

## Description of *Spheropistha melanosoma* Yaginuma, 1957 (Araneae: Theridiidae) from Korea

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### Contribution to Environmental Biology

- Spiders, along with insects, are arthropods that thrive in terrestrial ecosystems.
- Spiders are a predator group that plays a wide variety of ecological roles within the ecosystems.
- The description of this species provides important information for understanding Korean spider fauna.

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**Abstract:** A male *Spheropistha melanosoma* Yaginuma, 1957 from Korea in the family Theridiidae Sundevall, 1833 is described with measurements and morphological photos of the diagnostic characteristics. This species was collected with a sweep net around arable lands in a mountainous mixed forest during the investigation of spider fauna on Ulleungdo Island in 2019.

**Keywords:** *Spheropistha melanosoma*, Theridiidae, description, taxonomy, Korea

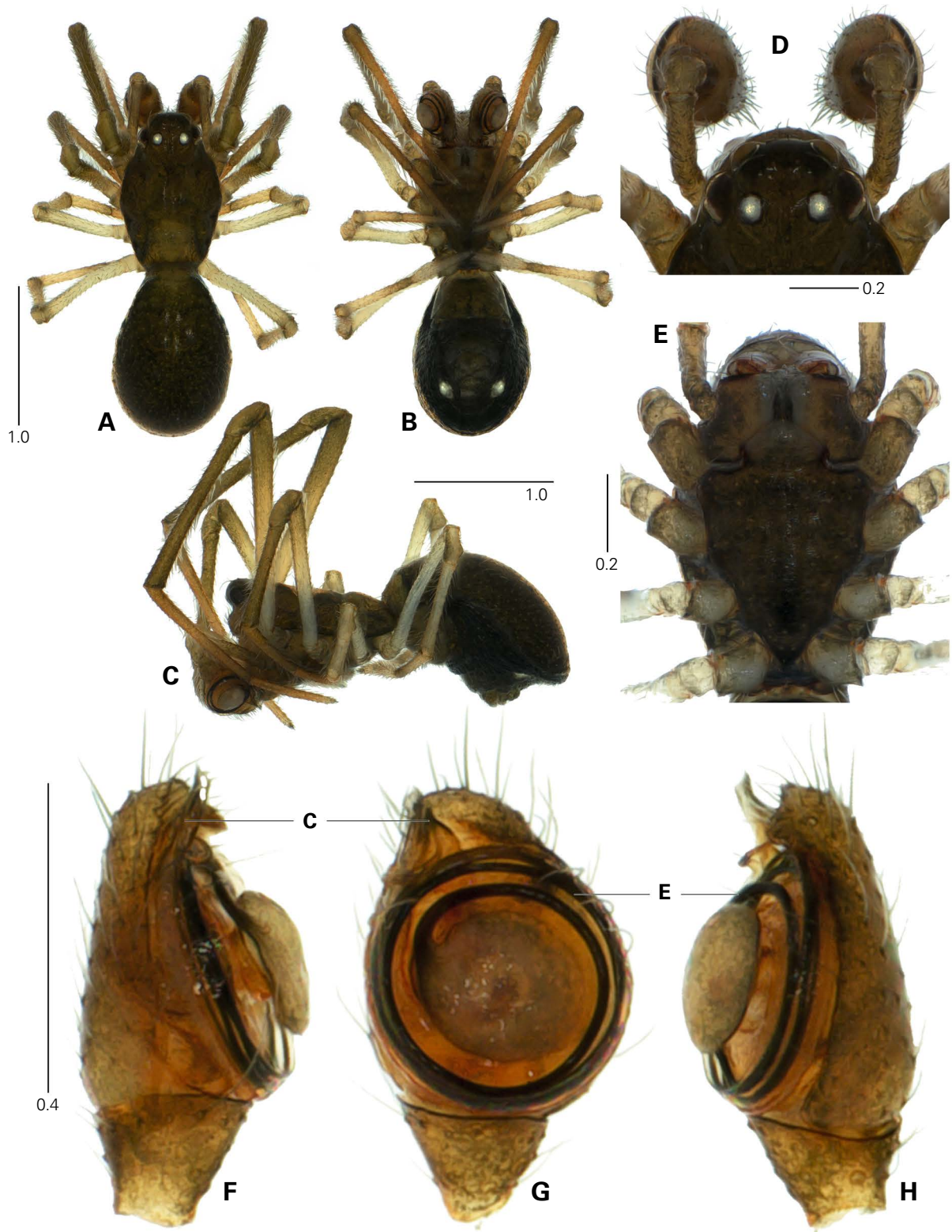
## 1. INTRODUCTION

The male of *Spheropistha melanosoma* Yaginuma, 1957 of the family Theridiidae Sundevall, 1833 was recorded in Korea (Kim and Shin 2009) but has not been accepted from the Bibliographic checklist of Korean spiders (Yoo *et al.* 2015; World Spider Catalog 2023) and the National Species List of Korea (Kim 2019) due to insufficient scientific evidence on its distribution in Korea. This is because the previous researchers provided only three very poor resolution photos of the habitus and male palp in ventral view with a brief and poor description of the species and was acknowledged as an insufficient record to prove the species' identification and distribution in Korea. We investigated the spider

fauna of Ulleungdo Island in 2019 and one male of *S. melanosoma* was collected with a sweep net around arable lands in mountainous mixed forests. Present work describes a male of *S. melanosoma* with measurements and morphological photos of diagnostic characters.

