

05 - 0047

2004 Legislative Report • Plant Protection Section

Minnesota's Invasive Species Program

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Introduction

The Plant Protection Law (Minnesota Statutes Chapter 18G.12, subd. 5) requires reporting on harmful terrestrial invasive species to the chairs of legislative committees having jurisdiction over environmental and agricultural resource issues. The following is the annual report of the Minnesota Department of Agriculture's Invasive Species Unit accomplishments and activities during 2004.

Invasive species are of increasing concern worldwide. Costs in economic loss, ecological impacts, and control actions due to invasive species in the United States (US) alone have amounted to over \$300 billion per year, and this figure continues to climb. With the current increase in global commerce, the possibility of new pests crossing US borders has amplified significantly. International trade agreements are carefully arranged so that each country can protect their borders from invasive species that may cause economic impact or ecological harm.

The Minnesota Department of Agriculture (MDA) works closely with the United States Department of Agriculture Animal and Plant Health Inspection Service (USDA, APHIS) to keep new invasive species from entering US borders. Surveys and inspections are conducted to determine the presence of pests not known to exist in Minnesota. The early detection of and rapid response to pest presence is the proven method of mitigating impacts to regional industries and threats to the national economy.

Additionally, because of their nature and accessibility, some invasive species could be used for terrorist attacks against US crops, and therefore have become a national security concern. Species that could most easily be used for bioterrorism are designated on the USDA's Select Agent list. A first identification of these agents inside US borders would trigger an emergency response in accordance with presidential directives for homeland security.

Expenditures for the Invasive Species Unit

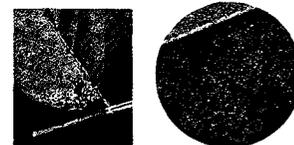
Base funding for the MDA Invasive Species program is derived from general fund dollars. Additional short-term funding is received from federal sources such as the USDA Cooperative Agricultural Pest Survey Program, the USDA Forest Service, and the gypsy moth Slow the Spread Foundation. Because this funding may not be received every year, it is not represented in the following table. The majority of the general fund expenditures for management of invasive species are used for program coordination, survey activities and detection efforts across the state. The following information is taken from calendar year 2004.

Management (Program Coordination)	
Salary	\$214,676.50
Training	\$ 1779.00
Subtotal	\$216,455.50
Survey and Inspection (Pest Detection)	
Salary and benefits	\$178,135.82
Materials and Travel	\$100,964.51
Subtotal	\$279,100.33
Outreach and Education	
Salary and benefits	\$ 41,108.25
Printing, mailing, materials, etc.	\$ 24,479.51
Subtotal	\$ 65,587.76
Administration	
Salary	\$ 22,837.93
Computers	\$ 2881.66
Rent and other operating costs	\$ 41,084.26
Subtotal	\$ 66,803.85
Total	\$627,947.44



In·va·sive Spe·cies *n.* a nonnative species whose introduction and establishment may cause economic or environmental harm, or harm to human health.

Accomplishments in 2004



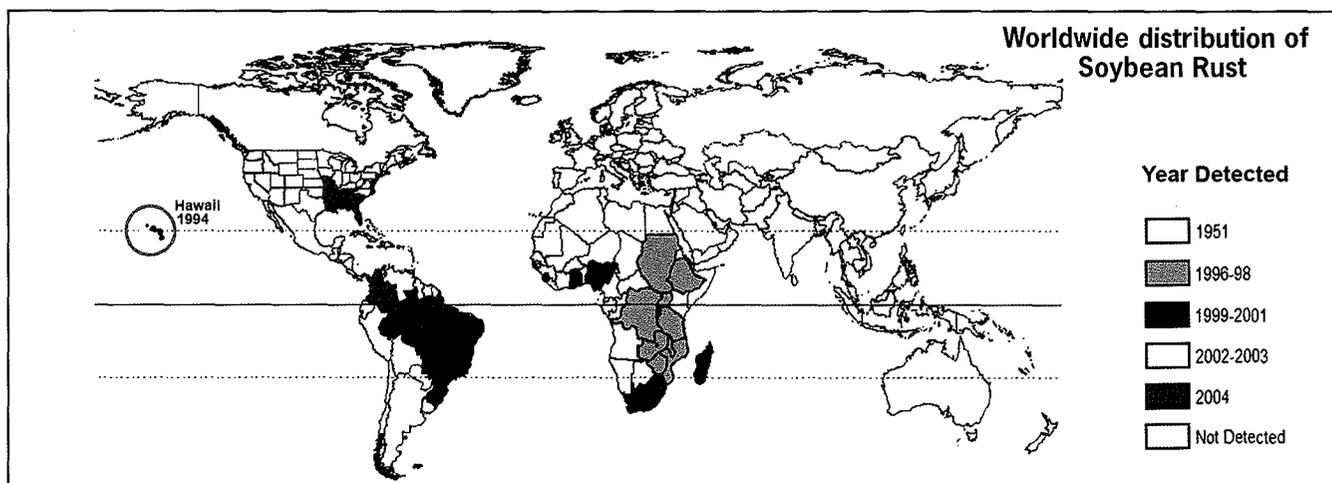
Soybean Rust Simulated Emergency Response Exercise

