

A redescription of the North American jumping spider *Chalcoscirtus carbonarius* Emerton 1917

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Introduction

Chalcoscirtus carbonarius is one of the most interesting species belonging to the family Salticidae to be found in North America. So far it has been captured only in the mountains of Montana and Alberta, a region that is geographically and climatically extreme for the family (see Figs. 1 and 2). Records to date are all from above 6000 feet during the months of July and August. Material collected by Dr H. W. Levi has allowed us to prepare a full description of this species to replace the inadequate original one given by Emerton 1917. The males of *C. carbonarius* are clearly distinct from any other North American

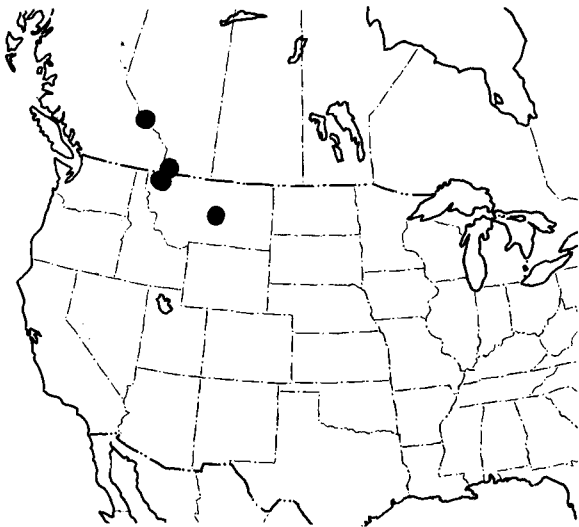


Fig. 1: Distribution map for *C. carbonarius*.

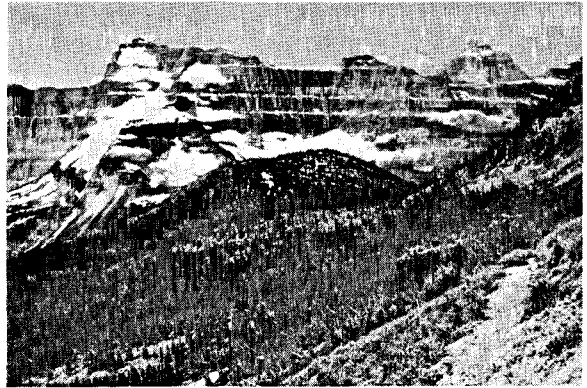


Fig. 2: Waterton National Park; Mt. Custer from near Carthew Pass. (photograph: H. W. Levi).

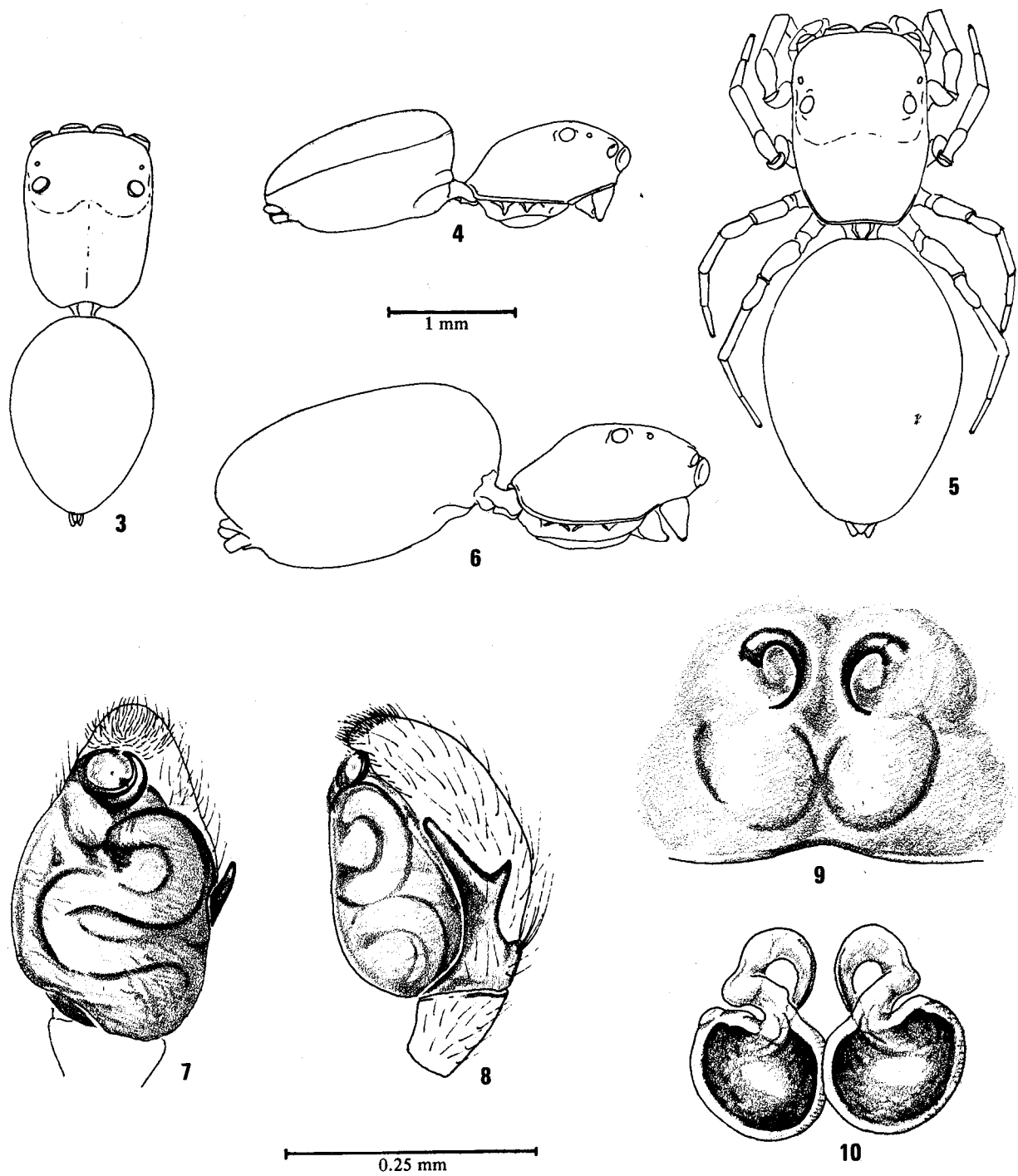
species, due to their small size, dorsal scutum, bifid palpal apophysis and lack of a tooth on the inner margin of the chelicerae.