## 2. MATERIALS AND METHODS

Examined specimen was preserved in 98% Ethyl alcohol and external morphology was examined under a Leica S8APO (Singapore) stereomicroscope. Images were captured with a Dhyana 400DC CMOS camera (China) mounted on a Leica S8APO and assembled using Helicon Focus 8.2.0 image stacking software



**Fig. 1.** *Spheropistha melanosoma* Yaginuma, 1957, male. A. habitus in dorsal view, B. habitus in ventral view, C. habitus in lateral view, D. eye area from above, E. sternum, F. palp in prolateral view, G. palp in ventral view, and H. palp in retrolateral view (C, conductor; E, embolus). Scale bars in mm.

(Khmelik *et al.* 2006). Measurements of body parts were made with an ocular micrometer and are recorded in millimeters. Leg and palp (left) measurements are given as leg number, followed by total length (femur, patella, tibia, metatarsus, and tarsus). Specimen studied is deposited in the National Institute of Biological Resources, Incheon (NIBR), Korea.

### 3. TAXONOMIC ACCOUNTS

Family Theridiidae Sundevall, 1833

#### Genus *Spheropistha* Yaginuma, 1957

검등배꼬마거미속 (신칭)

Type species. *Spheropistha melanosoma* Yaginuma, 1957

#### *Spheropistha melanosoma* Yaginuma, 1957

검등배꼬마거미 (신칭) (Fig. 1)

*Spheropistha melanosoma* Yaginuma, 1957: 15, f. 2A–E; Yaginuma, 1960: 39, f. 39.6–8; Yaginuma, 1971: 39, f. 39.6–8; Brignoli, 1981: 16, f. 11, 12; Yaginuma, 1986: 53, f. 28.8; Chikuni, 1989: 35, f. 29; Yoshida, 2003: 141, f. 381–383; Agnarsson, 2004: 480; Kim & Shin, 2009: 65, f. 1–3; Yoshida, 2009: 384, f. 270–272; Hidaka, 2022: 172, f. 5, 6.

*Argyrodes melanosoma* Tanikawa, 1998: 22, f. 3–5, 7, 8, 11, 13.

**Materials.** 1♂, Naesujeon, Jeodong-ri, Ulleung-eup, Ulleung-gun, Gyeongsangbuk-do (37.507222N, 130.908889E, alt. 171 m), 31 July 2019, S.T. Kim & S.Y. Lee leg.

**Description. Male.** Total length 1.78. Carapace: 0.89 long/0.56 wide. Anterior eye row 0.41. Posterior eye row 0.42. Chelicera: 0.33 long/0.19 wide. Endite: 0.24 long/0.20 wide. Labium: 0.14 long/0.23 wide. Sternum: 0.56 long/0.48 wide. Legs: I 4.14 (1.32, 0.32, 1.01, 0.91, 0.58)/II 2.88 (0.94, 0.27, 0.61, 0.58, 0.48)/III 1.73 (0.58, 0.21, 0.28, 0.32, 0.34)/IV 2.70 (0.96, 0.22, 0.55, 0.54, 0.43). Abdomen: 0.89 long/0.65 wide. Palp: 1.06 (0.44, 0.14, 0.08, –, 0.40).

Habitus as in Fig. 1A–C. Carapace elongated oval, almost black, longer than wide, head region slightly elevated, medial part of thoracic region light, cervical and radial furrows indistinct, transversal fovea deeply depressed (Fig. 1A, C). Eight eyes in two rows, all eyes on eye tubercles, posterior eye row slightly longer than

anterior eye row, anterior eye row strongly recurved and posterior eye row almost straight (Fig. 1D). Sternum black, triangular, longer than wide (Fig. 1E). Legs long and strongly developed, patellae and tibiae of legs I and II blackish brown, metatarsi and tarsi of legs I and II reddish brown, legs III and IV pale yellowish brown, leg formula I-II-IV-III (Fig. 1A–C). Abdomen spherical, black, depressed between abdominal end and spinnerets, one pair of white spots located between abdominal end and spinnerets, longer than wide (Fig. 1A–C). Male palp simple and round, bulb round, embolus extremely long and coiled clockwise twice, conductor small and triangular with a pointed tip (Fig. 1F–H).

**Habitat.** Shrubs around arable lands in mountainous mixed forests.

**Distribution.** Korea (Ulleungdo Island in Gyeongsangbuk-do, Cheongsando Island in Jeollanam-do), Japan.

#### CRediT authorship contribution statement

SY Lee: conceptualization, methodology, investigation, collection, original draft preparation. JS Yoo: methodology, investigation, collection, review and editing. CM Jang: methodology, investigation, collection, review and editing. ST Kim: conceptualization, methodology, investigation, collection, identification, original draft preparation, review and editing, project administration, funding acquisition.

#### Declaration of Competing Interest

The authors declare no conflicts of interest.

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