

# **Hidden biodiversity in Sweden and Europe**

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Research conducted at the Naturhistoriska Riksmuseet (NHRS), in Stockholm, has identified three new species of parasitic wasps from Europe, two of which occur in Sweden.

Parasitic wasps get their name from the way their larvae develop inside other insects, in a lifestyle which resembles that of a parasite. This habit is relatively common among wasps and makes them extremely important agents in the natural control of other insect populations, including agriculture pests.

The goal of the project developed at the NHRS was to study the Eucilinae, a poorly known group of small, 1-6 mm long, black wasps that attack several species of flies. The work was based on the study of insect collections of several European museums and on the material collected by the Swedish Malaise Trap Project (SMTP), a large scale insect biodiversity inventory conducted in Sweden. The resulting specimens are proving to be a major resource for the Swedish Taxonomic Initiative, which aims to describe all multicellular life forms in Sweden.

A careful analysis of the insects by NHRS researchers showed that a substantial number of them did not match any currently described species, suggesting they were still unknown to science. The suspicion was confirmed by molecular studies, which compared DNA sequences from the suspected new species with those from well documented forms. Out of the three new species, one was found in Greece, the second in Sweden and Finland and the third in Greece, Slovenia and Sweden.

The DNA analysis was also used in a study of the evolutionary relationships among selected wasp species. This increased our knowledge of how various characteristics evolved in these largely unknown insects and gave us clues about how the species diversified through time.

Research involving parasitic wasps will continue in the NHRS and will certainly bring more exciting discoveries about the biodiversity and evolution of these insects in the future.

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