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Abstract: We report the presence of *Leucospis leucotelus* Walker parasitizing nests of *Xylocopa* (*Schonnherria*) *lateralis* Say from Colombia. Previous literature records of species of genus *Leucospis* associated with species of *Xylocopa* are summarized.

Keywords: Natural enemies, Passiflora, Pollinators, Wild bees.

Resumen: Registramos la presencia de *Leucospis leucotelus* Walker parasitando nidos de *Xylocopa* (*Schonnherria*) *lateralis* Say en Colombia. Además, recopilamos todos los registros previos citados en la bibliografía de especies del género *Leucospis* asociados a especies de *Xylocopa*.

Palabras clave: Abejas silvestres, Enemigos naturales, Passiflora, Polinizadores.

Wild bees play a key role as pollinators in both natural and agricultural ecosystems. Among bees, species of the large carpenter bees in the genus *Xylocopa* Latreille (Apidae: Xylocopini) are economically important around the world because they are effective pollinators on diverse crops, including passion fruit (*Passiflora* L., Passifloraceae), sunflowers (*Helianthus* L., Asteraceae), squash (*Cucurbita* L., Cucurbitaceae), and tomato (*Solanum* L., Solanaceae) (e.g.: Gerling et al., 1989; Hogendoorn et al., 2000; Aguiar-Menezes et al., 2002; Sadeh et al., 2007; Keasar, 2010). Due to their large body size and their foraging behavior, including their ability to buzz pollination, carpenter bees are the most efficient pollinators of many plants of the genus *Passiflora* across the Neotropical region, including Colombia (Caicedo et al., 1993; Camillo, 2003; González et al., 2009; Silva & Freitas, 2018). As for other bees, various stages of the life cycle of carpenter bees are target of numerous attacks by

predators, parasites, and parasitoids of diverse insect families (e.g.: Hurd, 1978; Lucía et al., 2010; Avalos-Hernández et al., 2011; Lucía, 2016).

Chalcid wasps (Hymenoptera: Chalcidoidea) in the family Leucospidae Fabricius are common ectoparasitoids of bees. This family consists of 141 species worldwide of medium to large size wasps (4-17 mm in body length) grouped in four genera: *Leucospis* Fabricius, *Micrapion* Kriechbaumer, *Neleucospis* Bouček, and *Polistomorpha* Westwood. Only species of *Leucospis* and *Polistomorpha* occur in South America (Lima & Dias, 2018). Among these two genera, species of *Leucospis* are common parasitoids of aculeate Hymenoptera [Eumeninae (Vespidae), Pompilidae, Crabronidae and Sphecidae], in particular of solitary bees in the families Apidae and Megachilidae (Bouček, 1974; Gazola & Garófalo, 2003; Grissell, 2007; Madl & Schwarz, 2012; Torretta et al., 2017).

To date, only four records of species of *Leucospis* parasitizing nests of carpenter bees are available (Table I). Thus, the purpose of this work is to document for the first time the presence of *L. leucotelus* Walker on nests of *X. (Schonherria) lateralis* Say in Colombia. This report is noteworthy considering the scarcity of records documenting *Leucospis* as parasitoids of these bees and that the biology of most carpenter bees is unknown.

Species of <i>Leucospis</i>	Species of <i>Xylocopa</i>	Country	Reference
<i>L. vallicaucaensis</i> Pujade-Villar & Caicedo	<i>X. (Neoxylocopa)</i> <i>frontalis</i> Oliver <i>X. (N.) fimbriata</i> Fabricius	Colombia	Pujade-Villar & Caicedo, 2010
<i>L. anthidioides</i> Westwood	<i>X. (N.) submordax</i> Cockerell	Brazil, Trinidad	Bouček, 1974; De Santis, 1980; Westwood, 1874
<i>L. xylocopae</i> Burks	<i>X. (Stenoxylocopa)</i> <i>nogueirai</i> Hurd & Moure	Brazil, Bolivia, and Paraguay	Burks, 1961; Bouček, 1974; De Santis, 1979, 1981; Fidalgo, 1980.
<i>L. reversa</i> Bouček	Unknown species	Ivory Coast, Liberia, and Zaire	Bouček, 1974; Rasplus, 1987.
<i>L. leucotelus</i> Walker	<i>X. lateralis</i> Say	Colombia	This paper
<i>L. klugii</i> Westwood	<i>X. brasiliatorum</i> (L.)	Costa Rica, Mexico	Daly, 1977; De Santis, 1979

Table I. Summary of host records of species of *Leucospis* parasitizing species of large carpenter bee.

