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First host record for the spider wasp *Cryptocheilus severini* Banks  
(Hymenoptera: Pompilidae: Pepsinae)

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# First host record for the spider wasp *Cryptocheilus severini* Banks (Hymenoptera: Pompilidae: Pepsinae)

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**Abstract.** The first host record for the North American spider wasp *Cryptocheilus severini* Banks (Hymenoptera: Pompilidae: Pepsinae) from Mazatlán, Sinaloa, México is introduced with pertinent observation information. The genus *Cryptocheilus* Panzer in North America is briefly described, its nesting habitat and prey transport outlined, and host specificity detailed.

**Key words.** Lycosidae, Mexico, new host record.

**ZooBank registration.** urn:lsid:zoobank.org:pub:65404A9D-0B4C-4F7B-B8E2-0301EE922EF4

## Introduction

The genus *Cryptocheilus* Panzer (Hymenoptera: Pompilidae: Pepsinae) comprises medium to rather large species of average stoutness (Townes 1957). The six Nearctic species of *Cryptocheilus* are all closely related (Townes 1957). In the Old World this genus is much richer, with 24 species and structural diversity that can present problems in identification from other species complexes (Cambra and Wahis 2005). There are five species of *Cryptocheilus* occurring in the Neotropical region, from México to Colombia (Fernández et al. 2022).

Females of *Cryptocheilus* species nest in the ground, typically in a burrow off the side of a large fissure in the soil or a mammal burrow. The wasp may excavate the nest-cell prior to prey capture and immobilization of the spider by stinging, as in the related genus *Entypus* Dahlbom. Prey are transported backwards on the ground, the spider being grasped with the wasp's mandibles by a leg, pedipalp or chelicera. Host records for only four North American *Cryptocheilus* species are known and they comprise predominantly Lycosidae (wolf spiders) and, rarely, Agelenidae (funnel-web or grass spiders) (Table 1).

## Materials and Methods

Frank Kurczewski, in perusing photographs of spider wasps on iNaturalist.org, noticed a species of *Cryptocheilus* with an immobilized spider for which there is no host information. He forwarded the link to James Pitts and

Cecilia Waichert who independently identified the species as *Cryptocheilus severini* Banks based upon specimens in the Utah State University insect collection. Rick West and Kurczewski separately identified the host spider as belonging to the family Lycosidae (wolf spiders) but were unable to arrive at a genus and/or species identification. West sent the link to Raz Lucio and Dany Candia Ramírez, two arachnologists familiar with the Mexican arachnid fauna, but they were unable to provide a genus and/or species name. Diego Barrales finally identified the host spider as *?Tigrosa* sp. (Lycosidae).

Frank Kurczewski wrote the manuscript. He and Rick West formulated Table 1. Cecilia Waichert revised and commented on the manuscript. West selected and improved one of Francisco Farriols Sarabia's photographs of wasp and host spider for use as Figure 1.

## Results

### *Cryptocheilus severini* Banks

**Locality.** México. Sinaloa State, Mazatlán, Paco's Reserva Natural de Flora y Fauna; 26 March 2022, 1208 HST; Francisco Farriols Sarabia, photographer.

**Host.** *?Tigrosa* sp. (Lycosidae) [det. D. Barrales], adult or subadult female. Five photographs show the wasp and immobilized spider on leaf litter. In these photographs the spider lies, dorsal side upward, with its legs spread outward. One photograph shows the wasp examining the spider with her apical antennal segments (Fig. 1). Another photograph shows the wasp grasping the base of the spider's left pedipalp with her mandibles prior to backward prey transport.

## Acknowledgments

We thank Steven Alm, University of Rhode Island, Kingston, Rhode Island and Joseph Wilson, Utah State University, Logan, Utah for reviewing the manuscript. Francisco Farriols Sarabia graciously continues to post his photographs of rare and interesting Pompilidae species from Paco's Reserva Natural e Flora y Fauna, Mazatlán, Sinaloa, México online. We thank Diego Barrales, Curator, Paco's Reserva Natural e Flora y Fauna, Mazatlán, Sinaloa, México for the identification of the host spider. We acknowledge Raz Lucio, Arácnidos de Chetumal, Museo de Zoología, Chetumal, Quintana Roo, México and Dany Candia Ramírez, Colección Nacional de Arácnidos (CNAN), UNAM, México City, México for attempting to identify the host spider beyond the family level. This research was supported by the Utah Agricultural Experiment Station, Utah State University, and approved as journal paper number 9572.

**Table 1.** Host spider species of Nearctic species of *Cryptocheilus*.

<i>Cryptocheilus</i> species	Host spider species (Family)	References
<i>C. attenuatum</i> Banks	<i>Alopecosa aculeata</i> (Clerck) (Lycosidae)	Kurczewski et al. 2017
	<i>Hogna antelucana</i> (Montgomery) (Lycosidae)	Kurczewski and Kurczewski 1968
	<i>Hogna ?helluo</i> (Walckenaer) (Lycosidae)	Kurczewski and Kurczewski 1968
	<i>Schizocosa avida</i> (Walckenaer) (Lycosidae)	Krombein 1979
	<i>Lycosa</i> sp. (Lycosidae)	Townes 1957
	<i>Novalena</i> sp. (Agelenidae)	Wilson and Pitts 2007
<i>C. idoneum</i> Banks	<i>Hogna tigana</i> Gertsch and Wallace (Lycosidae)	Evans 1959
	<i>Lycosa impavida</i> Walckenaer (Lycosidae)	Kurczewski 1963
<i>C. severini</i> Banks	<i>?Tigrosa</i> sp. (Lycosidae)	This study; Barrales 2022, pers. comm.
<i>C. terminatum</i> (Say)	<i>Lycosa</i> sp. (Lycosidae)	Evans 1970



**Figure 1.** *Cryptocheilus severini* female examining a lycosid spider with her apical antenna segments as the immobilized spider lies dorsal side upward on leaf litter. Photograph © Francisco Farriols Sarabia.

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