



## ORIGINAL ARTICLE / ARTÍCULO ORIGINAL

### CONTRIBUTIONS TO THE UNDERSTANDING OF THE ARGIDAE (SYMPHYTA) OF PERU

#### APORTES AL CONOCIMIENTO DE ARGIDAE (SYMPHYTA) EN EL PERÚ

Armando Vélez-Azañero<sup>1</sup>; Alfonso Lizárraga-Travaglini<sup>2</sup> & Carlos Acosta<sup>3</sup>

<sup>1</sup>Universidad Científica del Sur. Facultad de Ciencias Ambientales. Escuela de Ingeniería Ambiental. Panamericana Sur km 19. Lima 42.

<sup>2</sup>Universidad Científica del Sur. Facultad de Ciencias Ambientales. Escuela de Ingeniería Agro-Forestal. Panamericana Sur km 19. Lima 42.

<sup>3</sup>Centro Internacional de la Papa. Av. La Universidad s/n. La Molina, Lima, Perú.  
fonia14@gmail.com

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#### ABSTRACT

Review of two specimens of Symphyta from collections of the private consulting company HSE Corporation SAC and the National University Federico Villarreal resulted in the determination of two different genera. The specimens correspond to two species of the Argidae, including one of the genus *Scobina* (Arginae) and the other of the genus *Durgoa* (Sterictiphorinae).

**Keywords:** Symphyta, *Scobina*, *Durgoa*, Argidae, Peru.

#### RESUMEN

Dos especímenes de Symphyta, provenientes de la colección de la empresa HSE Corporation SAC y la Universidad Nacional Federico Villarreal fueron evaluadas para determinar los géneros. Las muestras corresponden a dos especies de la familia Argidae, un espécimen del género *Scobina* (Arginae) y un espécimen del género *Durgoa* (Sterictiphorinae).

**Palabras clave:** Symphyta, *Scobina*, *Durgoa*, Argidae, Perú.

#### INTRODUCTION

The Symphyta are a group of Hymenoptera that are characterized by a wide thorax-abdomen connection with little or no abdomen constriction (Triplehorn & Johnson 2005). Symphyta consists of 14 families, including 11 in the Neotropics, 809 genera and 8334 species worldwide, of which approximately 1000 have been recorded in the neotropical region (Abe & Smith 1991, Peña 2006). The vast majority are predominantly phytophagous (Smith 2006),

with the exception of the Orussidae, which is the only family in the suborder that is a known parasitoid (Vilhelmsen 2003).

The Symphyta are known as "saw wasps" because they possess laterally compressed ovipositors that exhibit variably sized, serrated teeth that function to cut vegetation for egg laying. It is considered that Symphyta are an artificial group within the order Hymenoptera for filling a paraphyletic relationship between superfamilies, and for not sharing many common features with the suborder Apocrita.

Symphya are varied in color from black and predominantly red. The forewing lacks the 2r vein and the hind wing possesses a closed anal cell. Length varies from 4 to 14 mm. The individuals of this suborder have bisegmented trochanters, primitive wing veins, and variable antennae. The larvae are strictly phytophagous, primarily attacking flowering plants by generating galls or rolling the leaves. Adults have adapted to feed on floral organs; so many species have developed numerous setae like those possessed by bees, which is hypothetically a form of mimicry or convergent evolution (Smith 2006).

The Tenthredinoidea superfamily is characterized by the absence of longitudinal veins in the forewings, mesonotum lacking central sulcus, short blade-shaped ovipositor, and protibia with two apical spines. Argidae is one of the most diverse group of Tenthredinoidea in the Neotropics, with 30 genera and approximately 300 species described (Smith 1969, 2006), the family is easily recognized by their characteristic antennae, with the third segment very long.

The objective of this study was to identify the genus of two specimens of Argidae in Peru in

order to contribute to our understanding of this important family in Peru.

## MATERIALS AND METHODS

Two specimens of Symphyta, from the entomological collections of the private company HSE Corporation and the National University Federico Villarreal were reviewed. Taxonomic keys by Triplehorn & Johnson (2005), Fernandez & Sharkey (2006), and Smith (2006a, 2006b) were used to support taxonomic determination of the taxa involved. The specimens were collected in montane forest ecosystems in the Peruvian Andes utilizing Malaise traps (Martin 1977) that were positioned at a height of 1.5 m above the ground.

Specimen 1 was collected in 2005 and deposited in the entomological collection of the HSE Corporation, while Specimen 2 was collected in 2010 and deposited in the entomological collection of Universidad Nacional Federico Villarreal (EPB-FCCM-UNFV) (Table 1).

**Table 1.** Location and geographical coordinates of two specimens of the Argidae family (Symphyta) collected in the Andes Mountains of Peru.

Name	Ubication	Coordinates	Altitude
Specimen 1	District: Echarate Province: La Convención Departament: Cuzco	72°56'08,1"W / 11°57'06,5"S.	403 masl
Specimen 2	District: Santa Rosa Province: Rodríguez de Mendoza Departament: Amazonas	77°27'26"W / 6°27'4"S	1756 masl

## RESULTS AND DISCUSSION

The studied samples correspond to two unique morphospecies of the Argidae; the species represent the genera *Scobina* (Smith 1992) (Arginae) of Amazonas and *Durgoa* (Malaise 1937) (Smith 1991) (Sterictiphorinae) of Cusco, Peru.

