



## WISCONSIN COOPERATIVE GYPSY MOTH PROGRAM

### HOW AND WHY GYPSY MOTH TREATMENT SITES ARE SELECTED

#### Choosing potential spray sites

The trapping program is the first step. The Wisconsin Department of Agriculture, Trade and Consumer Protection sets traps throughout the state, at a rate of about 1 trap per square mile, to detect gypsy moth infestations. These traps capture adult male gypsy moths. Once we see a relatively high number in a single trap, we return the following year and set more traps, 9 per square mile, to find the outlines of the infestation. The moths trapped at this rate represent less than 1% of the moths in the area.

Once we have the male moth survey data, we do our fall egg mass survey of areas where we have high numbers of male moths. If we find a gypsy moth egg mass, this confirms a reproducing population. Finding even one egg mass often leads to proposing a site for treatment, since there are undoubtedly more – gypsy moths hide their egg masses very well. Each one contains an average of 600 eggs.

Next, a group of scientists examines the data. This “Scientific Working Group” includes one voting member from each of the five agencies involved in the gypsy moth program: the Wisconsin Department of Agriculture, Trade and Consumer Protection; the Wisconsin Department of Natural Resources; the University of Wisconsin; the U.S. Forest Service; and the U.S. Animal and Plant Health Inspection Service. Along with the survey data, this group also considers how good the habitat is for gypsy moths. Urban environments with large trees, especially oak, are very good from the gypsy moth’s standpoint – plenty of food, relatively few predators, lots of sheltered spots for egg masses, ready transportation to spread to new areas.

Based on the data, these scientists forward a list of recommended treatment sites to the “Coordinating Group,” which also has one voting member from each of the five cooperating agencies. This group considers the scientific, social, and political factors, and forwards treatment recommendations to the appropriate division administrators in the agriculture and natural resources departments. The administrators approve bringing the proposal to the public.

The system seems arcane and bureaucratic, perhaps, but our intent is to draw on a broad range of perspectives, provide checks and balances, and reach consensus among the agencies involved.

#### Environmental assessment and public input

This point really is the beginning of local involvement. Roughly three months before we begin treatments in May, we notify local officials and media of our proposal and conduct public meetings in spray areas as part of the Environmental Assessment process. These public meetings not only allow us to explain what we propose and why, but allow citizens to have their comments included in the assessment. We emphasize that we are presenting a proposal. The final decision on treatments comes at the end of this process, in the form of an Environmental Assessment signed by representatives from the U.S. Forest Service, U.S. Animal and Plant Health Inspection Service, and the Wisconsin Department of Agriculture, Trade and Consumer Protection.

When we have our final list, we again mail notification to everyone living in a spray block. Because treatment is weather dependent, we cannot give precise dates when we will begin spraying, but we do announce the start date as soon as we know -- via local media, on our toll-free telephone line, and this year, on our Web site. Once we begin, we decide where we will spray from day to day, based on local weather conditions and the stage of caterpillar development. People can call our toll-free line to find out where we plan to spray each day, and leave messages if they would like to have us call them back.

We return every one of these calls, usually the same day we receive them. In urban areas, we notify local media the day before we plan to spray. We also notify local law enforcement, health departments, schools and hospitals.

### **Consequences of not treating**

We don't undertake this process lightly. The gypsy moth is a serious environmental, economic and quality-of-life issue. This insect pest is not native to North America, and so has no natural enemies to keep its population peaks in check. Its native range is Europe, Asia, Siberia and northern Africa; it can thrive in harsh climates. Urban neighborhoods in the northeastern United States, much of the Atlantic Seaboard, and Lower Michigan have been devastated repeatedly by the gypsy moth.

If we leave these sites untreated, here is what residents can expect within 5 to 10 years: Beginning around Mother's Day, caterpillar numbers in any single backyard will reach into the thousands or even millions during May and June. Oak trees will be bare by the end of June. Many or most other species of trees and shrubs will also be completely or partially defoliated. They may grow a second set of leaves if they are healthy, but they will be weakened. If they are already stressed, as many urban trees are, they may die. If they are defoliated a second year in a row, they will almost certainly die, falling victim to other pests because of their weakened state.

