

Systematic studies of the Syrphidae (Flower Flies) of British Columbia

Theme/Program: Program 13/Diversity

Web Description

The Syrphidae (hover flies, flower flies) is a diverse family in the order Diptera (True Flies) with over 6000 described species worldwide and almost 900 in North America. Their ecological roles are diverse and they can be important biologically and economically as pollinators and biological control agents. There is much literature on the family but few regional syntheses exist. In general, our knowledge of the BC Syrphidae is at an early stage and much remains to be learned about our species and their distributions as well as their biological and economic status. Even some available identification keys require revision. My goal is the integration of all identifications and information of the known collections of Syrphidae from BC. The main product of this proposal will be the production of "An Annotated checklist of the Syrphidae (Insecta: Diptera) of British Columbia, with notes on taxonomy, distribution and ecology" by R.A. Ring, R.A. Cannings and R.B. Samoszynski.

Full description

Members of the family Syrphidae (Diptera: Insecta) play a variety of different ecological roles and exhibit feeding behaviours that cross several trophic levels – as larvae they can be predators of other insects, inquilines in the nests of social insects, scavengers, inhabitants of polluted waters, dung feeders, fungivores, herbivores, detritivores. As adults they serve as pollinators of important agricultural and horticultural crops as well as wildflowers in a variety of different ecosystems (including the Canadian Arctic). Thus, they are important biologically and economically as pollinators and biological control agents. Some species (rat-tailed maggots) can even, on occasion, be medically relevant, causing accidental intestinal myiasis in humans.

There is a large body of primary literature on the Syrphidae, but few monographs and syntheses exist. The subfamily Syrphinae has gained attention in Canada through the work of J.R.Vockeroth and others, and an analysis of the current status of the Syrphidae of Ontario and Eastern North America is available on the website <<http://www.canacoll.org/Diptera/Staff/Skevington/Syrphidae/Syrphidae.htm>> In general, our knowledge of the BC Syrphidae is at an early stage and much remains to be learned about our species, their distributions and their biological and economic status. Even some of the available identification keys require revision.

My main goal is the integration of all identifications and other relevant information from the known collections of Syrphidae from BC. I have already integrated the Carmanah Valley Project and University of Victoria collections into the RBCM database. This past year I have included the Pacific Forestry Centre collection and the Spencer Memorial Collection in the Beaty Biodiversity Museum at UBC. However, much work remains to be done with the checklist of species, including information on the distribution of species in BC and the names of the people who identified the various species. A lengthy reference list will also have to be compiled before we can deliver the main product of the study, "An annotated

checklist of the Syrphidae (Insecta: Diptera) of British Columbia, with notes on taxonomy, distribution and ecology” by R.A. Ring, R.A. Cannings and R.B. Samoszynski.

Further work also has to be done on the two manuscripts on the diversity and ecology/abundance of syrphids from the temperate rainforest in the Upper Carmanah Valley, BC, currently being prepared for publication. Major revisions have been returned from my co-authors (Samoszynski, Winchester and Chown). I plan to complete those revisions in time to submit the manuscripts by the end of the 2012-13 fiscal year.

Research Associate: Richard Ring, PhD, Entomology

Other participants:

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Rudi Samoszynski, Victoria, BC

Schedule: Short-term (2012-13)

Apr-Jun: Revise the manuscripts on the Syrphidae of the Carmanah Valley. Assemble a collection of published and internet references on Syrphidae relevant to BC, especially on species descriptions, distributions and usable identification keys

Jul-Sep: Continue with above activities. Submit manuscript on diversity of Carmanah syrphids for publication.

Oct-Dec: Contact Dr. Jeff Skevington in Ottawa (Canadian National Collection of Insects) at the CNC to confirm syrphid identifications.

Jan-Mar: Continue with above activities. Submit manuscript on ecology/abundance of Carmanah syrphids for publication.

Schedule: Long-term

Continue assembling data on species, distribution, biology and identification, focusing on particular genera (e.g. *Sphegina* in the Eristalinae); identify new and endangered species from all major collections in BC; draft and update the annotated checklist for BC and publish the relevant findings.

Community outreach:

None planned, but am always willing to present programs on syrphids.

Planned publications and other products

2012

Samoszynski, R.B., R.A. Ring and N.N. Winchester. Syrphid (Diptera) diversity in an old-growth temperate rainforest in the Carmanah Valley, B.C. Journal of the Entomological Society of British Columbia.

2013 and later

Samoszynski, R.B, N.N. Winchester, R.A. Ring and S. Chown. The ecology and abundance of hover flies (Diptera: Syrphidae) in a disturbed old-growth rainforest in British Columbia. Journal to be decided.

Ring, R.A., R.A. Cannings and R.B Samoszynski. An annotated checklist of the Syrphidae (Insecta: Diptera) of British Columbia, with notes on taxonomy, distribution and ecology. Journal to be decided.