C. carbonarius agrees in general with the diagnosis given by Simon 1901 for the genus *Chalcoscirtus* Bertkau, 1883 (type species, *C. infimus* Simon), except for the labium, which in this species is slightly wider than long, a character which would place it with *Jollas* Simon, 1901 according to Simon's key for the sub-family. According to the same key, however, *Jollas* has four teeth on the outer margin of the chelicerae, whereas *C. carbonarius* has only two. Comparison with a specimen of *C. infimus* (in the MCZ) makes us doubt that the two species are in fact co-generic; but we see no point in separating them at present, as this would add to, rather than ease the current lamentable confusion of the genera in this family.

C. montanus Banks, 1896, the only other North American species belonging to this genus, has little in common with *C. carbonarius*, other than its small size and mountain habitat (Mt. Washington, New Hampshire, U.S.). The male palp of *C. montanus* is of the *Icius* Simon, 1874 type, and future research may well show that it belongs with some of the members of that rather heterogeneous genus.

Material examined

This list comprises all material in the collections of the Museum of Comparative Zoology, Harvard University and the American Museum of Natural



Figs. 3-10: *C. carbonarius* 3 male dorsal view; 4 male side view; 5 female dorsal view; 6 female side view; 7 male palp from below; 8 male palp from side; 9 female epigyne; 10 vulva from below.

History, New York.

MCZ: 2 tubes both labelled "Simpson Summit, Bannf. N. B. Sanson. July 27 1916" (Emerton types). -- Alberta, Waterton National Park, Carthew Lakes, 6500' - 7200' 27 July 1953, Under Stones (coll: Levi). -- AMNH: 3 tubes from Montana, Glacier National Park, all collected Levi; Dawson Pass 7500' 11 Aug. 1953; Cut Bank Pass 7600' 15 Aug. 1953; Cracker Lake 6500' rocks 16 July 1953 -- 1 tube collected B. Vogel and determined B. Cutler; Montana, Big Snowie Mountains, Fergus County, 8500' 5 Aug. 1961.

Description

The following description, measurements and illustrations have been taken from a typical pair of specimens from Waterton National Park (second item in the list of material examined). The description applies, unless otherwise stated, to both males and females which are very similar in appearance. The males are a little smaller, and their colours of a slightly deeper hue, than the females.

Cephalothorax: the thoracic region is a shiny light mahogany brown and separated by a distinct line from the cephalic region which is dark brown to black; the fovea and striae are only very faintly

marked.

Labium: slightly wider than long.

Sternum: longer than wide, truncated at the anterior end.

