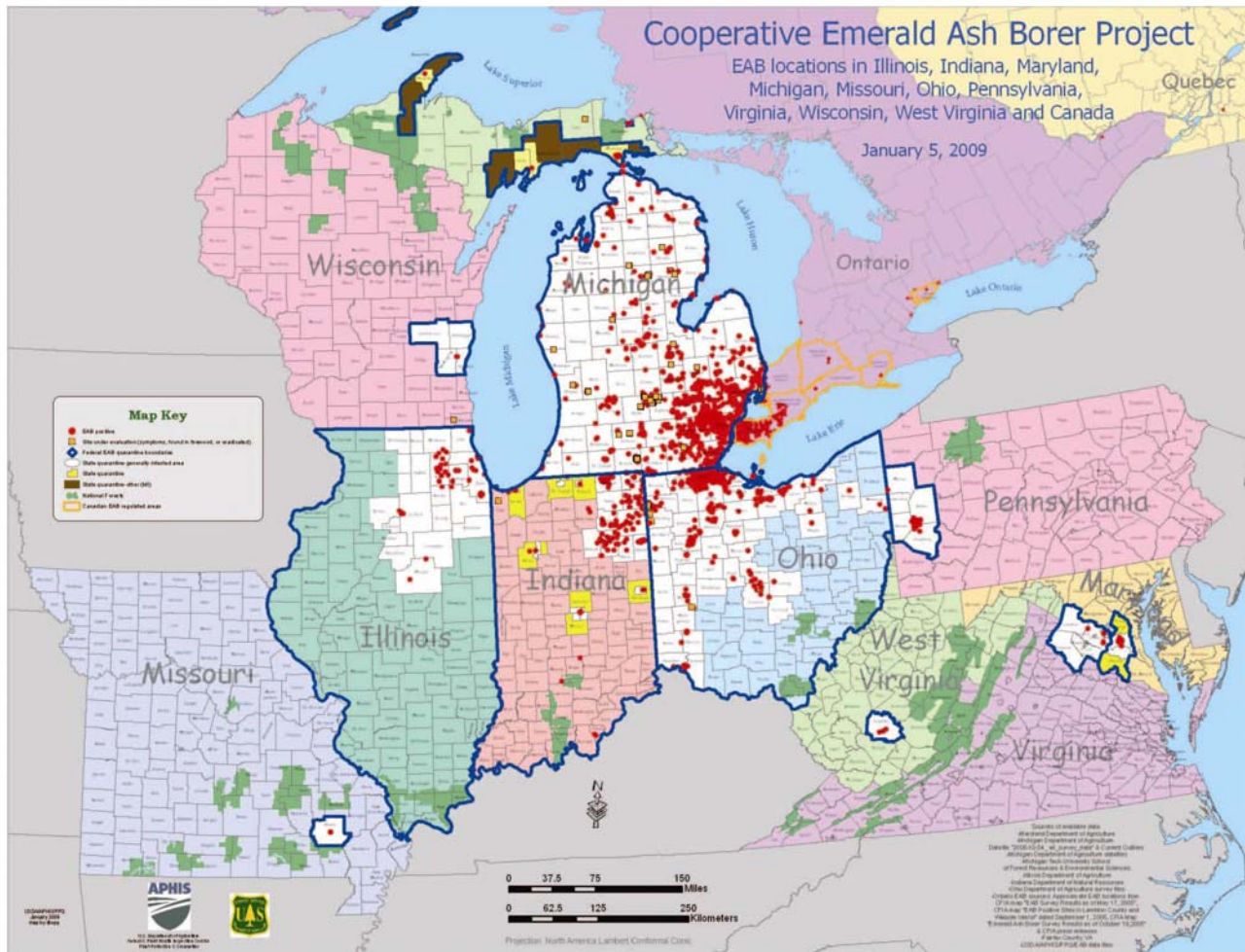
[http://www.mda.state.mn.us/news/publications/pestsplants/pestmanagement/eab\\_doihaveit.pdf](http://www.mda.state.mn.us/news/publications/pestsplants/pestmanagement/eab_doihaveit.pdf).

### What is EAB?

EAB is an insect that attacks and kills ash trees. The adults are small, iridescent green beetles that live outside of trees during the summer months. The larvae are grub or worm-like and live underneath the bark of ash trees. Trees are killed by the tunneling of the larvae under the tree's bark.

### Where is EAB?

EAB is native to eastern Asia but was discovered in Detroit, Michigan and Windsor, Ontario in 2002. Indications are it may have been introduced to this area as early 1990. EAB has been spread in ash firewood, nursery stock and possibly other ash materials to a number of new areas.



### **Why should I care about EAB?**

All ash trees are susceptible to EAB and millions of ash trees have been killed in infested areas already. Minnesota has one of the highest volumes of ash on forestland in the U.S. with an estimated 867 million forestland ash trees and ash is a prominent component of our urban forests as well. The potential economic and environmental impacts of losing these trees is substantial. The cost of removing and replacing a single tree can range from hundreds to thousands of dollars – how many ash trees are in your yard?

### **When will EAB reach Minnesota?**

No one knows. EAB has not yet been found in Minnesota but it inevitably will be. In other areas, EAB has been present for a number of years before building to detectable levels. The arrival of EAB in Minnesota can be postponed by preventing the movement of infested ash materials into Minnesota.

### **What will happen when EAB is in Minnesota?**

An *EAB Response Plan* ([http://www.mda.state.mn.us/news/publications/pestsplants/pestmanagement/eab\\_responseplan.pdf](http://www.mda.state.mn.us/news/publications/pestsplants/pestmanagement/eab_responseplan.pdf)) is in place to deal with an EAB detection in Minnesota. A variety of options are laid out in the plan ranging from suppression (limit the spread of EAB in Minnesota) to eradication (remove EAB from Minnesota).