There are a few recorded specimens of the *Durgoa* in South America, with distribution primarily in Brazil, Costa Rica, and Peru. In Peru, has been reported *Durgoa mattogrossensis* (Smith 1992; Smith & Janzen

2003), further this genus was reported in Costa Rica by Smith *et al.* (2013), indicating that its distribution range includes Peru.

The genus *Scobina* includes more than 50 species from South America, distributed from Mexico to Argentina. Information on their symbiotic relationships has been scantily studied and only host plants of a small number of species are known, although reportedly close association with members of the plant family Malvaceae are common (Smith *et al.* 2013). Smith (1992) reports the species *Scobina notidacollis* in Colombia, Costa Rica, Ecuador, Panama, and Peru. Blank & Taeger



Figure 1. Dorsal view of *Scobina* sp. (Hymenoptera: Argidae).

(1995-2007) in their database ECatSym reported two species for Peru: *Scobina bolivari* (Konow, 1899) and *Scobina melanocephala* (Lepeletier, 1823).

### *Scobina*

#### Description

Robust yellowish orange insects to 8mm in length, lacking marked constriction between the thorax and abdomen (Figure 1). Head with interantennal carenas, high and acute, Y-shaped, bisecting the supraclipeal area. Antennae inserted on the front of the head, on the clypeus, between the eyes, and above the middle level of the eyes. The antennal flagellum is composed of one long segment with ornamenta, giving the appearance of a serrated flagellum (Figure 2).

The Mesonotum is not divided by a marginal cell. Fore tibiae have two apical spurs (Figure 3), while, middle tibiae and hind tibiae have pre-apical spines and simple tarsal claws. Wings have many cells and veins, forewings extend beyond the apex of the thorax and do not present the subcosta vein (Figure 4); marginal cell of the posterior wing is closed, with an accessory vein at the apex (Figure 5).

#### Taxonomic classification

Order : Hymenoptera  
 Sub Order : Symphyta  
 Super Family : Tenthredinoidea  
 Family : Argidae  
 Sub Family : Arginae  
 Genus : *Scobina* aff. *bolivari*

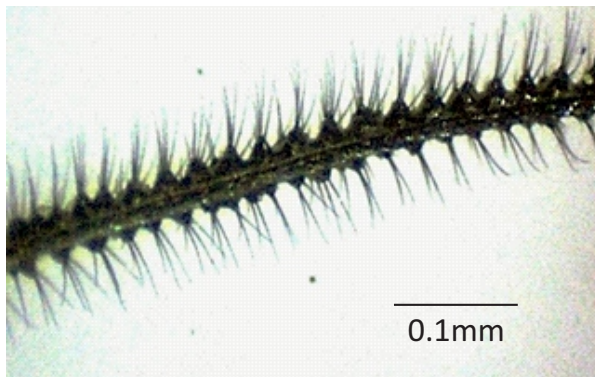


Figure 2. Antennal flagellum segment of *Scobina* sp. (Hymenoptera: Argidae).

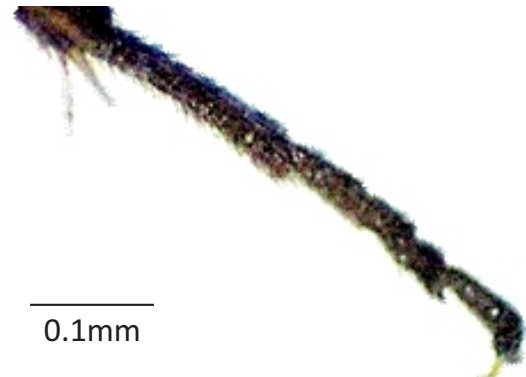


Figure 3. Fore tibia with two apical spurs of *Scobina* sp. (Hymenoptera: Argidae).

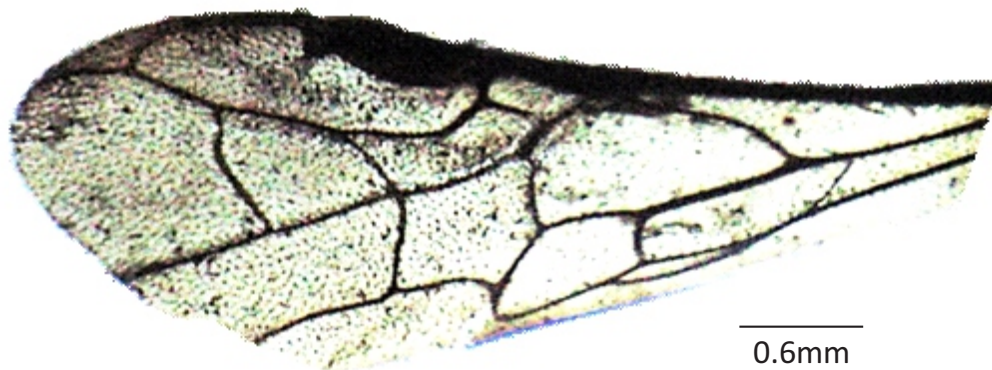


Figure 4. Fore wing of *Scobina* sp. (Hymenoptera: Argidae).





