

Checklist of the Spider Wasps (Hymenoptera: Pompilidae) of British Columbia

Scott Russell
Spencer Entomological Collection
Beaty Biodiversity Museum, UBC Vancouver, B.C.

The family Pompilidae is a cosmopolitan group of some 5000 species of wasps which prey almost exclusively on spiders, giving rise to their common name - the spider wasps. While morphologically monotonous (Evans 1951b), these species range in size from a few millimetres long to among the largest of all hymenopterans; genus *Pepsis*, the tarantula hawks may reach up to 64 mm long in some tropical species (Vardy 2000). B.C.'s largest pompilid, *Calopompilus pyrrhomelas*, reaches a more modest body length of 19 mm among specimens held in our collection. In North America, pompilids are known primarily from hot, arid areas, although some species are known from the Yukon Territories and at least one species can overwinter above the snowline in the Colorado mountains (Evans 1997). In most species, the females hunt, attack, and paralyse spiders before laying one egg on (or more rarely, inside) the spider. Prey preferences in Pompilidae are generally based on size, but some groups are known to specialize, such as genus *Ageniella* on jumping spiders (Araneae: Salticidae) and *Tachypompilus* on wolf spiders (Araneae: Lycosidae) (Evans 1953). The paralysed host is then deposited in a burrow, which may have been appropriated from the spider, but is typically prepared before hunting from existing structures such as natural crevices, beetle tunnels, or cells belonging to other solitary wasps. While most pompilids follow this general pattern of behaviour, in the Nearctic region wasps of the genus *Evaetes* and the subfamily Ceropalinae exhibit cleptoparasitism (Evans 1953). In these groups the female uncovers the buried spider of another pompilid and deposits her own egg in the book lungs of the spider. This egg will inevitably hatch before that of the first wasp, following which the larvae will consume the first egg and then the host spider. In some cases the female may consume the previous wasp's egg prior to laying her own (Evans 1953). Male pompilids and many females also feed on nectar.

The subfamilial taxonomy of this family follows that of Shimizu (1993) and the subsequent revision by Pitts *et al.* (2006). The classification and identification of the subfamilies Pepsinae and Ceropalinae follows that of Townes (1957) but note that genus *Chirodamus* is now *Calopompilus* and classified in the subfamily Pompilinae (Shimizu 1993). The taxonomy and species-level identification for subfamily Pompilinae is provided by Evans (1950, 1951a, 1951b) and Bradley (1944); however, the genus *Pompilus* has been revised by Day (1981) to be restricted to Old World species, elevating the North American subgenera *Ammosphex*, *Arachnospila*, and *Anoplochaes* (among others not listed here) to genera. Wahis (1986) subsequently subsumed *Ammosphex* and *Anoplochaes* into *Arachnospila*. Keys provided by the Pompilid Project (<http://www.usu.edu/pompilidweb/default.htm>), which are modified from earlier keys of Evans and Townes, were also used in genus-level identification for subfamilies Pepsinae and Ceropalinae. Synonyms for North American species are provided by Evans (1966) and *Nomina Insecta Nearctica* (1996). Information on the distributions of species was gathered primarily from the summaries provided by Evans (1950, 1951a, 1951b) and Townes (1957) as well as the catalogues of Krombein *et al* (1977). A useful supplement to the aforementioned keys is the excellent and freely-available *Hymenoptera of the World* (Goulet and Huber, 1993), which provides clear, informative anatomical diagrams and will be particularly useful to workers who are unfamiliar with hymenopteran morphology.

Sixty-four species of Pompilidae, listed below, are known from British Columbia. Potentially rare and endangered species in BC are indicated by an asterisk (*).

