

**Two new species of the ant genus *Aphaenogaster* Mayr from Japan  
(Hymenoptera, Formicidae)**

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**Abstract** Two species of the genus *Aphaenogaster* Mayr are described as new to science: *A. omotoensis* sp. nov. and *A. izuensis* sp. nov.

In Japan, 14 *Aphaenogaster* species had been known until recently (Nishizono & Yamane, 1990; Watanabe & Yamane, 1999; Yamane, 1996; Japanese Ant Database Group, 2003). However, an unnamed species of *Aphaenogaster* was found by Kubota & Satoh (2012) from the Izu Peninsula, Shizuoka Pref., central Japan, and other unnamed species of this genus was found by Satoshi Kubota from Ishigaki Island, the Ryukyus, southwestern Japan.

In this paper we describe these two species as new to science.

The following abbreviations and indices are used in this paper for descriptions.

HL, head length: maximum full-face view length from the anteriormost margin of clypeus to the occipital margin of the head (when the occipital margin is concave, to a transverse line connecting its posteriormost extensions).

HW, head width: maximum dorsal view distance across head including eyes in full-face view.

HW-II, head width: maximum dorsal view distance across head excluding eyes in full-face view.

SL, scape length: length of scape excluding radicle.

CI, cephalic index:  $HW/HL \times 100$ .

CI-II, cephalic index II:  $HW-II/HL \times 100$ .

SI, scape index:  $SL/HW \times 100$ .

SI-II, scape index II:  $SL/HW-II \times 100$ .

WL, Weber's length of alitrunk: maximum diagonal distance from the base of anterior slope of pronotum to the propodeal lobe.

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PL, petiole length: maximum length of petiole in lateral view, measured from ventral juncture with propodeum to juncture with postpetiole or gaster.

PH, petiole height: maximum height of petiole in lateral view, measured perpendicularly from apex of petiolar node to venter of petiole.

DPW, petiole width: maximum width of petiole in dorsal view.

PPL, postpetiole length: maximum length of postpetiole in lateral view, measured from ventral juncture with propodeum or petiole to juncture with gaster.

PPH, postpetiole height: maximum height of postpetiole in lateral view, measured perpendicularly from apex of postpetiolar node to venter of postpetiole.

PPW, postpetiole width: maximum width of postpetiole in dorsal view.

TL, total body length: outstretched length from the mandibular apex to the gastral apex.

*Aphaenogaster omotoensis* sp. nov.

(Figs. 1, 2)