Asian soybean rust (SBR), an example of one invasive species on the Select Agent list, has caused up to 80 percent yield loss in areas where it occurs and could dramatically impact soybean production in the US. First documented in Japan in 1901, SBR had spread to Paraguay by 2001, the first finding in the new world. At that time, all SBR findings were south of the equator. It was expected to stay there, as it was thought that airborne spores would likely travel with winds isolated to the southern hemisphere. In 2002 and 2003, SBR became widespread across Paraguay and Brazil, causing significant losses to a major soybean production area, and in 2004, SBR skipped unexpectedly across the equator to Columbia.

On September 29 and 30, 2004, USDA, APHIS and the MDA Invasive Species Unit held a simulated response exercise to a first detection of SBR. An assessment team from across the nation was mobilized to the University of

Minnesota Experiment Station in Rosemount, Minnesota, known as UMore Park. The Incident Command System was used, the organizational structure for emergency response required by federal directives, with Geir Friisoe, Section Manager for the Plant Protection Section, and Kevin Connors, USDA, APHIS State Plant Health Director, acting as Unified Command.

On November 6, 2004, coinciding with a devastating hurricane season, SBR was detected in a research field outside of Baton Rouge, Louisiana. On November 11, APHIS and the Louisiana Department of Agriculture held an actual Emergency Response for the first documented finding of SBR inside US borders. According to federal personnel, lessons learned in the Minnesota simulated exercise were critical to the success of the Louisiana Emergency Response.



Emerald ash borer detection survey and outreach

Emerald ash borer (EAB), an invasive species from Asia, was first reported in North America in 2002 when it was found infesting and killing ash trees in Michigan. Since then, isolated infestations have been discovered in Ohio and Indiana. Unlike native wood borers that colonize weak and dying trees, EAB attacks healthy trees, making it an even more devastating pest. It was probably imported into the US via infested ash pallets, and its risk of spread to Minnesota via infested nursery stock and firewood is great. An inter-agency committee composed of representatives from the Minnesota Department of Natural Resources (DNR), the USDA Forest

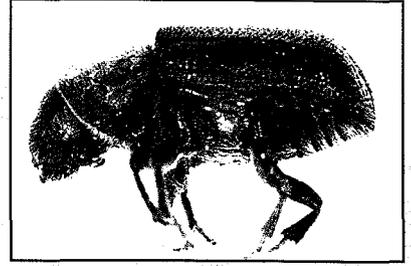
Service, USDA, APHIS and the MDA, assessed the risk of entry into Minnesota. High-risk sites identified by the group include nurseries, sawmills, campgrounds and urban forests.



Two goals of the 2004 survey were to visually survey ash trees for signs and symptoms of EAB activity at high risk sites, and to interview site employees and assess their awareness of EAB. Summer staff visited more than 800 sites, inspected approximately 32,500 ash trees, and conducted interviews at 69 percent of the sites. No ash trees exhibiting signs or symptoms of EAB were found during the survey. An additional goal was to produce outreach materials to help identify and report findings of EAB. MDA produced an 8.5" x 11" educational poster on EAB as well as a wallet-sized Pest Alert card, and these products were mailed to over 7000 targeted groups and individuals.

Exotic Bark Beetle/Wood Borer Survey

This survey was designed for early detection of and rapid response to exotic species of bark beetles and wood borers. Their entry into North America and their potential to cause wide-spread damage to trees have been identified as high-risk. Some species are already established in the continental US or in Canada, but are not yet known to occur in Minnesota.



Pine shoot beetle, great spruce beetle, European spruce bark beetle and six-spined spruce beetle were among the species targeted in our survey. Possible entryways for these exotics include imported stone and tile dealers, cable and wire rope dealers, pallet re-builders, and green waste wood recycling facilities. None of the target species were found in survey traps during 2004, but 98 potential pathway sites were documented. A future survey of these locations, called "hot spots" by APHIS, will be the best way to detect the presence of invasive species early so that eradication strategies can be implemented.