### **What should I do if I think I have found EAB?**

First review diagnostic aids (<http://www.mda.state.mn.us/plants/pestmanagement/eab.htm>) for identifying ash trees and EAB symptoms. If you have difficulty with the diagnostic aids consult a certified arborist, local extension personnel or other trained professional. If you still suspect EAB after following these steps, contact the Arrest the Pest Hotline immediately.

**"Arrest the Pest" Hotline**  
**651-201-6684 - Metro Area**  
**or**  
**1-888-545-6684 - Greater Minnesota**  
[Arrest.The.Pest@state.mn.us](mailto:Arrest.The.Pest@state.mn.us)

### **What can I do about EAB?**

Don't import materials to Minnesota that could harbor EAB such as ash firewood. Become knowledgeable about recognizing EAB and remain vigilant to the condition of your ash trees. Reduce your investment in ash by planting a variety of trees when landscaping.

### **What treatments are available for EAB?**

At this time no treatments are advised for EAB in Minnesota. A number of chemical treatments are legal for use against EAB in Minnesota but their use is not advised unless the tree to be treated is within 15 miles of a confirmed infestation. After EAB is established in Minnesota chemical treatments may be a viable option for protecting high-value trees.

### **What should I do if my ash tree is in decline?**

Review diagnostic aids for identifying EAB symptoms, look into resources on maintaining tree health and/or consult a local tree expert such as a certified arborist or local extension person.

### **What can I do to keep my trees healthy?**

Plant a variety of trees, use proper planting techniques, review these resources on maintaining tree health and/or consult a local tree expert such as a certified arborist or local extension person.

## **Emerald Ash Borer: DNR Preparedness Plan is in development**

The Forest Health Unit has begun the development of an emerald ash borer (EAB) preparedness plan for Minnesota, to be completed in spring, 2009. The purpose of the plan is to use our expertise and the experience of states that have EAB to make recommendations for DNR forested lands, urban areas and private forests before and after the discovery of EAB. These recommendations will be incorporated into existing Subsection Forest Resource Management Plans.

The five to ten-year plan will focus in large part on outreach and education of the public, private land managers, DNR staff, communities and the "green industry," in order to facilitate early discovery and rapid response to EAB in Minnesota. Knowledge of Minnesota's ash inventory and controlling the movement of firewood will also feature largely in the plan.