We found a dead wood trunk (8 cm in diameter, 118 cm in length) with 19 nest entrances of *X. lateralis* in Pamplonita, Norte de Santander, Colombia, from which we captured four adult bees for identification, three females (Fig. 1a) and one male. Each nest entrance was elliptical in shape, 9 mm wide and 12 mm long. In several occasions, we observed leucospid wasps walking slowly over the tree trunk, drumming its surface

with their antennae and attempting to introduce their ovipositor into the walls of the trunk. Using the keys of Bouček (1974) and Lima & Dias (2018), we identified these wasps (three females and one male; Figs. 1b, c) as *L. leucotelus* Walker, a species that occurs in Mexico, Guatemala, Panama, Peru, Colombia, Ecuador, Guayana, French Guiana, and Brazil (Bouček, 1974; De Santis, 1979). We did not dissect the bee nest to preserve the colony. Thus, we were unable to determine if *L. leucotelus* successfully parasitized the brood cells of *X. lateralis*. However, oviposition through the sidewall of the host nest is the usual pattern of attack displayed by species of *Leucospis* on twig-nesting host species (Gazola & Garófalo, 2003). Our brief behavioral observations of *L. leucotelus* at nests of *X. lateralis*, as well as records of leucospid wasps on nests of carpenter bees, reinforces the idea of *L. leucotelus* being a brood parasite in nests of *X. lateralis*.

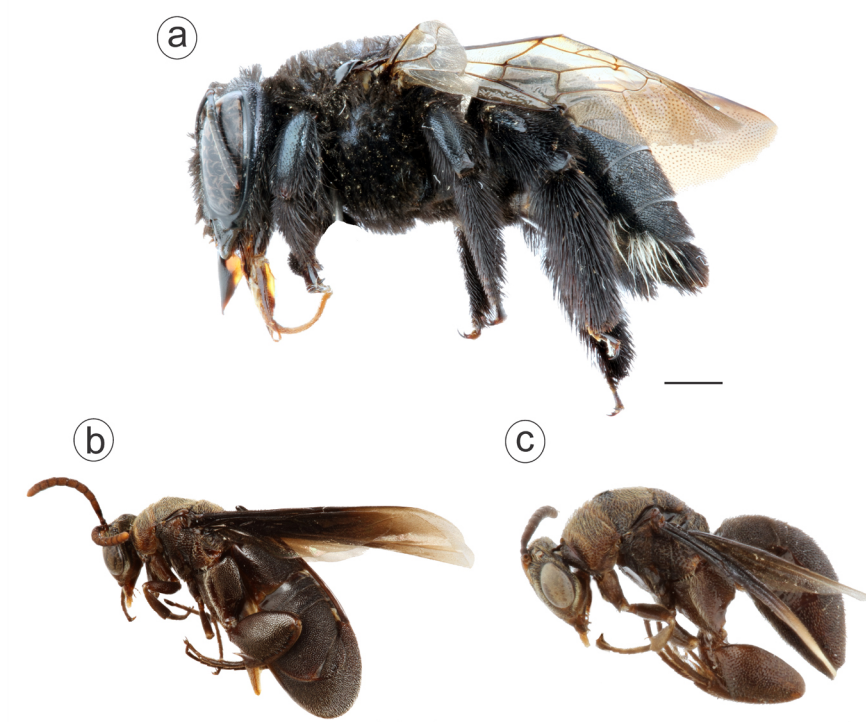


Fig. 1. Habitus of species of *Xylocopa* and *Leucospis*. a, female of *Xylocopa* (*Schonnherria*) *lateralis* Say; b-c, *Leucospis leucotelus* Walker female and male respectively.

Scale bars: 2 mm

Leucospid leucotelus Walker

Material examined: 3 ♀, 1 ♂. COLOMBIA, Norte de Santander, Pamplonita, 7° 27' 8.64" N; 72° 38' 69" W; 1610 m, 13-III-2014 [March 13th, 2014], ex. W. Hoffmann. Parasitoid of nests of *Xylocopa* (*Schonnherria*) *lateralis*.

These specimens, as well as the two adult females of *X. lateralis*, are deposited in the Snow Entomological Collection, University of Kansas Natural History Museum, Lawrence, Kansas, U.S.A. The remaining adult bee female and male specimens are in the insect collection of the Universidad de Pamplona, Pamplona, Colombia.

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