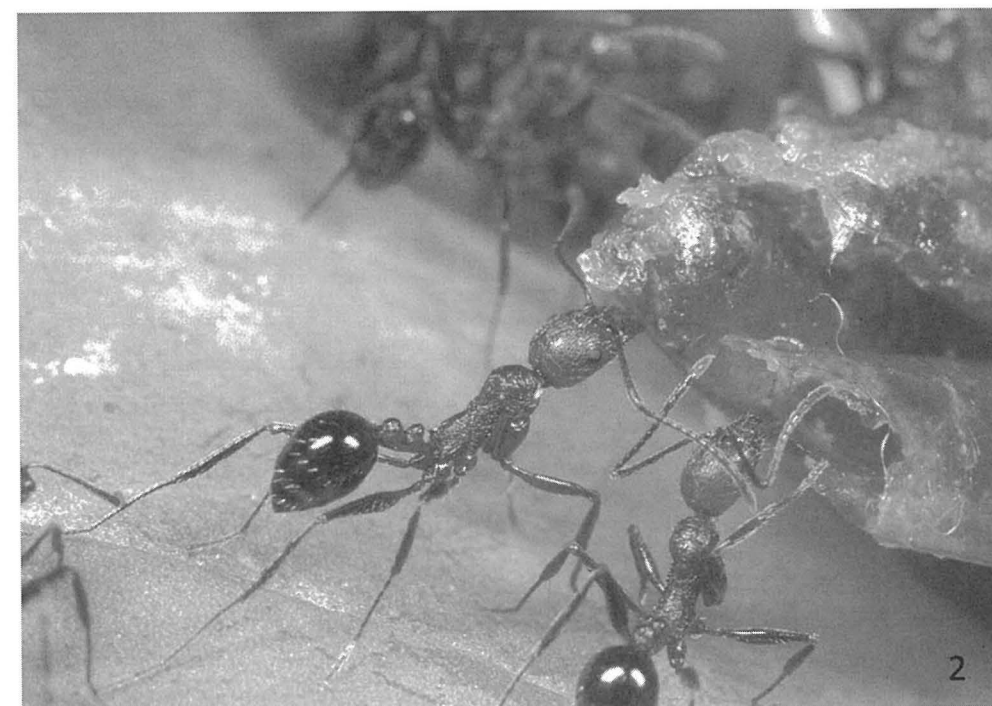
New Japanese name: Omoto-ashinaga-ari

**Diagnosis.** This species resembles *Aphaenogaster concolor* Watanabe & Yamane, 1999, and *A. kumejimana* Watanabe & Yamane, 1999, by the widely convex posterior margin of head and rugose pronotal dorsum. However, it is easily distinguished from the latter by the strong rugae on head and pronotal dorsum, rugose lateral surface of pronotum, pronotal humeri which is weakly margined and not angulate, and reddish-brown body excluding black gaster.

**Description. Holotype worker. Structure:** Head in full-face view oval, 1.17 times as long as wide, with widely convex posterior margin; longitudinal rugae running backward between eye and antennal socket, and reaching occipital collar; gena with rugae. Mandible triangular, without serrate basal margin. Clypeus with longitudinal carinae, with 5 long hairs on the anterior margin of emarginated portion; anterior margin concave in the middle. Eye strongly produced, 0.24 mm in maximum diameter. Antennal scape long, exceeding posterior margin of head by 1/3 its length.

Pronotal dorsum in dorsal view 0.75 mm in maximum width, in lateral view convex, with lateral surface rugose; pronotal humeri weakly margined and not angulate; dorsum covered with transverse rugae. Pro-mesonotal border as seen from above with a moderate vertical gap. Mesonotum rugose; mesopleuron microreticulate with longitudinal rugae. Dorsum of propodeum with transverse rugae; propodeal spine thin, longer than basal width; lateral surface of propodeum microreticulate with rugae.

Petiole smooth, in lateral view with inverted U-shaped node. Postpetiole smooth, in



Figs. 1, 2. *Aphaenogaster omotoensis* sp. nov., worker. (Photographs by Satoshi Kubota)

lateral view as long as high with convex dorsal margin.

Gaster smooth and shining, in dorsal view 1.13 mm in maximum width.

**Color:** Head and alitrunk reddish brown; waist segments blackish brown; gaster black; mandible, clypeus and antenna brown; legs brown.

**Measurements (mm):** HL 1.37, HW 1.17, WH-II 1.04, SL 1.04, CI 85, CI-II 76, SI 137, SI-II 155, WL 1.90, PNL 0.52, PH 0.35, DPW 0.25, PPL 0.40, PPH 0.39, DPW, 0.35, TL 5.8.

**Holotype.** Worker, Mt. Omoto-dake, Ishigaki-jima, Okinawa Pref., 28. ix. 2007, Satoshi Kubota leg.

**Paratypes.** 4 workers, same data as holotype.

**Type depository.** National Institute of Agro-Environmental Sciences, Tsukuba, Japan.

**Etymology.** The specific epithet is based on the name of type locality, Mt. Omoto-dake on Ishigaki-jima island.

**Remarks.** This species nests in the soil of forest floor.

*Aphaenogaster izuensis* sp. nov.

(Figs. 3, 4)

