

South American Biocontrols May Tangle With Glassy-Winged Sharpshooter

Glassy-winged sharpshooters “have bred in huge numbers in southern California, where they lack most of their natural enemies,” says ARS entomologist Walker A. Jones. As leader of the ARS Beneficial Insects Research Unit, Weslaco, Texas, Jones directs an international effort to find nonchemical methods to help stop this invasive leafhopper.

Jones is scouring South America in search of critters that have potential as biological control agents in California.

But why travel to South America to solve a California problem?

“Because sections of Chile and Argentina, for example, have climates very similar to those of some of California’s prime agricultural areas,” explains Jones. “Some of those same sections of South America also have sharpshooters that are close relatives of the glassy-winged sharpshooter. Given the similarities to California climates, South American biological control agents should already be pre-adapted to that state.”

In a 2002 search of northern Chile and northwestern Argentina, Jones and colleagues have found more than a half-dozen such natural enemies of South American sharpshooters. Jones’s main collaborators were Guillermo Logarzo, with the ARS South American Biological Control Laboratory in Hurlingham, Argentina, and Eduardo Virla, with an Argentine agency, PROIMI, that does work similar to that of ARS.

Their top two biological control prospects have turned out to be tiny wasps, *Gonatocerus tuberculifemur* and *G. metanotalis*. These wasps have been known to attack the eggs of a South American sharpshooter, *Tapajosa rubromarginata*. This insect is very similar to—albeit slightly smaller than—its glassy-winged cousin.

The team also brought back seven other wasps, all of which are stingless and harmless to humans. “Their only mission in life,” Jones says, “is to attack sharpshooter eggs.”

Jones considers the two *Gonatocerus* species the most promising, in part because much is already known about them. Another advantage: They are abundant in South America.

“Indoor tests,” Jones says, “have shown that these wasps successfully attack glassy-winged sharpshooter eggs. That’s impressive, considering that the glassy-winged is a species the wasps have never come in contact with—until now. This finding suggests that the wasps will do very, very well in California.”

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This parasitic wasp, *Gonatocerus triguttatus*, lays its eggs in glassy-winged sharpshooter eggs embedded in a leaf. Two new wasps, *G. tuberculifemur* and *G. metanotalis*, have recently been found to attack this sharpshooter’s eggs as well.

Specialists with USDA’s Animal and Plant Health Inspection Service near Mission, Texas, are conducting the indoor tests of the candidate biocontrol agents. Entomologists at the University of California, Riverside, are carrying out additional screening, in collaboration with Jones and experts from the California State Department of Food and Agriculture. They’ll identify the biocontrol candidates and ensure that the wasps won’t pose a threat to other organisms.

“We didn’t expect to bring back so many potential biocontrol agents,” notes Jones. “It’s a pleasant surprise.”—By **Alfredo Flores**, ARS.

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