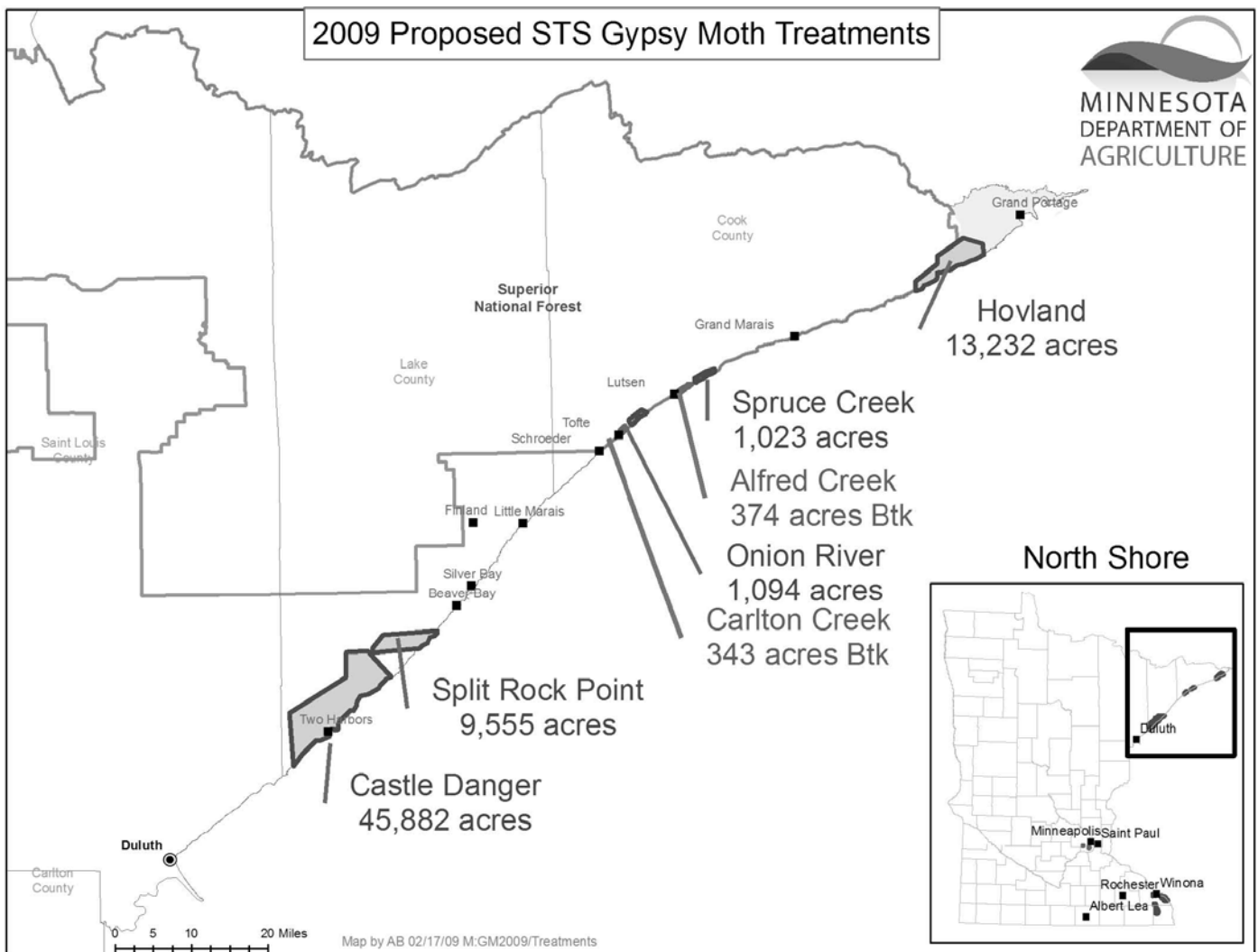
# Gypsy moth treatments planned

By Minnesota Department of Agriculture:  
<http://www.mda.state.mn.us/gypsymoth>

Throughout Minnesota, the 2008 gypsy moth survey resulted in the capture of 12,255 moths, the highest ever recorded in the state. These results, combined with the trap records of previous years, prompted Minnesota Department of Agriculture (MDA), the USDA Forest Service's Slow the Spread (STS) program, and local officials to develop the proposed treatment projects for 2009. There will be two treatment areas, the northern unit and the southern unit.

## The Northern Unit

The MDA, in collaboration with tribal, federal, state, and local partners, is proposing to treat gypsy moth populations in Lake and Cook Counties along the North Shore of Lake Superior. Surveys in 2008 revealed pockets where monitoring traps caught extremely high numbers of moths. In order to reduce current populations of gypsy moths and retard the growth of future generations of this forest pest, MDA proposes to treat a total of about 717 acres of land with a biological insecticide called Btk and about 71,000 acres with mating disruption. Seven treatment blocks have been identified and named for their geographic locations: Castle Danger, Split Rock Point, Carlton Creek, Onion River, Alfred Creek, Spruce Creek, and Hovland. Forests in the proposed treatment areas include many of the trees species considered susceptible to gypsy moth defoliation.



MDA and its partners are holding open houses to provide information about the gypsy moth, trapping data, and the proposed treatments. Public comments on this proposal are solicited through these open houses or in writing until April 15. The public is encouraged to attend and comment on the treatment proposal, or contact the MDA with questions or comments.

OPEN HOUSE SCHEDULE FOR NORTHERN UNIT		
<b>Wednesday, March 18th</b> <b>Two Harbors</b> Lake County Law Enforcement Center 613 3rd Ave. 2-4pm and 6-8pm	<b>Thursday, March 19th</b> <b>Silver Bay</b> Tettegouche State Park 5702 Hwy 61 1-3pm	<b>Thursday March 19th</b> <b>Grand Marais</b> Cook County Courthouse 411 W. 2nd Street 6-8pm
There will be no formal presentation at these locations. We invite you to take advantage of one-on-one time with several experts from participating agencies that will be available to explain the treatment proposal and answer your questions.		

*What happens next?* Pursuant to the National Environmental Policy Act, an Environmental Assessment (EA) is being prepared for this project. An EA is being completed to assess the potential effects to the environment. One EA will be written to cover all STS sites in Minnesota. It will include cumulative effects with references to all sites in analyses and conclusions. MDA is preparing the EA in cooperation with the U.S. Forest Service--State & Private Forestry (S&PF) and the Superior National Forest (SNF).

Further description of the treatments as proposed will be available on MDA's website, [www.mda.state.mn.us/gypsymoth](http://www.mda.state.mn.us/gypsymoth), in March. Paper copies will also be available from MDA, the SNF Headquarters in Duluth, Tofte and Gunflint Ranger Stations, and Grand Portage Tribal offices or mailed upon request. The public is invited to submit comments in writing to MDA before April 15.

A final Environmental Assessment is expected to be released in April. It will be posted on the participating agency websites and will be mailed to those who comment on this proposal. Separate decisions from the S&PF and the SNF will be signed before the treatment project begins on the respective lands.

