# SEARCH FOR AND COLLECT EGG PARASITOIDS OF GLASSY-WINGED SHARPSHOOTER IN SOUTHEASTERN USA AND NORTHEASTERN MEXICO

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# INTRODUCTION

Observations in northeastern Mexico and Texas, USA, during the past three years revealed presence of *Homalodisca coagulata* (Say) (GWSS) there, but in very low densities (Coronado-Blanco et al. 2000, Triapitsyn and Phillips 2000). Almost all egg masses of GWSS and other related sharpshooters, such as *Oncometopia* spp., were heavily parasitized. The climate in the central part of Tamaulipas, Mexico, is very similar to the climate in the valleys of southern California. Earlier surveys in Florida and Louisiana revealed several species of GWSS egg parasitoids there; some of those species do not occur in California (Triapitsyn et al. 1998; Triapitsyn in review; Triapitsyn et al. in press) and thus are promising biological control agents. As a result of the collections made in northeastern Mexico during 2000 and 2001, colonies of three species, *Gonatocerus ashmeadi* Girault, *G. morrilli* (Howard), and *G. triguttatus* Girault (Hymenoptera: Mymaridae), were established in UCR quarantine and insectary (Triapitsyn and Hoddle 2001; Triapitsyn et al. 2002) and later propagated and released against GWSS in California by CDFA and USDA researchers.

### **OBJECTIVES**

- 1. Search for and collect additional egg parasitoids of GWSS, particularly *G. fasciatus* and *Ufens spiritus* Girault (Hymenoptera: Trichogrammatidae, also known as *Zagella* sp., see Triapitsyn et al. 1998), in the home range of GWSS (southeastern USA and northeastern Mexico) for introduction into California, establishment of cultures in UCR quarantine, and a following evaluation.
- 2. Recollect the target species of GWSS egg parasitoids, particularly *G. triguttatus*, in northeastern Mexico and clear them through UCR quarantine to be used for preventing inbreeding in the cultures maintained by our cooperators from the CDFA for a large-scale classical biological control program against GWSS in California.

### RESULTS AND CONCLUSIONS

Three exploratory trips were made during 2002: 1) to the States of Cuahuila (Parras and San Lorenzo, where we found numerous egg masses of GWSS which were not parasitized, apparently due to an unusually cold weather), Nuevo León, and Tamaulipas, Mexico, in March 2002 (S. Triapitsyn, V. Berezovskiy, and S. Myartseva); 2) to Cuahuila, Nuevo León, Tamaulipas, San Luis Potosí and Queretaro, Mexico, in April 2002 (D. Yanega and S. Myartseva); and 3) to Louisiana in April 2002 (M. Hoddle and S. Triapitsyn). Material from a trip to Jackson, Mississippi, in March 2002 by D. Morgan was also processed in UC Riverside quarantine as part of this project.

A survey of egg parasitoids of GWSS was undertaken in Baton Rouge, Louisiana, during April and May 2002. It was conducted initially by M. Hoddle and S. Triapitsyn during the first week of April 2002 and was continued after our departure by D. Chouljenko, using sentinel egg masses of GWSS on various plants following Triapitsyn et al. (1998). The fairyfly wasp *G. fasciatus* was reared on numerous occasions from egg masses of GWSS, laid in leaves of several different plants, and shipped under an appropriate permit to UCR quarantine. A colony of *G. fasciatus* was successfully established in quarantine on *H. coagulata* eggs laid in leaves of *Euonymus japonica*. Observations on the biological traits of *G. fasciatus* 

revealed that this species has a gregarious habit, with two or more wasps developing per each egg of the host, unlike other common North American parasitoid species of *H. coagulata* from the same genus, such as *G. ashmeadi*, *G. morrilli*, or *G. triguttatus*, which are solitary parasitoids (Triapitsyn et al. in review). Besides the obvious advantages in mass-rearing of a gregarious parasitoid, *G. fasciatus* may be also considered a promising biological control agent for control of GWSS in central and northern California (if GWSS becomes established there) because its native range includes Illinois; thus, *G. fasciatus* must be better adapted to colder climates than any other known mymarid egg parasitoid of GWSS. The species of exotic egg parasitoids collected during 2002 and propagated at UC Riverside (if applicable) are listed in Table 1.

**Table 1.** The species of exotic egg parasitoids collected during 2002 and propagated at UC Riverside.

Genus and species of egg	Originally from:	Original host	Propagated on GWSS at
parasitoid	(country and state)		UCR quarantine (yes/no)
Gonatocerus ashmeadi	USA: Louisiana	Homalodisca coagulata	Yes
Gonatocerus fasciatus	USA: Louisiana	Homalodisca coagulata	Yes
Gonatocerus triguttatus	Mexico: Tamaulipas	Oncometopia?clarior	Yes
Ufens spiritus	USA: Louisiana	Homalodisca coagulata	No (failed)
(= Zagella)	USA: Mississippi	Homalodisca coagulata	No (failed)
Ufens n. sp.	Mexico: Tamaulipas	Oncometopia?clarior	No (died)
Ufens sp.	USA: Mississippi	Homalodisca coagulata	No (failed)

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# Biology, Ecology, and Direct Impact of the Glassy-winged Sharpshooter