As the caterpillars feed, it will sound like rain. This is the caterpillar droppings falling to the ground and piling up. Like any other excess nutrient, the droppings get into runoff water and into the local watershed. Each caterpillar sheds its very bristly skin four or five times as it grows. The skins pile up. The bristles may become airborne and irritate eyes, skin and respiratory system. In fact, many or most people develop a rash if the bristles touch them. People will find it extremely disagreeable to work or play in their yards because of the caterpillars. They will also crawl on houses, and if there are unscreened windows or doors, they will get inside. They go into the pupal stage for several weeks in July and offer some respite. Then the adult moths emerge and there will be thousands of male moths fluttering around searching for females to mate with (female gypsy moths don't fly) in the daytime when people want to work or play. After mating, the moths will die and decay where they fall. And there will be thousands of unsightly egg masses, visible and hidden, reachable and out of reach, waiting through the winter to start the cycle over. Eventually the moth population will crash, but it will re-establish over several years and repeat the devastation.

Treatment at such a high level of infestation is more costly than at the current low level, and is likely to be borne wholly or partly at the local level — often by property owners individually. Homeowners may have the option of not having their property treated in this case, but they cannot stop their neighbors from participating in a local spray program, or even going it on their own and using far more toxic pesticides than a public program might use. There is also the considerable cost of removing dead trees and the decline in property value because of the loss of mature trees.

Those are the effects on individuals. But what about the broader implications? When gypsy moths become generally established, the county goes into quarantine status. This means that nothing can move to non-quarantined areas without some proof that it has been inspected and found free of gypsy moths. The quarantine includes individuals moving to new places, as well as businesses such as nursery growers that ship their stock. This costs businesses money that will be passed on to consumers. We have a

responsibility to our neighboring states to slow down the spread of this insidious pest. Not treating does not mean that we are letting nature take its course; the gypsy moth is not part of nature in Wisconsin. It is a serious threat to our environment.

### **Why we choose Btk and aerial application**

We use *Bacillus thuringiensis v. kurstaki*, the least toxic pesticide that is generally available and effective, at the lowest dose that is effective. It is a pesticide used by organic vegetable farmers up to the day of harvest. It harms only some species of moth and butterfly caterpillars, and only then if they happen to be tiny and feeding when we spray. That narrows it to gypsy moths and tent caterpillars, primarily. Btk breaks down within days, so later-feeding species are not harmed. Btk's active ingredient is a protein produced by bacteria that occur naturally in the soil worldwide. It is cultured using foods such as potatoes as a growth medium; it is not a synthetic or a petrochemical.

Aerial application assures that the pesticide lands on the canopy where it is effective, as opposed to falling back to the earth as ground-sprayed pesticides do. Ground-spraying is prohibitively expensive on a large scale. We employ global positioning technology to assure precise application. Our applicator is a company with extensive experience nationwide and with an excellent safety record. We hire the contractor who meets the high standards we demand; we are not obligated to accept the lowest bid.

### **What happens during spraying**

Spray planes normally arrive at urban sites at sunrise or shortly after. A 640-acre block will take about a half hour or less to spray. The plane sweeps over each property just once. Planes will be very low – about 50 feet above the treetops. They will be very loud. The spray is an extremely fine mist, with an application rate of only about 3 quarts per acre, 90% of which is water. If a person should happen to be sprayed, it will be unpleasant but not dangerous, just as getting splashed with muddy water from a passing car is unpleasant, but not dangerous. The bacteria is applied as spores, a dormant form, and has not been found to be a pathogen in humans. Btk will not harm pets, although people may want to keep them inside because the plane may frighten them. Btk does not affect plants or trees, other than protecting trees from gypsy moths. Spray that lands on vehicles will not damage the finish. If it is washed off very soon after spraying, it will come right off. If you wait and it bakes on a bit, soaking with warm water before washing will make it come off more easily.

We spray in early to mid-May, when the caterpillars hatch. Of course, an early or late spring affects this timing. We spray twice, about a week apart, to catch late-hatching caterpillars. Spraying takes place early in the day because that is when we have the low winds and high humidity that assure the spray lands where it will be effective, and because that is when few people are out and about. This site should be finished before children are walking to school or people are heading to work, but if for some reason it is not, we will shut down the spray operation from about 7:15 to 8:45. This is not because the spray is dangerous, but because people may perceive it as dangerous and be alarmed.

### **For more information**

We have a 24-hour toll-free line with a recording providing either general information about gypsy moths or about the spray program in season. People can leave their names and numbers and we normally return their calls on the same day or the next business day. The number is **1-800-642-6684**.