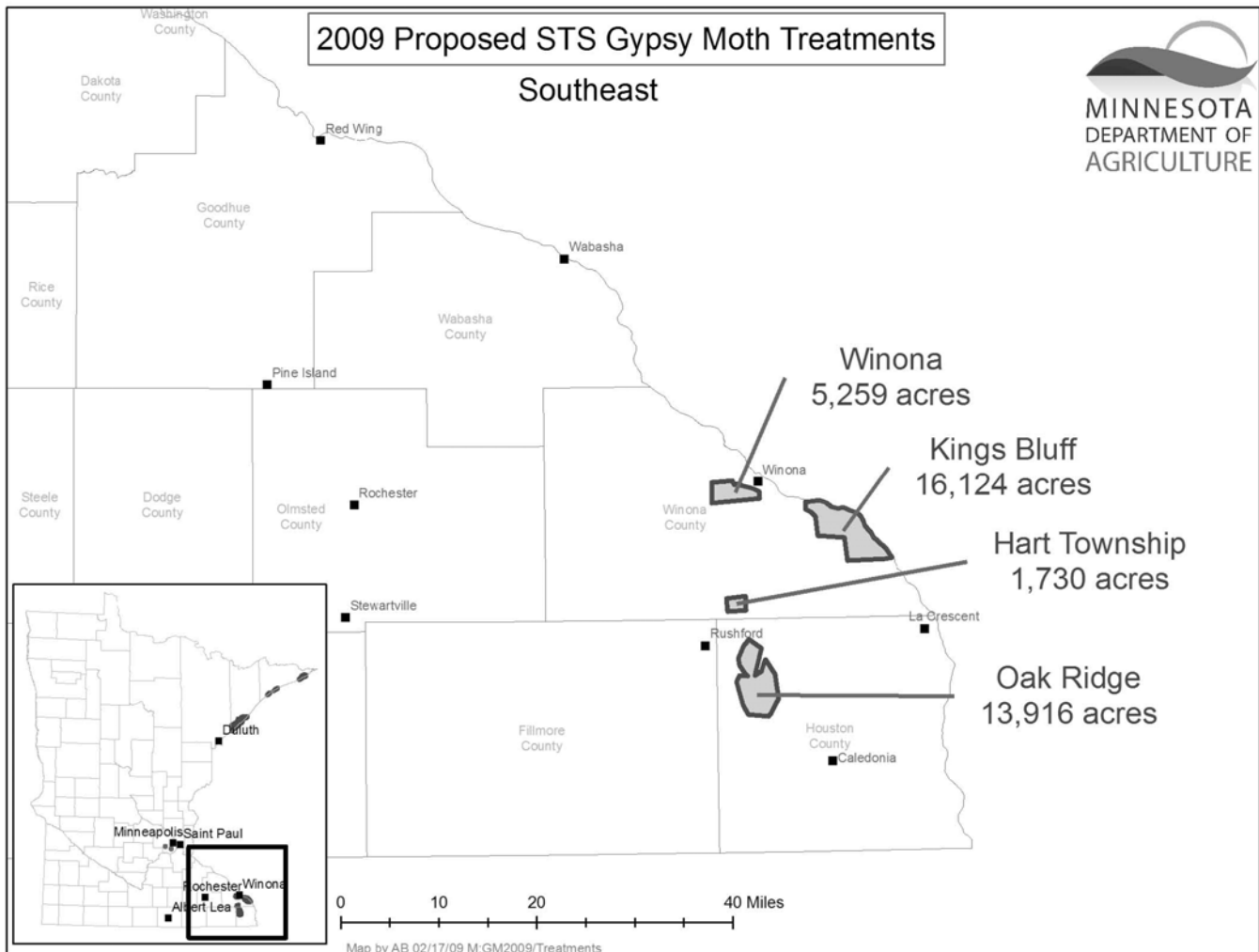
The portion of the proposed action on the SNF is authorized under Title IV, Insect Infestations and Related Diseases, of the Healthy Forest Restoration Act (HFRA) because the proposed action is consistent with the SNF Forest Plan, is not in a wilderness area, is being identified through a collaborative process, and is on Federal land on which windthrow or blowdown, ice storm damage, the existence of an epidemic of disease or insects, or the presence of such an epidemic on immediately adjacent land and the imminent risk it will spread, poses a significant threat to an ecosystem component, or forest or rangeland resource, on the Federal land or adjacent non-Federal land. As per HFRA, a no action alternative and an action alternative will be analyzed in the EA. HFRA projects are subject to a pre-decisional objection process (36 CFR 218).

**The Southern Unit**

The Minnesota Department of Agriculture, in collaboration with federal, state, and local partners, is proposing to treat gypsy moth populations in Houston and Winona Counties in southeast Minnesota. Surveys in 2008 revealed pockets where monitoring traps caught high numbers of moths. In order to reduce current populations of gypsy moths and retard the growth of future generations of this forest pest, MDA proposes to treat a total of about 37,000 acres with mating disruption. Four treatment blocks have been identified and named for their geographic locations: Kings Bluff, Oak Ridge, Hart Township and Winona. Forests in the proposed treatment areas include many of the trees species considered susceptible to gypsy moth defoliation.

MDA and its partners are holding open houses to provide information about the gypsy moth, trapping data, and the proposed treatments. Public comments on this proposal are solicited through these open houses or in writing until April 15. The public is encouraged to attend and comment on the treatment proposal, or contact the MDA with questions or comments.

OPEN HOUSE SCHEDULE FOR SOUTHERN UNIT	
<b>Wednesday, March 25th</b> <b>Houston</b> Houston Nature Center 215 West Plum Street 12-2pm	<b>Wednesday, March 25th</b> <b>Winona</b> Winona County Human Services 202 W. Third St. 4-7pm
There will be no formal presentation at these locations. We invite you to take advantage of one-on-one time with several experts from participating agencies that will be available to explain the treatment proposal and answer your questions.	



**What happens next?** Pursuant to the National Environmental Policy Act, an Environmental Assessment (EA) is being prepared for this project. An EA is being completed to assess the potential effects to the environment. One EA will be written to cover all STS sites in Minnesota. It will include cumulative effects with references to all sites in analyses and conclusions.

Further description of the treatments as proposed will be available on MDA's website, [www.mda.state.mn.us/gypsymoth](http://www.mda.state.mn.us/gypsymoth), in March. Paper copies will also be available from MDA, or mailed upon request. The public is invited to submit comments in writing to MDA before April 15. A final Environmental Assessment is expected to be released in April. It will be posted on the MDA website and will be mailed to those who comment on this proposal.

### Why continue to treat for gypsy moth?

Minnesota is a member of a federal program called Gypsy Moth Slow-the-Spread (STS). As the name suggests, member states share federal resources to monitor and treat gypsy moth populations. The STS program has been successful in keeping gypsy moth out of our state for years by treating comparable populations to the east. We have benefited greatly by these actions and can help protect our own state as well as those to the west of us by implementing these proposed treatments.

