

Student News

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I am a biologist in the fourth year of my Ph.D. thesis at the National University of La Plata (UNLP) in Argentina. My study is about the interaction between the parasitoid tachinid flies of the subfamily Phasiinae and their hosts, the stink bugs of the family Pentatomidae.

My research is supervised by Dr. María Fernanda Cingolani and we are part of the Biological Control and Pest Ecology group in the Centro de Estudios Parasitológicos y de Vectores (CEPAVE) in the city of La Plata, Buenos Aires. The Centre is devoted to the study of natural enemies of invertebrates and vertebrates of sanitary importance, pests and pollinators.

I am particularly interested in the study of a possible interaction between two species of the genus *Trichopoda* and the red-banded stink bug, *Piezodorus guildinii* (Westwood). This stink bug is an important pest of soybeans in Argentina and its distribution extends as far north as the southern United States.

Piezodorus guildinii is not known to be attacked by parasitoids in its adult stage. This stage of the stink bug is a “vacant niche” that could perhaps be filled by a biological control agent that targets adult stink bugs. *Trichopoda* species are of interest in this search because they parasitize adults of other pentatomid bugs. The aim of my thesis is to evaluate if *P. guildinii* can potentially be an alternative host for these flies.

There are two species of *Trichopoda* that I am studying: *T. giacomellii* (Blanchard) and *T. gradata* Wiedemann. The latter was also known as *Trichopoda argentinensis* (Blanchard) in some earlier studies. The taxonomy and names of South American *Trichopoda* species were the subject of recent papers (Dios & Nihei 2017, 2020) and were discussed in a recent catalogue (O’Hara *et al.* 2021). The tachinid parasitism of another Neotropical pentatomid, the red-shouldered stink bug (*Thyanta perditor* (F.)), was recently reviewed in Lucini *et al.* (2020).

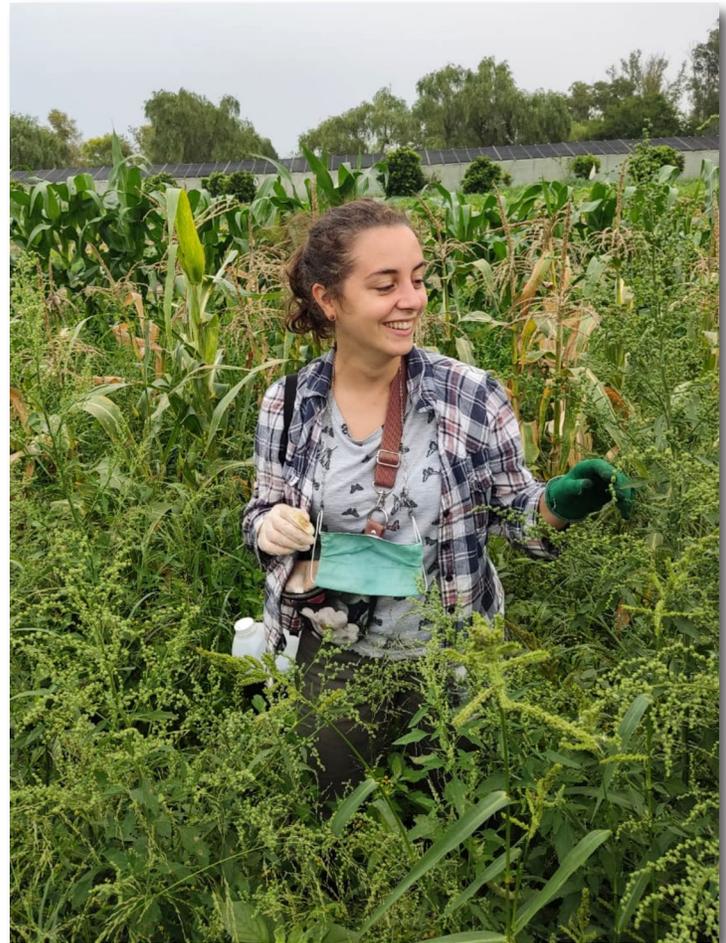


Figure 1. María Candela Barakat looking for parasitized stink bugs in a field near La Plata city, Buenos Aires.

I am currently carrying out no-choice experiments with *P. guildinii* and *T. giacomellii* to evaluate the fitness of the parasitoid when parasitizing this alternative host. I am also testing the fitness of the parasitoid's progeny that have developed on this host by taking morphological measures of the F1 flies and comparing them with flies that emerged from their usual host *Nezara viridula* (L.), the southern green stink bug.

Biological control of pests through natural enemies is one of the most important options to reduce pest populations and minimize the impact to the environment. Increasing this knowledge will contribute to a better use of these beneficial insects.

References

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Figure 2. a. An egg of a *Trichopoda* fly attached in the body of an adult stink bug. b. An adult *Trichopoda* emerging from its puparium (note expanded ptilium above the antennae that is used to break open the front of the puparium). c. Adult female of *Trichopoda giacomellii*.