

# Shenandoah National Park Gypsy Moth Management

Operating within the goals of the National Park Service (NPS) to preserve and conserve the natural diversity, character, and processes of the ecosystem, the major objectives of gypsy moth (GM) suppression in the Park are to:

- (1) Protect sensitive historic and developed special value areas from excessive defoliation and tree mortality that would permanently change the character of the scene or detract significantly from visitor use and/or enjoyment of the area;
- (2) Protect sensitive species which would otherwise be adversely affected or eliminated from the ecosystem (such as the Shenandoah salamander);
- (3) Reduce risks to visitor safety;
- (4) Reduce risks of the artificial spread of gypsy moths to uninfested areas.

Review of NPS policy and guidelines reveals general guidance when managing exotic insects such as the gypsy moth. Population management of exotic plants and animals "will be undertaken wherever such species threaten park resources or public health and when control is prudent and feasible." Furthermore, "high priority will be given to the management of exotic species that have a substantial impact on park resources and that can reasonably be expected to be successfully controlled; lower priority will be given to exotic species that have almost no impact on park resources or that probably cannot be successfully controlled." Integrated pest management (IPM) procedures shall be used to determine when to control pests and what methods are to be used to prevent unacceptable levels of pest damage by the most economical means and with the least possible hazard to people, property, and the environment (NPS Management Policies 1988; and NPS-77, 1991).

Information obtained from operations activities and research through the years has demonstrated that suppression efforts with the goal of **stopping or eliminating** the advance of GM within its preferred habitat are not economically and environmentally feasible. However, suppression activities are appropriate, as stated above, to protect specific focal resources or resource values, and maintain visitor safety. It is recognized that these measures will not eliminate gypsy moths from the environment, but perhaps forestall and minimize their impacts in those locations.

The national Environmental Impact Statement Decision on GM management on Federal lands, dated January 1996<sup>1</sup> describes appropriate activities for the area encompassed within the Park. Pre-treatment survey, suppression activity, and post-treatment monitoring are described. Three types of suppression tools are authorized. They include:

*Bacillus thuringiensis* (B.t.) -- a bacterial agent;  
Gypcheck -- a viral agent; and  
Diflubenzuron -- a chemical agent.

All proposed suppression activities in the Park must be presented to the public for their comment prior to action. Copies of an environmental assessment for the gypsy moth activity program, and other related documents, are made available to the public from the Superintendent upon request. Final suppression activity plans are then determined and implemented.

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<sup>1</sup> USDA. 1996. Final environmental impact statement; gypsy moth management in the United States: a cooperative approach. USDA Forest Service, Northeastern Area State and Private Forestry; Radnor, PA.

structures (i.e., spruce). The added stress to the local environment of placing facilities in such areas will impact tree health and invite insects and disease.

- (2) Minimize the hard surface coverings in the forest setting (i.e., roofs, parking lots). Provide a means to get runoff into the soil and minimize surface runoff.
- (3) Minimize soil compaction by providing well defined pathways. This better insures that trees will not incur added stress through soil compaction.

#### **Direct Control Methods**

- **Create physical barriers**

Not terribly useful in the forest setting, but it has been tried in the case of laminated rootrot (*Phellinus weirii*) where an infected area is isolated by trenching the soil to keep infected roots from reaching out.

- **Use traps**

Snap traps, live traps, glue boards, and sticky tape can be use for a wide variety of rodents and insects.

- **Use biological controls**

This is a fast growing approach. Gypsy moth biological controls, for instance, include various bacteria, fungi, viruses, wasps, etc. Bio-controls are used for direct suppression and indirect effects. The latter refers to the use of pheromones to confuse mating aggregation (stop propagation).

- **Use chemical controls**

Chemicals are still appropriate. But with the IPM approach, they are the last resort after other methods have either been tried or proven elsewhere to be ineffective.