Banded Elm Bark Beetle Survey

Banded elm bark beetle is a native of Asia, and was discovered in North America for the first time in 2003. Subsequent surveys across the US revealed it was widely-established. MDA staff designed a survey in 2004 to confirm the likelihood it would also be found in Minnesota, and indeed, four specimens were collected in Anoka County in traps set by MDA and USDA, APHIS staff. It is not currently known whether the banded elm bark beetle could vector Dutch elm disease, and an assessment will be done to determine if more surveying is warranted.

Douglas-fir Beetle Survey

Sometimes invasive species don't come from across the ocean, but from just across the Rocky Mountains. Douglas-fir beetle is one example, and was discovered in northern Minnesota in 2001, associated with western larch logs shipped from Montana. Douglas-fir beetle is native to western US and Canada, and is considered one of the most destructive forest insects in North America. MDA's trapping survey in 2004 was designed to monitor further beetle introductions, detect established populations and determine special distribution of these populations. No Douglas-fir beetles were detected in the survey. MDA has a compliance agreement with the company importing the western larch logs to decrease the risk of future introductions. Visits to monitor sanitation at the importation site as well as continued surveys are planned.



Other Notable Invasive Species Detections in 2004

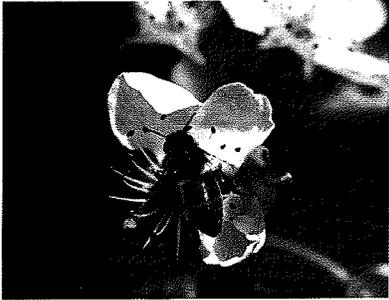
British yellowhead

British yellowhead, a plant pest from the Netherlands long-targeted by APHIS, was discovered for the first time in two Minnesota locations. The first was in a large wholesale hosta production field in Dakota County, and the second was in a hosta planting near a commercial building in Bloomington. A new pest alert sheet has been developed and possible regulatory actions are pending. MDA is developing eradication strategy for this pest, which is likely to invade Minnesota wetlands. British yellowhead was found in only one other US location, a Michigan nursery, where plant health officials there are attempting to eradicate it.

Exotic weevil

A possible threat to Minnesota pines, *Xyleborus pubescens* Zimmermann was recovered from eastern pin oak trees during routine nursery inspections. The two- to three-inch caliper ball-and-burlap trees in which the weevil was found originated in South Carolina.

Apiary Program



In 2003, MDA's Apiary Program joined the Invasive Species Unit. The program is funded through a general fund account not included in the 2004 expenditures. While not native to North America (honey bees were imported to the US from Europe), honey bees are not invasive, and are domesticated. Minnesota currently has 421 registered beekeepers managing more

than 120,000 hives, or colonies. Beekeepers each pay \$10 to register their colonies. Fifty beekeepers keep over 800 colonies, and the majority of these beekeepers migrate with their colonies in the winter to pollinate crops in other states, including California, Texas, Mississippi and Louisiana. The following is a summary of survey results from 2004.

In May and June, three apiary inspectors went to 122 apiaries around Minnesota and inspected 786 colonies. During the inspections, 53 colonies were found infected with American foulbrood (AFB), a widespread, very infectious and damaging disease of young bee larvae.

European foulbrood, a much less common and less serious disease, was only seen in four colonies. Forty cases of the fungal disease chalkbrood were recorded.

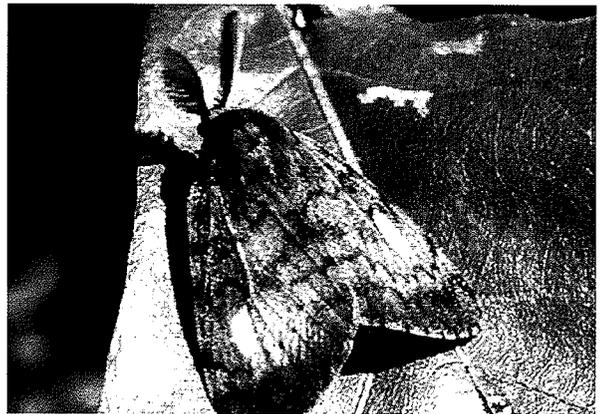
Health inspections are conducted every year in September and October to certify colonies for movement out of Minnesota. Forty-six such inspections were conducted in 2004, and 46,500 colonies certified for interstate movement. During the interstate inspections, 10 cases of AFB were recorded.