Species List

Family Pompilidae

Subfamily Pepsinae

Genus *Ageniella*

- * *Ageniella accepta* (Cresson)
- Ageniella blaisdelli* (Fox)
- Ageniella coronata* Banks
- Ageniella euphorbiae* (Viereck)
- * *Ageniella grisea* Townes

Genus *Allaporus*

- * *Allaporus pulchellus* (Banks)

Genus *Auplopus*

- Auplopus architectus* (Say)
- Auplopus caerulescens* (Walsh)
- Auplopus nigrellus* (Banks)

Genus *Caliadurgus*

- Caliadurgus hyalinatus* Fabricius

Genus *Cryptocheilus*

- Cryptocheilus terminatum* (Say)

Genus *Dipogon*

- Dipogon papago* (Banks)
- Dipogon sayi* Banks

Genus *Priocnemis*

- Priocnemis aequalis* (Banks)
- Priocnemis minorata* Banks
- Priocnemis notha* Banks
- Priocnemis oregona* Banks

Subfamily Pompilinae

Genus *Agenioideus*

- * *Agenioideus birkmanni* (Banks)
- Agenioideus humilis* (Cresson)

Genus *Anoplius*

- Anoplius aethiops* (Cresson)
- Anoplius tenuicornis* (Tournier)
- Anoplius cleora* (Banks)
- Anoplius cylindricus* (Cresson)
- * *Anoplius depressipes* Banks
- Anoplius dreisbachi* Evans
- Anoplius imbellis* Banks
- Anoplius insolens* (Banks)
- * *Anoplius ithaca* (Banks)
- * *Anoplius marginatus* (Say)
- Anoplius nigerrimus* (Scopoli)
- Anoplius nigritus* (Dahlbom)

- Anoplius tenebrosus* (Cresson)
- Anoplius toluca* (Cameron)
- Anoplius ventralis* (Banks)
- Anoplius virginianus* (Cresson)
- Genus *Aporinellus*
 - Aporinellus completus* (Banks)
 - Aporinellus fasciatus* (Smith)
 - Aporinellus sinuatus* Evans
 - Aporinellus taeniolatus* (Dalla Torre)
 - * *Aporinellus yucatanensis* (Cameron)
- Genus *Arachnospila*
 - Arachnospila apicata* (Provancher)
 - Arachnospila arcta* (Cresson)
 - Arachnospila angularis* (Banks)
 - Arachnospila anomala* (Dreisbach)
 - Arachnospila fumipennis* (Zetterstedt)
 - Arachnospila imbecilla* (Banks)
 - Arachnospila luctuosa* (Cresson)
 - Arachnospila michiganensis* (Dreisbach)
 - Arachnospila occidentalis* (Dreisbach)
 - Arachnospila scelesta* (Cresson)
- Genus *Episyron*
 - Episyron biguttatus* (Fabricius)
 - Episyron oregon* (Evans)
 - Episyron quinquenotatus* (Say)
- Genus *Evagetes*
 - Evagetes crassicornis* (Shuckard)
 - Evagetes hyacinthinus* (Cresson)
 - Evagetes ingenuus* (Cresson)
 - Evagetes padrinus* (Viereck)
 - Evagetes parvus* (Cresson)
 - Evagetes subangulatus* (Banks)
- Genus *Tachypompilus*
 - Tachypompilus unicolor* (Banks)
- Genus *Aporus*
 - Aporus luxus* (Banks)
- Genus *Calopompilus*
 - Calopompilus pyrrhomelas* (Walker)

Subfamily Ceropalinae

- Genus *Ceropales*
 - Ceropales maculata* (Fabricius)
 - Ceropales nigripes* Cresson