Using information collected each summer, MDA tracks the presence of gypsy moth in Minnesota. Based on this monitoring, the MDA determines the extent of gypsy moth populations, and whether and what types of treatments are needed. Each gypsy moth female is capable of laying an egg mass with 500-1,000 eggs. If left untreated, gypsy moth infestations can build and spread quickly. The goal of slow the spread treatments is to reduce the building moth populations in your area, protecting valuable natural resources.

Similar treatments have been used extensively in the U.S. to slow the spread of gypsy moth. Treatments made soon after the discovery of new populations can delay a costly, full-scale infestation and protect the forest's health, local property values, and the quality of outdoor recreation activities.

# Sirex woodwasp update

From USDA, APHIS web site  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/sirex/downloads/sirexpa.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/sirex/downloads/sirexpa.pdf)



Sirex woodwasp has been the most common species of exotic woodwasp detected at United States ports-of-entry associated with solid wood packing materials. Recent detections of Sirex woodwasp outside of port areas in the United States have raised concerns because this insect has the potential to cause significant mortality of pines.

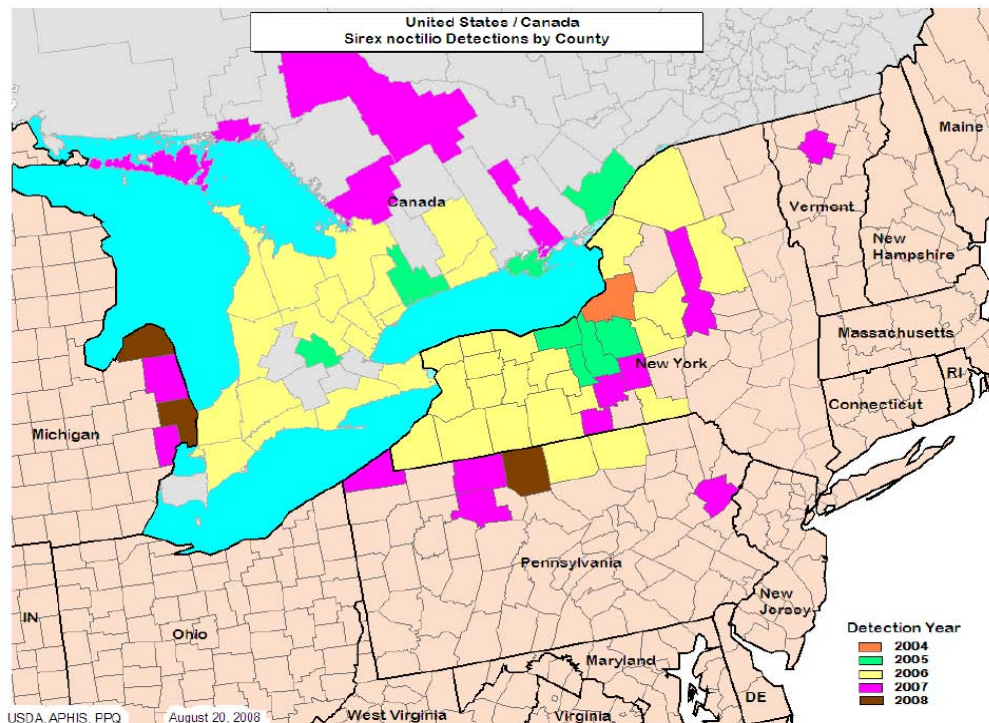
Sirex woodwasp can attack living pines, while native woodwasps attack only dead and dying trees. At low populations, siren woodwasp selects suppressed, stressed, and injured trees for egg laying. Foliage of infested trees initially wilts, and then changes color from dark green to light green, to yellow, and finally to red, during the 3-6 months following attack. Infested trees may have resin beads or dribbles at the egg laying sites, which are more common at the mid-bole level. Larval galleries are tightly packed with very fine sawdust. As adults emerge, they chew round exit holes that vary from 1/8 to 3/8 inch in diameter.

The Sirex woodwasp is considered a secondary pest of trees in its native range. However, it is a major pest in exotic pine plantations in the Southern Hemisphere. Females carry a fungus, *Amylostereum areolatum*, that they deposit in trees when laying their eggs. This fungus and the mucus injected by the wasp rapidly weaken and kill host trees, and the developing larvae feed on the fungus. This pest is attracted to stressed trees that are often used to make solid wood packing material (SWPM). Since the life cycle can take a year or more, the insect is transported easily in pallets or other SWPM and not readily detected at a port.

**Hosts** Sirex woodwasp attacks many species of pine trees. Red, white, jack and Scots pine are vulnerable to this woodwasp.

**Symptoms** Symptoms of *Sirex noctilio* infestation include: 1) Tree crowns turning light green to yellow to reddish brown. 2) Beads of resin or streams of resin drip visible on the bark. These arise from round oviposition holes in the bark and sapwood. 3) Larvae tunnel in the wood, and their galleries are packed with very fine frass. 4) Exit holes are approximately 3-8 mm diameter.

**Distribution** Sirex woodwasp is endemic to Europe, Asia, and northern Africa and has successfully established in Australia, New Zealand, South America, and South Africa. Based on its native range in Europe and Asia, it could establish in any climate zone of North America where pine occurs.