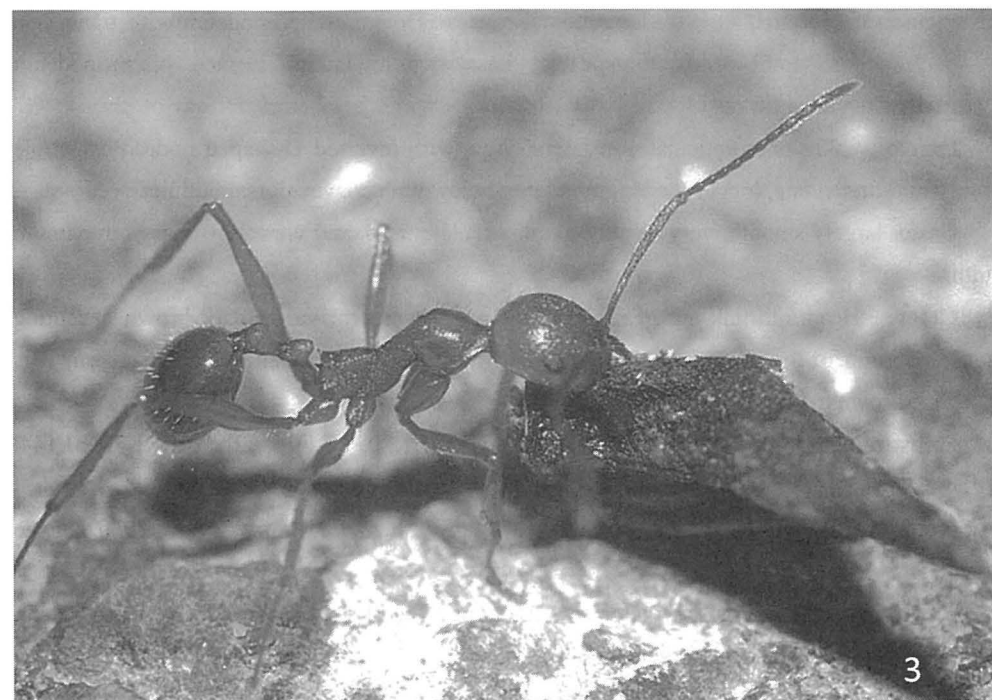
Japanese name: Ihama-ashinaga-ari

*Aphaenogaster* sp. (Kubota & Satoh, 2012)

**Diagnosis.** This species resembles *Aphaenogaster osimensis* Teranishi, 1940, and *A. irrigua* Watanabe & Yamane, 1999, by the widely convex posterior margin of head and clypeus with transverse rugae. However, it is distinguished from the latters by the developed rugae on head, basal margin of mandibles not serrate, and rugose mesopleura.

**Description. Holotype worker. Structure:** Head in full-face view oval, 1.27 times as long as wide, with widely convex posterior margin; longitudinal rugae running backward between eye and antennal socket; vertex almost smooth, but with rugae not reaching occipital collar; gena smooth, without rugae. Mandible triangular, without serrate basal margin. Clypeus with transverse rugae at anterior portion; anterior clypeal margin concave in the middle; the median emargination with 3 long hairs. Eye moderately produced, 0.31 mm in maximum diameter. Antennal scape long, exceeding posterior margin of head by 1/3 its length.

Pronotal dorsum in dorsal view, 0.88 mm in maximum width, in lateral view convex; lateral surface microreticulate and with rugae; pronotal humeri weakly margined and not angulate; pronotal dorsum largely smooth, weak and short rugae present at posterior portion. Pro-mesonotal border in dorsal view with a moderate vertical gap. Mesonotum rugose;



Figs. 3, 4. *Aphaenogaster izuensis* sp. nov., worker. (Photographs by Sakae Kubota)

mesopleuron microreticulate with longitudinal rugae. Dorsum of propodeum with transverse rugae; propodeal spine thin, longer than basal width; lateral surface of propodeum microreticulate and, with rugae.

Petiole weakly microreticulate, in lateral view with inverted U-shaped node. Postpetiole weakly microreticulate, longer than high, in lateral view with convex dorsal outline.

Gaster largely smooth, very weakly microreticulate, in dorsal view 1.40 mm in maximum width.

**Color:** Head, alitrunk and waist segment reddish brown; gaster dark brown excepting anterior portion of 1st gastral tergite yellowish; mandible, clypeus and antenna brown; legs yellowish brown to brown.

**Measurements (mm):** HL 1.55, HW 1.23, HW-II 1.20, SL 1.76, CI 79, CI-II 77, SI 144, SI-II 147, WL 2.20, PL 0.65, PH 0.40, DPW 0.31, PPL 0.56, PPH 0.45, DPW 0.45, TL 6.7.

**Holotype.** Worker, Ihama, Minami-izu-machi, Shizuoka Pref., 5. vii. 2010, Sakae Kubota leg.

**Paratypes.** 15 workers, same data as holotype; 8 workers, Hagachi, Minami-izu-machi, Shizuoka Pref., 10. viii. 2011, Sakae Kubota leg.

**Type depository.** National Institute of Agro-Environmental Sciences, Tsukuba, Japan.

**Etymology.** The specific epithet is based on the name of type locality, Izu Peninsula.

**Remarks.** This species inhabits the forest margins, and nests in the soil or under stones. Body color varies in workers from yellowish brown to blackish brown.

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