Chelicerae: no tooth on inner margin, two on outer margin.

Abdomen: yellowish brown in female, showing faint chevrons on preserved specimens that are presumably more strongly marked on living individuals. Males with a dorsal scutum similar in colour to the thoracic region.

Legs: no sexual dimorphism, other than a slight difference in size. Tarsi pale yellowish brown; other segments brown, suffused with black in places. Spines on tibia: legs I and II, 3 pairs ventral; legs III and IV, 1 spine ventral. Spines on metatarsus: legs I and II, 2 pairs ventral; leg III, 1 pair ventral, 1 spine pro- and 1 retro-lateral; leg IV, 1 spine ventral, 1 pro- and 1 retro-lateral.

Trichobothria on metatarsi: apparently two on each leg, but very difficult to see.

Genitalia: male palp with a distinctive bifid apophysis and sickle-shaped embolus. Epigyne with two shallow depressions, the brown, globular seminal receptacles being clearly visible through the translucent tissue.

Measurements (in mm)

	Male				Female			
<i>Cephalothorax</i>								
Length	1.31				1.50			
Maximum width	0.87				1.00			
Maximum height	0.50				0.75			
Abdomen length	1.62				2.13			
<i>Ocular quadrangle</i>								
Length	0.56				0.69			
Anterior width	0.93				1.00			
Posterior width	0.81				0.94			
<i>Sternum</i>								
Length	0.62				0.69			
Width	0.43				0.50			
<i>Legs</i>								
	I	II	III	IV	I	II	III	IV
Femur	0.68	0.68	0.75	1.00	0.74	0.74	0.87	1.00
Patella and tibia	0.81	0.75	0.81	1.00	0.95	0.91	0.95	1.17
Metatarsus	0.34	0.34	0.37	0.50	0.37	0.35	0.49	0.61
Tarsus	0.25	0.25	0.37	0.43	0.30	0.30	0.35	0.43
Total	2.08	2.02	2.30	2.93	2.36	2.30	2.66	3.21

Acknowledgements

This work was carried out during an undergraduate seminar conducted by Dr H. W. Levi of Harvard University; we wish to thank him for his help and encouragement, and also as the collector of the material here described. Dr N. Platnick of the American Museum of Natural History kindly lent us specimens from that museum's collection. The senior author (P.H.S.) would also like to thank Professor

Max Vachon and Dr Michel Hubert of the MHN, Paris, in whose laboratory he first started work on jumping spiders.

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Notes on the predators and prey of British pseudoscorpions

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Records of the predators and prey of British pseudoscorpions are sparsely scattered throughout the various literature. It was therefore thought useful to collect these as far as possible into this one paper.

References to the predators of pseudoscorpions are few and are mainly confined to spiders and harvestmen. Cloudsley-Thompson (1956) records a specimen of *Allochernes dubius* (O.P.-C.) being eaten by the harvestman *Oligolophus meadii* Cambr., on which it had been phoretic. Bristowe (1941) claims that pseudoscorpions do not often fall victim to spiders, since they provide a good match for spiders of their own size (the largest British species of pseudoscorpion attains a length of 3-4 mm) and are likely to be missed by many spiders of a larger size. He says, however, that he has observed that *Chthonius ischnocheles* (Hermann) is accepted by

Linyphia, *Lepthyphantes*, *Pholcus*, *Theridion*, *Meta* and *Zygiella*, and *Lamprochernes nodosus* (Schrank) by *Lepthyphantes* and *Araneus*.

Pontin (1961), working in the Oxford district on the prey of ants, found that *C. ischnocheles* was fed to the larvae of *Lasius flavus* (F.) (Hym., Formicidae).

The only reference to parasites of pseudoscorpions appears to be an old one by Godfrey (1908), who recorded pupae of the ichneumon *Obisiphaga stenoptera* (Marshall) from the reproductive nests of *Neobisium muscorum* (Leach) and a pupa of *Pezomachus impotens* Först from the nest of *C. ischnocheles*.

Turning to larger predators, some pseudoscorpions must be taken by birds, especially those which feed amongst mast and leaf litter. Betts (1950) found specimens of *C. ischnocheles* in the gizzards of great tits in the Forest of Dean, Gloucestershire.

Pseudoscorpions are exclusively carnivorous and according to Godfrey (1909) and Cloudsley-Thompson (1958) feed on living or recently-killed prey, e.g. Collembola, Psocoptera, Thysanura, Diptera, Symphyla, molluscan eggs, annelids, centipede larvae, and beetles (e.g. *Tachyporus chrysomelinus* Linn.). Kühnelt (1961)