Literature Cited

- Bradley, J.C. 1944. A preliminary revision of the Pompilinae (exclusive of the Tribe Pompilini) of the Americas (Hymenoptera: Pompilidae). *Transactions of the American Entomological Society* **70**: 23 – 157.
- Day, M.C. 1981. A revision of *Pompilus* Fabricius (Hymenoptera: Pompilidae), with further nomenclatural and biological considerations. *Bulletin of the British Museum (Natural History), Entomology* **42**: 1 – 42.
- Evans, H.E. 1950. A taxonomic study of the Nearctic spider wasps belonging to the tribe Pompilini (Hymenoptera: Pompilidae). *Part I. Transactions of the American Entomological Society* **75**: 133 – 270.
- Evans, H.E. 1951a. A taxonomic study of the Nearctic spider wasps belonging to the tribe Pompilini (Hymenoptera: Pompilidae). *Part II. Transactions of the American Entomological Society* **76**: 207 – 361.
- Evans, H.E. 1951b. A taxonomic study of the Nearctic spider wasps belonging to the tribe Pompilini (Hymenoptera: Pompilidae). *Part III. Transactions of the American Entomological Society* **77**: 203 – 330.
- Evans, H.E. 1953. Comparative ethology and systematics of spider wasps. *Systematic Zoology* **2 (4)**: 155 – 172.
- Evans, H.E. 1966. A revision of the Mexican and Central America spider wasps of the subfamily Pompilinae (Hymenoptera: Pompilidae). *Memoirs of the American Entomological Society* **20**: 1 – 442.
- Evans, H.E. 1997. Spider wasps of Colorado (Hymenoptera, Pompilidae): an annotated checklist. *Great Basin Naturalist* **57 (3)**: 189 – 197.
- Goulet, H. and Huber, J.T. (eds.) 1993. *Hymenoptera of the world: an identification guide to families*. Agriculture Canada, Ottawa, Ontario. Available from the Entomological Society of Canada at <http://www.esc-sec.ca/aafcmono.html>
- Poole, R.W. and Gentili, P. (eds.) 1996. *Nomina Insecta Nearctica Volume II*. Entomological Information Services, Rockville, Maryland.
- Krombein, K.V., Hurd, P.D., Smith, D.R., and Burks, B.D. 1977. *Catalog of Hymenoptera in America North of Mexico Vol. II (Aculeata)*. Smithsonian Institution Press, Washington, DC.
- Pitts, J., Wasbauer, M.S., and von Dohlen, C.D. 2006. Preliminary morphological analysis of relationships between the spider wasp subfamilies (Hymenoptera: Pompilidae): revisiting an old problem. *Zoologica Scripta* **35**: 63 – 84.

Pitts, J., von Dohlen, C.D., and Wasbauer, M.S. The Pompilid Project.

<http://www.usu.edu/pompilidweb/default.htm>

(Please note that at the time of writing – December 2011 – the taxonomy of this website differs from that presented in Pitts *et al* 2006. The latter publication is considered more authoritative.)

Townes, H.K. 1957. Nearctic spider wasps of the subfamilies Pepsinae and Ceropalinae. *Bulletin of the United States National Museum* **209**: 1 – 286.

Shimizu, A. 1993. Phylogeny and classification of the family Pompilidae. *Tokyo Metropolitan University, Bulletin of Natural History* **2**: 1 – 142.

Vardy, C.R. 2000. The New World tarantula-hawk wasp genus *Pepsis* Fabricius (Hymenoptera: Pompilidae). Part 1. Introduction and the *P. rubra* species-group. *Zoologische Verhandelingen Leiden* **332 (29)**: 1 – 86.

Wahis, R. 1986. Catalogue systematique et codage des hymenopteres pompilids de la region Ouest-Europeene. *Notes Fauniques de Gembloux* **12**: 1 – 91.

The list below summarizes the groups that are dealt with in this introduction to the Hymenoptera, although there is not space here to go into the full classification and evolutionary history of the group. Order Hymenoptera. Wood Wasps and Sawflies (Suborder: Symphyta). Day, M.C. Spider wasps (Hymenoptera:Pompilidae). Handbooks for the Identification of British Insects, 6, Part 4. London: Royal Entomological Society, 1988. Social Wasps. Else, G.R. Identification. An annotated checklist of the spheciform wasps of Ontario (Hymenoptera: Ampulicidae, Sphecidae and Crabronidae). Journal of the Entomological Society of Ontario, 134(2003): 19-84. Day, M.C. 1988. Handbooks for the identification of British insects. Vol. 6. Part 4. Spider wasps " Hymenoptera: Pompilidae. Royal Entomological Society of London, London. Evans, H.E. 1950. A taxonomic study of the Nearctic spider wasps belonging to the tribe Pompilini (Hymenoptera: Pompilidae). Part I. Transactions of the American Entomological Society, 75: 133-270. Haupt, H. 1927. Monographie der Psammocharidae (Po...