## Annosum root disease

From Wisconsin Forest Health Conditions Report

[http://www.fs.fed.us/foresthealth/fhm/fhh/fhh\\_08/wi\\_fhh\\_08.pdf](http://www.fs.fed.us/foresthealth/fhm/fhh/fhh_08/wi_fhh_08.pdf)

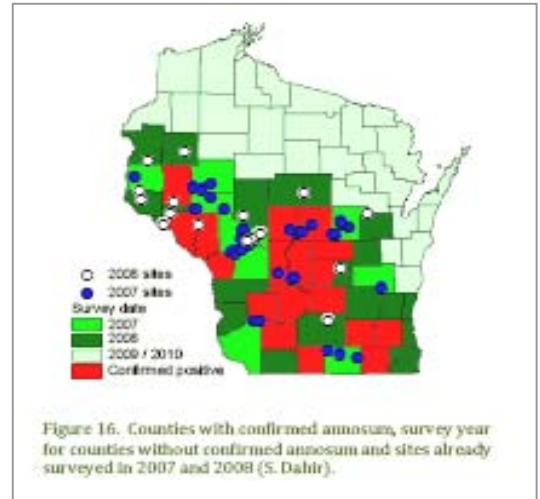
Annosum root rot, caused by the fungus, *Heterobasidion annosum* was first identified in Wisconsin in 1993 and is considered among the most important and destructive diseases affecting conifers in the north temperate regions of the world. Over 200 woody species have been reported as hosts. Red, white and jack pine and white spruce are the species most likely to be infected; particularly in plantation-grown stands subjected to thinning. Annosum root rot is most damaging in plantation-grown conifers where thinnings provide infection courts (fresh stumps) and root grafts provide a pathway for Annosum to move from tree to tree.

**Known Locations:** Annosum root rot has been observed in eighteen counties in Wisconsin. Infection has been observed on red, white and jack pine.

**Symptoms & Signs:** Crown symptoms typically appear 2-3 years after a thinning. Infected trees will have thin crowns, reduced height, diameter, and shoot growth. "Infection centers" develop as the disease progresses and may contain one to many dead trees surrounded by recently dead or dying trees. Fading and dead trees may have fruit bodies (spore-producing structures) in the root collar area. These are often so low on the tree they are buried among soil and fallen needles. Young fruit bodies appear in mid summer and look like popcorn. By fall, they are bracket-shaped - reddish brown on the top and white on the lower surface. Fruit bodies are perennial yet undergo partial deterioration each year.

**Impact:** Infected trees will have reduced height, shoot and diameter growth and thin foliage. These symptoms typically appear 2-3 years after a thinning. As decay advances through the root system and into the lower stem, the tree will become more susceptible to wind throw and eventually die. Red, jack and white pine seedlings and saplings in close proximity to infected overstory may also become infected. The number of infection centers in a stand can vary widely. Infection centers create gaps in the forest canopy where brush and early successional trees can regenerate. Both Annosum root rot and red pine pocket mortality can occur in the same stand and even within the same pocket.

**Site Factors/Stand History:** In the southeastern United States, disease development is more common on land formerly used for agriculture and with a pH >6 than on old forest soils. Sandy or sandy loam soils at least 12 inches (30 cm) deep, with good internal drainage and a low seasonal water table are also considered sites favorable for disease development. The influence of site factors on disease progression has not yet been studied in Wisconsin.



## Oak wilt: Minnesota Suppression Program update

In 2008, the Minnesota Department of Natural Resources began monitoring all 2007 grant administered oak wilt suppression projects in cooperation with the USDA Forest Service, NA, State and Private Forestry and the following Minnesota communities and agencies: Andover, North Oaks, Maplewood, Ham Lake, Lino Lakes, Shakopee, the Chicago County Soil and Water Conservation District, City of Columbus, Mahtomedi, Lake Elmo, Blaine, and Isanti County.

Inspectors from the above communities were instructed to inspect all 2007 treatment sites using USFS field protocol. Infection centers were considered successfully treated if (1) there were no failures in the root graft barrier (RGB) line and (2) all potential spore-producing trees (PSPT's) were properly removed and disposed of.

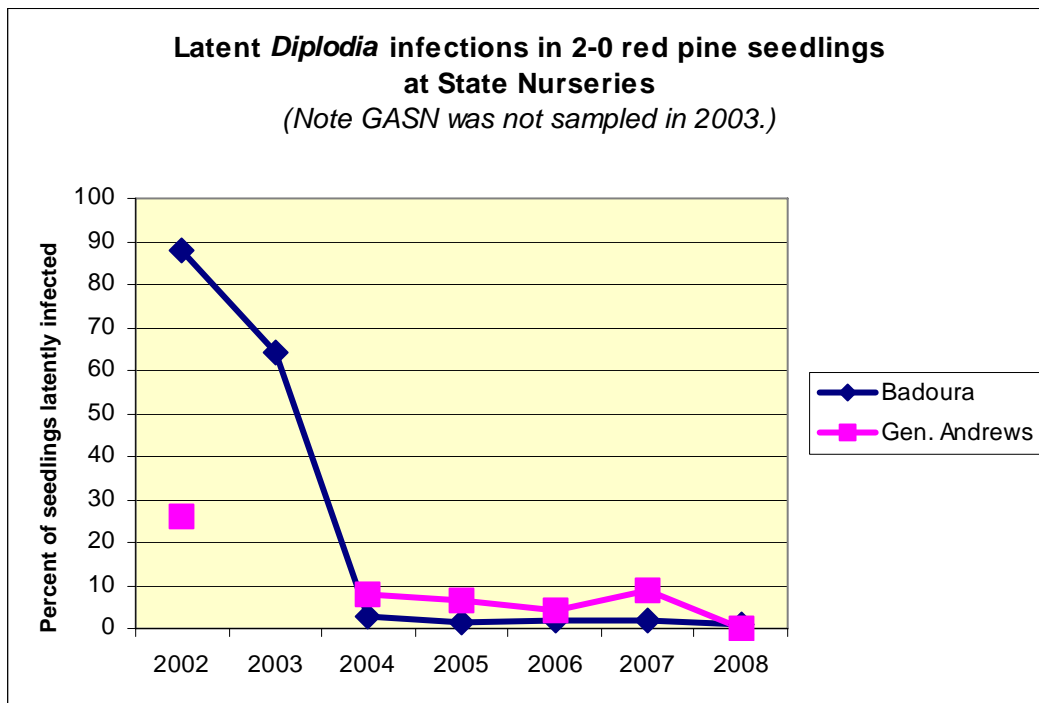
Efficacy data was collected on 126 treatment sites. Treatment success was roughly 98% with only a few sites to follow-up on. A total of 32,505 feet of RGB line was installed in 2007 in the above communities and subsequently 519 PSPT's were removed at the same time. These treatment sites will be followed through 2010.

