

Gypsy Moth War's Battle of the Burlap

Protecting woodland from defoliation by gypsy moth caterpillars is a challenge that scientists, arborists, and others meet with aerial spraying of insecticide, moth-killing microbes, or acts of sabotage—such as foiling the pest's love life with substances that keep male moths from finding prospective mates.

For homeowners, the fight often comes down to placing sticky barriers or burlap skirts around tree trunks, from which migrating caterpillars can be easily removed.

"Although these mechanical control methods will reduce the numbers of caterpillars, they may not prevent severe defoliation caused by a very heavy infestation," notes Agricultural Research Service entomologist Geoffrey B. White. This spring, White is testing an improvement on the burlap skirts that incorporates an insecticidal coating.

It's a fairly straightforward idea, he admits. But results from preliminary field trials show it could spell doom for more caterpillars—and spare homeowners the messy job of killing them by hand.

The skirts, which have been around for decades, exploit the caterpillar's tendency to hide during the day, only to emerge at dusk to ransack the leaves of nearby trees. This behavior gives homeowners time to ambush the pests in their burlap hiding places.

"Usually, people knock them off with a stick into a bucket of soapy water or bleach to kill them," says White, who is at the ARS Insect Biocontrol Laboratory in Beltsville, Maryland.

The key is checking the skirts before dusk, however. That's because the caterpillars cue their emergence to the setting sun's waning light, says White.

On large properties with many trees, checking the skirts can take a lot of time. And battling bugs isn't something a homeowner necessarily wants to do after returning from work or just before dinner time. The sticky barriers also require monitoring, as bits of debris like bark or

other insects can provide hungry caterpillars a bridge to cross over en route to the tree's canopy.

White's solution calls for applying a latex coating of chlorpyrifos beneath the burlap skirts. That way, instead of refuge, the pests get a small but lethal dose of insecticide. His idea is based on a commercial product that can be brushed onto windowsills or doorways to kill foraging ants or cockroaches.

White tried out the approach on gypsy moth caterpillars for the first time last year, observing that a single, 6-hour exposure killed about 64 percent of the pests. The 31-day experiment he designed allowed him to confine the insects to tree

in the tree canopy. There, competition is fierce. So, "a lot of times, they'll spin silken threads to ride down to the ground to look for new trees to feed on," he explains.

If the coating proves effective against such ground assaults, White may eventually explore substituting for chlorpyrifos a commercial biopesticide containing spores of fungi that attack the caterpillar from within—a fitting end for a pest that, in most years, wreaks havoc on millions of acres of woodland.—By **Jan Suszkiw**, ARS.

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Entomologist Geoffrey White temporarily raises a burlap skirt to apply an insecticidal latex coating that will kill foraging gypsy moth larvae.

trunk sections encircled by the insecticidal latex coating and a 2-inch burlap strip. As a control, he also confined caterpillars to uncoated trees, observing that 95 percent survived after 31 days.

White hopes to replicate the experiments early this April, when the caterpillars start emerging from egg clusters high

described at <http://www.nps.ars.usda.gov/programs/cppvs.htm>.

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