Figure 5. Hind wing of *Scobina* sp. (Hymenoptera: Argidae).

### *Durgoa*

#### Description

Robust yellowish orange insects to 9mm in length, without marked constriction between the thorax and abdomen (Figure 7). Head in dorsal view, wider than long that widens behind the eyes (Figure 8), small eyes that do not converge downwards. The lower interocular distance is larger than the length of the eye (Figure 8). Antennae inserted in the front of the head, on the clypeus, between the eyes and above the average level of the eyes; antennal flagellum composed of one long segment (Figure 9).

Mandible with a tooth near the base (Figure 10); maxillary palps with six segments, with the fourth expanded; labial palps with four segments, with the second and third segment widened. The Mesonotum is not divided by a transverse sulcus. Tibias with apical spines subequal in length, and no preapical spines; simple tarsal claws without basal lobe (Figure 11). The wings have many cells and veins, forewings extend beyond the apex of the thorax and don't have the subcosta vein or

intercostal vein. They have narrow costal cell and marginal closed cell; further the last submarginal cell is elongated (longest in the radial than the cubital) (Figure 12). They have the hind wing with anal cell present, marginal cell open at the apex and normal jugal area (Figure 13).

#### Taxonomic classification

Order : Hymenoptera  
 Sub Order : Symphyta  
 Super Family : Tenthredionoidea  
 Family : Argidae  
 Sub Family : Sterictiphorinae  
 Genus : *Durgoa*

The study reveals a preference of the genus *Scobina* and *Durgoa* to montane forest ecosystems, areas of high humidity and rainfall, which have a high diversity of habitats and microclimates. The presence of these genera in these mountain systems can demonstrate its importance as providers of ecosystem services, primarily of weed regulation, as indicated Ugalde (2002).



Figure 7. Dorsal view of *Durgoa* sp. (Hymenoptera: Argidae).



Figure 8. Dorsal view of head of *Durgoa* sp. (Hymenoptera: Argidae).

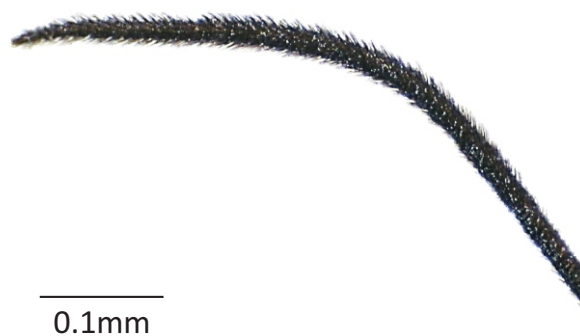


Figure 9. Antennal flagellum of *Durgoa* sp. (Hymenoptera: Argidae).

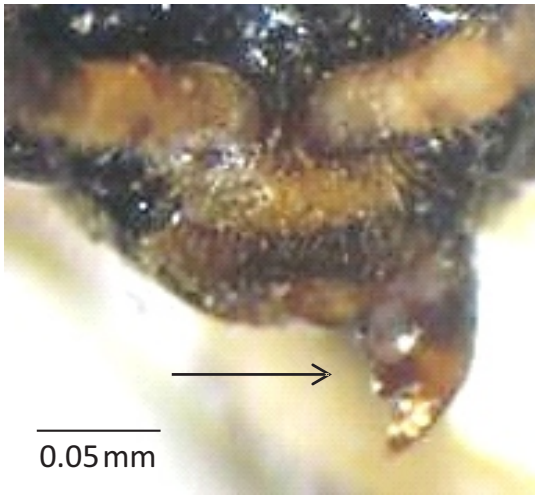


Figure 10. Frontal view of *Durgoa* sp. (Hymenoptera: Argidae) showing the left mandible.

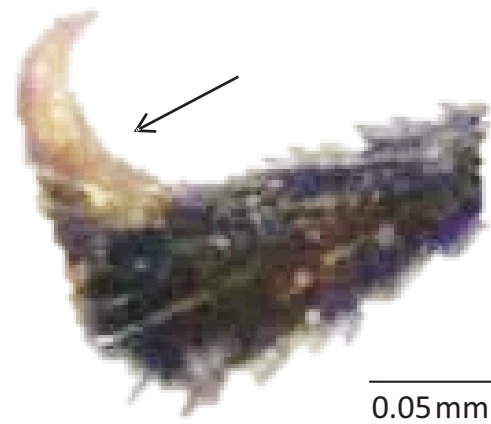


Figure 11. Tarsal claw of *Durgoa* sp. (Hymenoptera: Argidae).



Figure 12. Hind wing of *Durgoa* sp. (Hymenoptera: Argidae).



Figure 13. Fore wing of *Durgoa* sp. (Hymenoptera: Argidae).



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