Within the communities of Andover, North Oaks, Maplewood, Lino Lakes, City of Columbus, Mahtomedi, Lake Elmo, and Isanti County, additional grant dollars were used in the fall of 2008 to install approximately 200 additional treatment sites. These additional sites will be followed through each year, including, 2011.

The balance of the oak wilt cost share program to Minnesota communities is now completed with the exception of the City of North Branch, which will continue through final monitoring in 2012.

## *Diplodia* infection levels in Minnesota nursery stock continue to decrease

In an effort to monitor the amount of latent *Diplodia* infections that occur in red pine seedlings produced by the State Nurseries, a survey was completed at Badoura and Gen. Andrews Nurseries. From Badoura Nursery, 260 seedlings were collected on October 20<sup>th</sup>; 120 were 2-0 seedlings and 140 were 3-0 seedlings. From Gen. Andrews Nursery, 240 seedlings were collected on October 21<sup>st</sup>; 135 were 2-0's and 105 were 3-0's. The 2-0 and 3-0 seedlings were sampled in a systematic design and were assayed for the presence of *Diplodia* spp. by Dr. Stanosz's lab at the University of Wisconsin. At Badoura Nursery, the 2-0 seedlings averaged 0.8% latency and at GASN, they averaged 0.0% latency.



# *Feature Article*

## **Invasive species management on DNR-administered lands**

By Susan Burks

In May 2007, the Department of Natural Resources (DNR) adopted a new operational order regarding the management of invasive species on DNR administered lands. The intent was to provide a coordinated approach to invasive species management consistent with state and federal statutes. Research and case studies have shown that prevention and appropriate pest management is cost effective when compared to the losses associated with lost business revenue and/or resources impacted by invasive species. So the objective of the order was to minimize the risk of introducing invasive pests into areas where they didn't already occur and/or spreading existing infestations of invasive pests. While invasive species are fast becoming a major issue on all lands, public and private, the operational order does not apply to any but those lands administered by the DNR.

The operational order directed each division to develop a set of guidelines specific to their operations. The reason behind separate division guidelines was to provide the flexibility needed to address varying state mandates. For instance, the division of Forestry has been charged with the responsibility of producing an income on school trust lands (administered by the division) to support county school districts. That requires practices and contract specifications that may not be appropriate on a Scientific Natural Area (SNA). And likewise, protecting a critical habitat such as an SNA, requires a level of care that may not be feasible in a working forest. However, separate division guidelines do create the potential for discrepancies between the Divisions. So development of division guidelines was coordinated through an oversight committee where ideas and approaches were shared and in many cases borrowed to facilitate shared fieldwork. Within that context, Forestry division guidelines were completed this summer. Implementation began in August.

### **Implementation**

Division of Forestry's "[Guidelines for Invasive Species Management](#)" were finished and approved in July 2008. Now that they are complete, attention can turn to developing the tools needed to effectively implement the guidelines. There are a number of tools needed that are not yet in place. These include among other things: equipment wash stations, species occurrence data, survey and monitoring protocols, reporting methods, management practices and priorities. Because many of the needed tools are not yet in place, division guidelines will be implemented slowly with an emphasis on outreach for the first year.

Division staff will be expected to begin to incorporate these guidelines into their day-to-day operations, much like they do practices meant to ensure their personal safety. That means identifying where the guidelines apply to their operations, what actions they need to take and what procedures and tools are needed to support those efforts. But this first year will be largely used as an education opportunity for both staff and program administrators. As a new endeavor, we are all learning what it takes to meet these objectives. And feedback on what doesn't work is as important as what does. This is especially true when working with contractors and vendors. Unless there is a regulatory issue, following division guidelines will be voluntary and will not be incorporated into contract specifications for some time.

### **Outreach Efforts**

The most critical of the tools needed is the materials and means to reach out to and educate division staff and cooperators. Initial training was accomplished through three regional workshops hosted in August and September 2008. But more is needed. Audiences and their concerns need to be identified. Partnerships need to be explored. And materials and trainings are needed for key interest groups. One of the first efforts undertaken was to develop a brochure for loggers working on DNR administered lands. The brochure, [Timber Operations on DNR Lands, Invasive Species Guidelines](#), released in November, outlines the voluntary actions being asked of loggers working on state administered land. Primarily the requests are to 1) arrive on any job site for the first time with clean equipment. Then on a regular basis, walk around any equipment being taken off site to knock off dirt clods and plant debris. A second effort undertaken with the Minnesota Logger Education Program (MLEP) involves developing curriculum for their annual logger certification training. The first presentation is scheduled for April 2009.

