



Gypsy Moth: Potential Impact on Iowa



The gypsy moth is a nonnative insect brought to the United States from Europe and accidentally released in Massachusetts in the late 1860's. The main population of gypsy moths from neighboring states to the east continues to move westward approaching closer and closer to Iowa despite numerous control efforts.

Northeast Iowa is now considered in the "transition zone" between generally infested gypsy moth areas and uninfested areas.

HOW GYPSY MOTHS MOVE

Gypsy moth is advancing by natural means into northeast Iowa from neighboring states because of young caterpillar's ability to travel short distances by wind. Long-distance travel can be attributed to people unknowingly moving gypsy moth egg masses or cocoons from infested areas.

Human assisted movement involves gypsy moth hitchhiking on firewood, campers, outdoor furniture, or nurse stock. A single egg mass contains an average of 500 – 1,000 eggs.

GYPSY MOTH DAMAGE

The gypsy moth feeds heavily on the leaves of trees, shrubs and other plants. The caterpillars prefer oak, but will feed on hundreds of species of plants. Defoliation of plants result in:

- weakened trees and increased vulnerability to other insects and plant pathogens, which may kill them;

- decreased tree growth;
- altered stand composition of woodlands, shifting to less-favorable tree species;
- altered wildlife habitat;
- reduced property values and aesthetic value of public and private woodlands;
- reduced recreational value of forested areas;
- impaired water quality; and
- a nuisance and a health and safety hazard to people and pets.

WHAT'S AT RISK IN IOWA

Iowa has 2.8 million acres of forests with approximately 40% as the oak component. Oaks are the dominant species in upland areas.

Although only 6% of Iowa is covered by forest, these natural resources have a significant impact on our state. Forest products:

- employ **7,000** Iowans
- involve **440 businesses** that include
 - 62 sawmills
 - 378 secondary wood businesses, which total
- account for **\$1 billion** annual gross sales. Forest landowners annually receive \$16 million from the sale of standing trees.
- provide the basis for fall color viewing in NE Iowa, which generates **\$5.9 million** for the local economy. A 2002 tourism survey indicated that 17.1 million people visited Iowa and spent **\$4.3 billion** in Iowa. General sightseeing was given as the most common reason to visit Iowa.
- provide the wooded habitat for hunting white-tailed deer and wild turkey, which brings in **\$1.1 billion** to the state economy in the form of licenses, lodging, firearm and ammunition sales.

DAMAGE PREDICTION

Studies in Pennsylvania and Virginia indicate that forests subject to severe defoliation by gypsy moth larvae, can expect to have 10 to 20% tree mortality within 3 to 5 years. Vigorous and healthy trees can withstand defoliation for at least for a few years. Stressed trees growing on poor soils or tight spacing conditions suffer higher mortality.

How much could Iowa forests lose? According to estimates from Pennsylvania of annual timber loss due to gypsy moth of Iowa could lose over **\$6 million** in annual timber value. This does not include the economic impact of lost recreational use of state and county parks, loss of wildlife habitat, decreased hunting opportunity, degradation of water quality and tourism.



Fecal pellets foul property and living areas.

Once a gypsy moth becomes established, large suppression spray programs must be put into place to protect the selected tree resources. These control programs are very costly.

CURRENT ACTIVITIES

The Iowa Department of Agriculture and Land Stewardship (IDALS), Iowa



Department of Natural Resources (DNR) and The United States Department of Agriculture Animal Plant Health Inspection Services Plant Protection and Quarantine (USDA-APHIS-PPQ) work together to monitor the movement of gypsy moth in Iowa each summer.

Monitoring efforts began in 1970. Since 2009, nearly 43,000 traps have been set in Iowa resulting in more than 4,000 moth catches. Using the information from trapping data, treatment programs have been conducted in areas with high trap captures. Nearly 115,000 acres have been treated since 2009.

Efforts to control the gypsy moth are transitioning from small eradication efforts aimed at "hitchhiking" egg masses, caterpillars and cocoons to the natural spread of the insect from adjoining states. When eradication of the insect is no longer feasible due to the size of the population front, efforts switch to suppression activities where sprays are used to maintain the gypsy moth at a low population level.

FUTURE NEEDS

As the transition area progresses into Iowa, IDALS and DNR are establishing both short- and long-term goals to address the Iowa gypsy moth issue.

SHORT-TERM GOALS:

A) Regulation

IDALS requires suppliers from infested states to be compliant and notify IDALS prior to shipping nursery stock into Iowa. A quarantine makes it illegal to transport potentially infested items from a quarantined area to a non-quarantined area without first taking appropriate actions.

B) Detection

Continue to monitor for gypsy moth using pheromone traps for early detection of isolated, new populations. Survey data is valuable for determining where management strategies are warranted.

C) Eradication

Targeted control efforts for isolated gypsy moth infestations based on trapping data.

D) Outreach

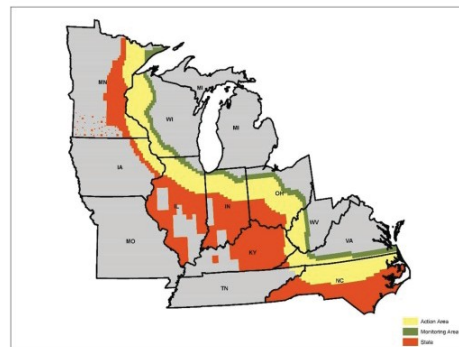
Field staff conducting trapping surveys is a valuable outreach tool. Aside from being supplied with resources for landowners, their presence in the field allows for face-to-face interaction and creates program awareness.

Communication with Iowa nursery dealers on the impacts and consequences of gypsy moth infested nursery stock entering Iowa.

IDALS, DNR, and ISUEO are working to enhance communication by providing educational materials suitable for homeowners, nursery personnel, arborists, foresters, loggers, and volunteers to assist in detection and management efforts.

LONG-TERM GOALS:

A) Continued involvement with the national gypsy moth Slow the Spread (STS) program. The STS program entails intensive monitoring and treatment of expanding populations into uninfested areas. The rate of spread is significantly delayed through this program, relative to uncontrolled gypsy moth movement.



The yellow band is the transition area – a zone where gypsy moth is invading but not yet totally infested.

The objective is to delay the impact of defoliation and costs associated with suppression projects. The STS program is a major contributor of funding supporting both monitoring and treatment activities within the STS zone.

B) Implement a suppression program to maintain the gypsy moth at a low population level.

C) Minimize the future impacts on Iowa forest and woodland resources. DNR will continue to provide technical forestry assistance, state/federal cost share assistance, as well as general information to private forest landowners and local community officials.

RESOURCES NEEDED

The resources invested in work in Iowa since 1970 is immeasurable. Governmental agencies have born the burden of the expenses thus far, but 92% of Iowa's woodlands are owned by private citizens. These landowners will be expected to participate in future management costs.

Long-term funding must be secured for...

- *...regulatory inspections, gypsy moth detection, suppression and eradication efforts;
- *...outreach to professionals and the general public on gypsy moth,
- *...expansion of the state and federal programs (cost-share) for forest stand improvement by private forest land owners (Forest Land Enhancement Program, Resources Enhancement and Protection, soil and water enhancement account);
- *...emergency fund establishment for increasing eradication efforts.

FOR MORE INFORMATION

Check the following websites for more information on gypsy moth:

<http://www.iowatrepests.com/>

<http://www.iowadnr.gov/Conservation/Forestry/Forest-Health>

<https://www.extension.iastate.edu/psep/gypsymoth.html>