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# GYPSY INVASION

*Since the turn of the century, gypsy moths have been marching their way toward Wisconsin...*

By Monroe S. Miller

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A violent summer storm hit Medford, Massachusetts one evening in 1869 and blew over a cage of caterpillars. If they had been those of native swallow-tails or monarch butterflies, that escape wouldn't have caused any disturbance. Unfortunately, those Medford caterpillars weren't ordinary. They were the larvae of the destructive gypsy moth.

It is each year at this time that Julie Nara, an entomologist from the Wisconsin Department of Agriculture, Trade and Consumer Protection, and I visit. Sometimes it's over the phone. Other times she takes the two minute walk from her office to mine. We are always discussing gypsy moths and the trapping and monitoring program she runs for the state of Wisconsin. Each year we publish her request for cooperators in the trapping program. I finally decided to do a little homework on the gypsy moth and share it with GRASS ROOTS readers. Golf courses are good sites for traps - mixtures of open and wooded areas located in urban scenes - and I hope more WGCSA members will help out this year. It really is quite easy and the monitoring of this terrible pest is important to the well being of our golf courses.

The caterpillars that got loose on that summer evening in Medford had been imported from Europe by Leopold Trouvelot, a French naturalist, who intended to cross them with oriental silkworms in hope of producing a hardier species of silkworm. Trouvelot's plans to lay claim to fame and fortune in the silk industry faded when his caterpillars escaped into the surrounding hillsides and forests.

No one saw much of the escaped moths or their descendants for about twenty years. Then, all of a sudden, Medford was overrun by them. They were unchecked by natural predators that kept them under control in Europe and their population exploded. The state of Massachusetts organized a campaign against the moths and in ten years nearly had them eradicated. Unfortunately, their success halted any further efforts to control the moths. Hindsight tells us that was a serious mistake.

Since the turn of the century the gypsy moths have extended their range of infestation beyond New England and into several southern and midwestern states, including Wisconsin. Entomologists estimate that the moths are advancing west and south at the rate of five to fifteen miles each year.

"They aren't a serious problem yet," says Julie Nara. "But they weren't very serious in Pennsylvania a dozen years ago, either." Aggressive control measures such as the use of chemical insecticides and a bacterial insecticide and mass trappings during the early stages of infestations in Wisconsin have been very beneficial. Fewer moths have been trapped in each of the last several years, a good sign although the numbers seem to follow cycles. The trapping program is important and we need to offer our golf courses as sites for this program.

Despite numerous efforts to control gypsy moths in other parts of the country, they continue to cause extensive damage to our environment. In 1981, the damage amounted to \$764 million nationwide. Lost forest resources amounted to \$72 million, recreational area damage was estimated at \$6 million, and the rest, almost 90% of all losses, was in residential areas.

The moths themselves do not do the damage. The caterpillars, which hatch in the late spring, quickly begin eating deciduous leaves. They are very partial to oaks, one reason Blackhawk Country Club is very glad to be part of the trapping program, but will consume the leaves from over 400 species of trees and shrubs. They will even eat from pine and hemlocks. The caterpillars feed until early July. At this time they are between two and three inches long and search out a protective place to spin a cocoon. From the cocoon they metamorphose into moths. But by now the damage has been done. The trees whose leaves they have stripped are weakened and disease prone. Referring to 1981 again, the gypsy moth caterpillars defoliated more than 12.5 million acres of forests, an area more than six times the area affected in 1979.

The moths emerge from the cocoons several weeks after they were spun.

Their life span is about one week, and in this time they mate. The females are flightless and attract males by emitting a chemical sex attractant called pheromone. Entomologists have learned to manufacture pheromones and use them to trap males to estimate populations of moths in an area. These are the traps Julie Nara would like many of us to place on our golf courses.

After mating, the female lays anywhere from 75 to 1,000 eggs. The spring hatch of these eggs depends on the severity of the winter. When they emerge from the egg cluster, the new caterpillars climb the nearest tree and hang from the upper branches from fine silken threads. They are easily carried by the wind and can end up as much as half a mile away by this method. They are also moved by vehicles - moths are known to lay eggs on cars and trucks and campers that are driving through an infested area at laying time. This is how the pest is moved great distances.

Widespread chemical spraying is not common today. DDT was an effective insecticide against the gypsy moth, but it was banned by the EPA in the 1960s. Sevin was then used to control them. Like DDT, it must be sprayed every year because it provides short-term relief. Enough of the caterpillars seem to survive to ensure a lot of moths during the following season. The biological pesticides are beginning to see some use, but they are two or three times as costly as Sevin. It is interesting that even without chemical control, gypsy moth populations are themselves somewhat unstable. Usually after two or three years of infesting an area their peak numbers "crash", falling victim to starvation or disease or weather. Most current research is directed at finding other biological alternatives that will limit the growth in the gypsy moth populations and their range. For the sake of our beautiful forests and urban trees, let's hope for success. In the meantime, we can do our part by filling out the WDATC form and sending it to Julie Nara.