

Scientific Note

A new host record for the cleptoparasite *Irenangelus lucidus* (Evans, 1969) (Hymenoptera: Pompilidae)

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Abstract. We provide a new host record for the cleptoparasitic wasp *Irenangelus lucidus* (Evans, 1969) (Pompilidae: Ceropalinae). A single female emerged from a brood cell of the host species *Auplopus militaris* (Lynch-Arribalzaga, 1873) (Pompilidae: Pepsinae) reared from a bamboo cane trap nest set at the edge of a gallery forest fragment located in Minas Gerais State, Central Brazil. This is the third host record of an *Irenangelus* species for the Neotropical region.

Keywords: *Auplopus militaris*, Ceropalinae, Gallery forest, trap-nest.

The family Pompilidae (Hymenoptera: Aculeata), commonly known as spider wasps, is a cosmopolitan group of approximately 5,000 species (Pitts et al. 2006; Waichert et al. 2015). Most of the species are ectoparasitoid, both idiobiont and koinobiont, but some species of Pepsinae, Pompilinae and the entire subfamily Ceropalinae are cleptoparasitic of other pompilid species (Wasbauer 1995; Waichert et al. 2015).

Ceropalinae is a worldwide, monophyletic group that contains only two genera: *Ceropales* Latreille, 1796 and *Irenangelus* Schulz, 1906 (Waichert et al. 2015). The genus *Irenangelus* is mostly distributed in the Oriental and Neotropical Regions (Shimizu & Wahis 2007), with 12 species recorded in the New World (Kimsey & Wasbauer 2004).

Biological data and host records of *Irenangelus* species are still scarce. In the Philippines, Williams (1919) recorded *Tachypompilus analis* (Fabricius, 1781) (Pompilinae) and *Auplopus nyemitawa* (Rohwer, 1919) (Pepsinae) as hosts species of *I. luzonensis* (Rohwer, 1919). Shimizu & Wahis (2007) observed a female of *I. hikosanus* Wahis, 2007 pursuing a female of *Platydialepis ryoheii* (Ishikawa, 1957) transporting its prey to her nest in Japan (Pepsinae). In the Neotropical Region, Wcislo et al. (1988) reared specimens of *I. eberhardi* Evans, 1987 from one nest of *Auplopus semialatus* Dreisbach, 1963 (Pepsinae) in Costa Rica. In Brazil, Rocha-Filho et al. (2020) cited *I. lucidus* (Evans, 1969) as a cleptoparasite of *Priochilus captivum* (Fabricius, 1804) (Pompilinae).

The study was conducted in Primavera Farm (18°50'30.4"S / 48°23'46.5"W), approximately 1,200 hectares distant ca. 10 km from the city of Uberlândia, Minas Gerais State, Brazil. On February 16, 2021, we collected a nest of *Auplopus militaris* (Lynch-Arribalzaga, 1873) (Pepsinae) within a bamboo cane set in a wooden frame installed on the edge of a 307 ha remnant of gallery forest and Cerradão surrounded by croplands. Twenty bamboo canes from 1.4 to 2.4 cm diameter and 15 cm length were fixed horizontally in metal screens screwed to a wooden frame (30 cm height, 30 cm width, 20 cm depth) attached to a tree 1.5 m above ground and covered with a plastic blue roof to protect against the rain (Fig. 1A). These bamboo canes' dimensions were used to attract nesting females of giant carpenter bees, *Xylocopa frontalis* (Olivier, 1789) and *X. grisescens* Lapeletier, 1841 (Apidae) for studies on their trophic niche and nesting dynamics. Below the wooden frame, five PVC tubes of 20 cm length and 10 cm diameter containing each 24 bamboo canes (0.5 to 2 cm diameter and 9 to 25 cm length) were attached to attract nesting females of trap-nesting wasps and bees. The keys provided by Dreisbach (1963) and Kimsey & Wasbauer (2004) were

used to identify *A. militaris* and *I. lucidus*, respectively. The *A. militaris* nest was located in a bamboo cane with 21.3 cm length and 1.95 cm diameter and consisted of five brood cells attached to the bottom. The first emergence, an *A. militaris* female, occurred on February 21st and a male of the same species was found dead within another brood cell. On February 22nd and 24th a male and a female of *A. militaris* emerged, respectively. The *I. lucidus* female (Fig. 1B) emerged on February 26th, two days after the last host female emergence.

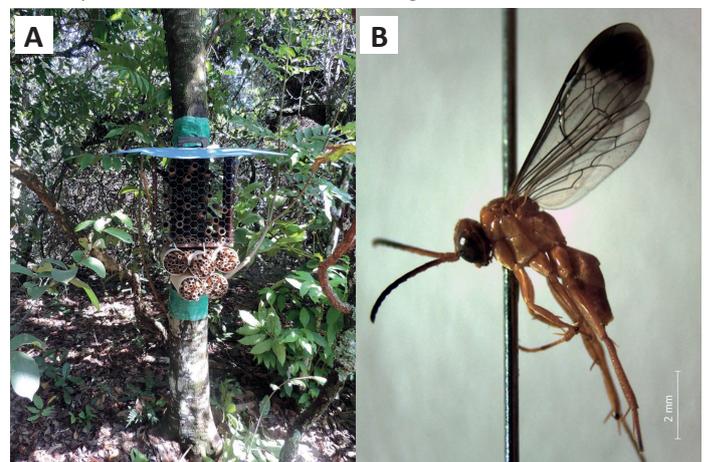


Figure 1. Wooden frame containing the bamboo canes and attached to a tree at the edge of a gallery forest at Primavera Farm (A). Lateral view of *Irenangelus lucidus* (B).

The data provided herein is the third host record of an *Irenangelus* species for the Neotropical region and the second for *I. lucidus*. Rocha-Filho et al. (2020) reared a female of this cleptoparasitic species from a nest of *P. captivum* built in a bamboo cane in an urban area with high percentage of surrounding green areas, including forests. The nest containing four brood cells was collected in February 2019 and the emergences were recorded in March, with the *I. lucidus* female emerging two days after the two females and one male of *P. captivum* (Rocha-Filho L. C., pers. comm.).

Seven *Irenangelus* species are found in Brazil (Santos 2021). However, Rocha-Filho et al. (2020) and the present study report the only host records known for this cleptoparasitic genus. Ecological studies on the communities of trap-nesting wasps and bees in different

ecosystems are important to provide biological data and host records for some rare species such as *I. lucidus*.

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Authors' Contributions

LCRF performed the data collection, reviewed the literature and wrote the manuscript. SCA contributed to the revision of the manuscript. All the authors approved the final version of the manuscript.

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