

Student News

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I am a Masters student of Natural Science at the Sapienza University of Rome (Fig. 1).

During my studies I have discovered the fascinating world of flies, especially the family Tachinidae. I have now been working with my supervisor Pierfilippo Cerretti for a few months and we are now starting a new project which is going to be my thesis topic.

Some years ago Pierfilippo received a rare collection of tachinid specimens reared from Embioptera (webspinners) (Fig. 2). This material was collected a long time ago by the late Edward S. Ross of the California Academy of Sciences (CAS, San Francisco) (Crosskey 1976: 338 briefly mentioned this unstudied material within the context of its Oriental specimens). The material was loaned to Monty Wood of the Canadian National Collection of Insects (Ottawa) and later transferred to Pierfilippo in Rome.

Edward Ross travelled around the world collecting and rearing embiopterans (Ross 2009). He was mainly interested in males, as these are more easily identified to species than females. Over the years some tachinids emerged from his breedings and these were carefully preserved along with their puparia. He noticed that the specimens probably belong to different species. These reared tachinids were truly rare events! In fact, to date, only three described tachinids belonging to two genera are known to parasitize embiopterans. Two are species of *Rossimylops* Mesnil: *Rossimylops exquisitus* (Richter) (Palearctic, Iran and Afrotropical, Yemen) and *R. whiteheadi* (Mesnil) (Afrotropical, South Africa) (Cerretti *et al.* 2009; hosts of the other six species of *Rossimylops* were unknown but some of them are present in the Ross collection). The third species belongs to the genus *Perumyia* Arnaud (Fig. 3): *Perumyia embiaphaga* Arnaud (Neotropical, Perú) (Arnaud 1963).



Figure 1. Alice at work. Monte Gennaro, Lazio, Italy. (Photo by Laura Moro.)

At first glance we can confirm that several tachinid species are present in the Ross collection. These belong to two subfamilies and likely three tribes, thus suggesting an independent evolution of a host association with embiopterans in tachinids. Ross also took note of the different embiopteran hosts by writing their IDs on labels pinned under each fly, accompanying the locality label and accurate breeding notes. This is a small, unique collection which I think is worth studying in a phylogenetic context to understand how different tachinid lineages converged to exploit these hosts.

This study is not just a taxonomic work, but also an evolutionary one. First, we are going to revise taxonomically this material, then we would like to include these taxa in a morphological character matrix with representatives of all tachinid subfamilies, to give cladistic arguments for their proper tribal and generic placements. This done, we will be able to verify that this strategy evolved more than once in tachinids, and will try to answer the key question of whether the host shift happened from the same host group in the different tachinid taxa involved.

One problem that arose from our first analysis of the material was the detection of four putative undescribed genera of Embioptera among the hosts. We contacted Kelly Miller (University of New Mexico, Albuquerque) to ask him to collaborate on this study, as indeed this work could be useful to clarify some issues in embiopteran taxonomy as well.

Some extra material would help us to make this work even more interesting so we will appreciate any specimens or information pertaining to tachinids parasitizing embiopterans.

References

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Figure 2. Webspinners (*Haploembia* sp.) in their nest under a stone. Monti della Tolfa, Lazio, Italy. (Photo by Luigi Lenzini.)



Figure 3. Female of *Perumyia* sp., ex. an apparently undescribed embiopteran from Nicaragua (on loan from CAS).