Gypsy Moth Program

Detection surveys

Gypsy moth has long been recognized as a serious defoliator of North American forests. For over 30 years, the MDA has successfully detected and eradicated populations of gypsy moths through a detection survey program. MDA remains the lead agency for gypsy moth detection in Minnesota. Other cooperators included the USDA, APHIS, Plant Protection and Quarantine, the USDA Forest Service, the Minnesota Department of Natural Resources and the Three Rivers Park District. In fall, 2003, the federal Slow the Spread (STS) action boundary moved into southeast Minnesota and expanded in the fall of 2004 to include Cook and Lake Counties in the northeast. This change did not have much impact on the management of gypsy moth, but what it did mean was that the gypsy moth front was nearing the Minnesota border and that moth introduction pressure would increase. It also meant that the state was eligible for STS Foundation funding to decrease the rate of gypsy moth spread.

Staff in the cooperative program set 18,646 delta traps across the state, and 391 male moths were caught (a 26 percent decrease from 2003, when 535 male moths were caught). Twenty-six seasonal MDA staff set and monitored 15,154 traps covering 22 trapping routes. In addition, four lead workers set an average of 150 traps in their own routes and supervised up to six



trappers each. Other cooperators in the program set 3,492 traps.

Three pulp mills in Minnesota are under federal compliance agreements for gypsy moth. A compliance agreement is designed to decrease the risk of gypsy moth establishment, and allows mills to transport logs from gypsy moth-quarantined areas. No gypsy moths were captured at these sites.

The USDA Forest Service provided funding to MDA to trap all other National Forest land and Bureau of Indian Affairs land within MDA's standard trapping grid. One thousand one hundred fifty-nine traps were set on federally managed lands and 241 moths were caught.

Gypsy moth treatments

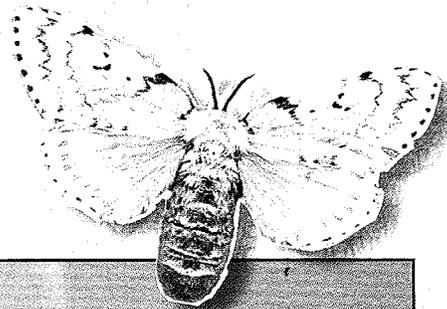
In 2004, MDA conducted gypsy moth eradication treatments in six locations across the state. Four locations were regulatory sites (nursery operations) that had received gypsy moth-contaminated material out of quarantined areas during 2003. All four nurseries were under state and federal compliance agreements, which required spring treatments in 2004. The other two sites were on privately owned properties, and treatments were funded by state and federal cost-share dollars.

Each of the nurseries conducted two treatments with an insect growth regulator. Treatment expenses were paid by the individual nurseries. After successful treatments were conducted, the compliance agreements were rescinded. All four sites received intensive trapping during 2004, and three of the four nurseries had positive gypsy moth finds. Site inspections were subsequently conducted and no other gypsy moth life stages were found, indicating no reproducing populations. No further regulatory action has been taken at this time, but these sites will again receive intensive trapping in 2005.

One five-acre site within the Twin Cities metropolitan area received two applications of a microbial insecticide, as a result of finding more than a dozen egg masses during an egg mass survey in 2003. A USDA Forest Service tree climber assisted in removing between 30 and 40 egg masses by hand from two oak trees. The site was heavily trapped after the treatments, and two male moths were caught. This site will again receive intensive trapping in 2005 to determine treatment success.

Two hundred twenty-five acres in southeastern Minnesota received a pheromone flake treatment. Pheromone flakes are broadcast over an area, disrupting the mating behavior of the male moth, and are used when there is a history of low trap catches and a concern for non-target forest species. This site has had an on-going history of low numbers of gypsy moths since 2002. Moth catches increased in 2003, indicating the likelihood of a reproducing population. The site received follow-up traps to make certain the treatment was successful, and no male moths were caught. Intensive trapping will be conducted in the summers of 2005 and 2006, and will determine whether the project was successful and whether there is a need for further action.

Several site surveys were conducted in response to relatively high numbers of moths trapped in northern Minnesota. Two egg masses were discovered in northern St. Louis County, and a treatment using a microbial insecticide is proposed for the spring of 2005 to eradicate this isolated population. Although gypsy moths have been caught in traps in this area before, this is the first time other life stages have been found, indicating an infestation.



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