The US Forest Service funded a third larger project. The proposal includes two phases, 1) to develop an education plan and 2) to design an interagency web site on terrestrial invasive species. The education plan is meant to integrate outreach and education with social marketing techniques. The goal is to interrupt pathways by which invasive species spread across the landscape, focusing on those pathways associated with recreational activities. In 2008, an interagency core team was initiated to outline project goals, decision processes and time lines. A larger advisory committee was organized with their first meeting scheduled for January 2009. With a broad range of representatives, the committee brings to the project expertise and knowledge about recreation groups within the state and the social sciences needed to effectively reach them. Besides assisting the planning process, members of the advisory committee can pre-test ideas and help explore avenues of audience research. A focus group study and a baseline survey, scheduled later in 2009, will help more fully describe key audiences, their current understanding of

invasive species, their attitudes, motivations, values and concerns to help ensure an education plan capable of positively influencing public behavior.

### **Surveys and Occurrence Data**

In part because there was no reporting mechanism in the past, there is little information available to describe where invasive species, particularly plants, occur on Forestry administered lands. So besides developing those mechanisms, beginning to fill in our understanding of where invasive species occur and where they might pose management issues will be one of the major tasks undertaken. To begin that process, a road-based survey was initiated summer, 2008. Using software developed by Ecological Resources, the survey includes all roads within state forest boundaries in the central and northern parts of the state. Completing that survey and a survey of all DNR managed gravel pits is scheduled for 2009.

Another project initiated in 2008 was a comparison of 5 different methods used to map the occurrence of buckthorn in order to evaluate their capability of detecting low levels of infestation. Interpreted photographs taken at three different resolutions are being compared to data obtained through aerial sketch mapping and ground surveys. The study results, expected spring 2009, will help guide detection efforts in other parts of the state. With grant funds provided through Ecological Resources, these surveys and several smaller projects will begin to give us the information needed to prioritize future survey and management efforts.

Reporting systems are being evaluated with plans to modify and adapt existing systems to manage invasive species data. A system of quality control is being added to the software used in our road-based survey. Utilizing handheld data recorders, the system provides a ready means to record and report populations of invasive plants. Two other reporting systems, SRM and FIM, used within the division to manage forest stand inventory data and management projects are being modified to include invasive species information. Overtime, the combination should provide the basis for future planning and management needs.

### **Management Practices and Priorities**

While there is a lot of information out there about how to identify invasive species, the information about how to control them at an operational level is lacking. Often multiple plant species occur on a site and the management recommendations for one plant may actually favor another. And in some areas, invasive plants are so widespread and well established, that controlling them seems impossible. Trying to manage or even report each and every infestation isn't feasible. So where do we start?

While the population dynamics of some species may not be fully understood, in general, the highest priorities for both reporting and active management are as follows:

- When a new infestation is discovered with the potential to cause long-term damage. Management is much more likely to succeed during the early stages of an infestation.
- When small infestations occur outside the current range of that pest, or occur only in small isolated pockets away from larger well-established infestations. Again, management is much more likely to succeed when infestations are small and isolated.
- When infestations are discovered that can be effectively managed during planned operations, such as during a timber harvest or site preparation.
- Where state and county regulators require invasive species management due to the potential impact on adjacent farm and/or range lands.

Tackling large well-established infestations can consume large amounts of time and money. They also may not be effective in the long run because of the likelihood of repeated reintroductions from adjacent land. Rarely would such infestations be considered a high priority except in an area of exceptionally high value and/or visibility. Examples might include high use parks or historical sites or developed areas used for educational purposes.

### **Future plans**

Because this first year of implementation is a learning process for all involved, our division guidelines will likely evolve over time. As we try various practices out and see what works and what doesn't, protocols will be developed and/or fine-tuned to support division needs. As outreach efforts progress and division cooperators become more familiar with the practices needed, contract specifications will be more and more common to protect the resources being managed. We will also begin to explore how best to pass this information onto private land owners and share it with our other partners.

In December 2007, the division of Forestry created a new position, the Invasive Species Program Coordinator, thus simultaneously establishing the Forestry Invasive Species Program. Sue Burks, previous Central Region Forest Health Specialist took the position. The next year or two of the new program will focus on implementing the division guidelines and establishing a long-term vision for invasive species management within the division. Feel free to contact me at

[susan.burks@dnr.state.mn.us](mailto:susan.burks@dnr.state.mn.us) with your concerns, ideas and suggestions on how best to protect our forest resources in the face of the ever-increasing threat posed by invasive species.

**For more information, see:**

DNR Invasive Species Pages

<http://www.dnr.state.mn.us/invasives/index.html>

DNR Invasive Species Program & Links

<http://www.dnr.state.mn.us/invasives/links.html>

Forestry Division Invasive Species Guidelines

[http://files.dnr.state.mn.us/assistance/backyard/treecare/forest\\_health/invasiveGuidelines.pdf](http://files.dnr.state.mn.us/assistance/backyard/treecare/forest_health/invasiveGuidelines.pdf)

Timber Operations, Invasive Species Guidelines

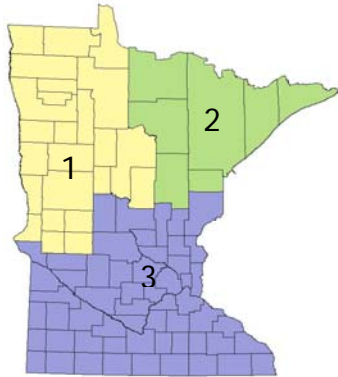
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This newsletter is developed as a service to forest managers and shade tree owners. The Forest Health Unit would appreciate comments concerning the newsletter and its contents. These can be directed to Jana Albers, Editor, 1201 E. Highway # 2, Grand Rapids, MN 55744. To add, change or delete your name from our mailing list, please contact the editor. Thanks.

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