

# Gypsy Moth

In the late 1860's, gypsy moth was introduced into the northeastern U.S., and has become one of the most destructive leaf-feeding species in the country.



Gypsy moth caterpillars are voracious feeders, feeding on >300 species of trees and shrubs. Caterpillars hatch soon after leaves expand in the spring, preferentially feeding on oak, aspen, sweetgum, birch, basswood, willow, and service-berry species.



Female gypsy moths are flightless, and will lay eggs on any vertical surface (e.g., lawn furniture and tools, vehicles, etc.), which facilitates human-assisted dispersal when these items are moved from infested areas.

## STS Slow the Spread of the Gypsy Moth

Slow the Spread Foundation, Inc.

### STS MISSION

- Implement integrated pest management strategies in order to reduce the rate of gypsy moth spread.
- Provide coordination for program implementation to members and cooperators of the Gypsy Moth Slow-the-Spread Foundation.

Gypsy moth defoliation can decrease tree growth and cause branch dieback and tree mortality when populations are in outbreak. During outbreaks, caterpillars often encroach on forested residential areas and can be a nuisance to homeowners when high-value trees are defoliated.

The STS Program has successfully reduced the spread of gypsy moth by >60% since 2000, from 13 to 3 miles per year, using the protocols discussed in this brochure. Three economic assessments for STS projected a benefit-to-cost ratio of approximately 3:1 by delaying the onset of impacts and management expenditures that occur as gypsy moth invades new areas.

For more information on the STS Program visit: [www.gmsts.org](http://www.gmsts.org)

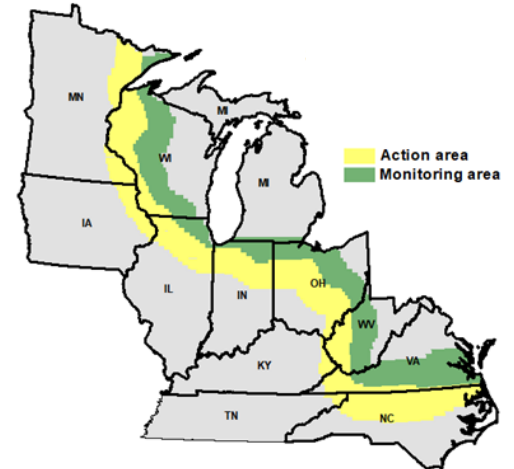


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# National Gypsy Moth Slow the Spread Program



Slow the Spread (STS) is an integrated pest management program developed in 2000 to reduce the rate of spread of the exotic gypsy moth. The national program is jointly funded by the USDA (Forest Service and APHIS) and 11 cooperating states. State and federal partners, located along the leading edge of the gypsy moth infestation, implement STS cooperatively.



A non-profit organization, the Slow the Spread Foundation, coordinates state cooperators spanning from North Carolina to Minnesota. All work toward the same objective as one unified group.

## Survey Methodology



Pheromone-baited traps (delta trap pictured above) can detect low density populations of gypsy moth, providing an opportunity to manage new infestations before they reach outbreak numbers and cause detrimental impacts to forest and people.

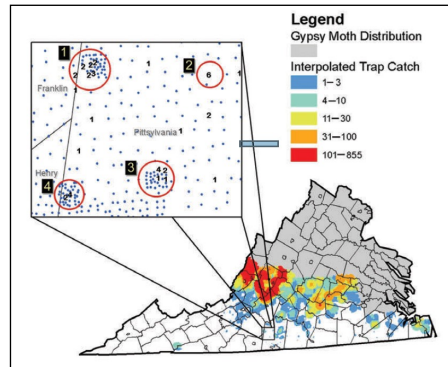


Annually, the STS Program places >60,000 traps in a grid across the landscape. Traps can detect new populations, monitor the spread of the gypsy moth population, and evaluate treatment success.

Only males (pictured above) are caught in the traps because females are flightless. Traps are baited with a synthetic version of the sex pheromone the females produce. This pheromone is specific to gypsy moths only.

Two trap types, delta traps and milk carton traps, are commonly used in the STS program.

## Decision Support



Slow the Spread is technology based and data intensive. The success of the program depends on the development of database standards, computer algorithms, and immediate data availability at [www.gmsts.org](http://www.gmsts.org).

A decision support system, which is housed at Virginia Polytechnic Institute and State University and Michigan State University, provides a means of analyzing STS data and making uniform decisions across multiple state and federal jurisdictions. The program quantitatively evaluates male moth captures, gypsy moth spread, proposed project activities, and treatment evaluation annually (pictured above).

- A **decision algorithm** analyzes annual male moth captures and provides recommendations for project boundaries, size and density of trap grids, and treatments.
- Annual **spread rates** of gypsy moth are calculated across the project area. The STS Program has reduced gypsy moth spread to an average of 3 miles/year.
- **Treatment evaluation** occurs annually. The ultimate goal is to reduce gypsy moth populations to low levels that are not a nuisance to humans and do not cause undue stress to trees. A 3-fold reduction in moth captures is considered a successful treatment.

## Treatment



It is not economically or environmentally feasible to completely *stop* the spread of gypsy moth. However, *slowing* its spread is economically advantageous and environmentally palatable.

Common treatment options include:

- **Mating disruption** is a treatment specific to gypsy moth that utilizes the sex pheromone to disrupt communication and mating between adult moths. It is one of the key elements used by STS, in >90% for applications. Mating disruption (SPLAT-GM Organic) is certified organic by the USDA.
- **Btk** (*Bacillus thuringiensis var. kurstaki*) is a bacterium found in soils that can prohibit caterpillar feeding and ultimately kill them. Caterpillars must ingest the bacteria to be impacted. This biological control treatment is used for higher density populations.
- **Dimilin and Mimic** are insect growth regulator insecticides, which interfere with the normal growth and molting process of caterpillars.
- **Gypcheck** (*Nucleopolyhedrosis virus*) is one of several naturally occurring infectious microorganisms that suppress only gypsy moth caterpillars.