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Discovery of the aleocharine tribe Diestotini in Japan, Ogasawara Islands, with description of a new species of the genus *Diestota* Mulsant & Rey (Coleoptera: Staphylinidae)

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Abstract

Diestota (*Diestota*) *ogasawarana* Hashizume & Kishimoto, **sp. nov.** (Coleoptera: Staphylinidae: Aleocharinae: Diestotini) is described as the first representative of the genus *Diestota* Mulsant & Rey, 1870, and the tribe Diestotini from Japan. *Aphaenoglossa* Peyerimhoff, 1937, the subgenus of *Diestota*, is elevated to the generic rank.

Key words: Aleocharinae, Diestotini, rove beetle, new species, taxonomy

Introduction

The Ogasawara Islands are a group of oceanic islands located approximately 1,000 km south of mainland Japan, comprising several island groups including the Mukojima, Chichijima, Hahajima, and Volcano Islands. Most of the area of these islands is designated as a UNESCO World Heritage site. To date, seven aleocharine species have been recorded from the Ogasawara Islands (Watanabe 1978; Kishimoto 1999a; Hashizume & Inoue 2022; Hashizume *et al*. 2025). Most of them have a wide distribution, but one species, *Dictyon insulicola* Kishimoto, 1999 (distribution: Mukojima Islands, Chichijima Islands, Hahajima Islands, Volcano Islands), has reduced hind wings and is currently regarded endemic to the Ogasawara Islands (Kishimoto 1999a, b; Mori *et al*. 2018). One of the authors, Kishimoto, who also collected and described the aforementioned endemic species, later collected an unidentified species of the genus *Diestota* Mulsant & Rey, 1870 from Haha-jima Island of the Ogasawara Islands; this species is described here as a new species.

Diestota belongs to the tribe Diestotini Mulsant & Rey, 1871 and includes four subgenera. The tribe Diestotini includes eight genera and is widely distributed worldwide (Orlov *et al*. 2021; Rainey & Ivie 2023). Diestotini has never been recorded from Japan. During our investigation of the *Diestota* species collected from the Ogasawara Islands and the process of assigning it to subgenera, we noticed that the subgenus *Aphaenoglossa* Peyerimhoff, 1937 has significantly different characteristics from other species of *Diestota*.

In this paper, a new species of the genus *Diestota* is described from the Ogasawara Islands. This is also the first report of the genus *Diestota* and the tribe Diestotini from Japan. We also re-elevated *Aphaenoglossa* Peyerimhoff, 1937 to generic rank from its previous status as a subgenus of *Diestota*.

Materials and methods

The holotype and paratypes of the new species described in this paper are deposited in the Museum of Natural and Environmental History in Shizuoka, Japan (SPMN).

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The morphological observations were conducted using Olympus SZX10 and Nikon ECLIPSE Ci-L microscopes. The habitus photo was taken using a Sony α 7R IV digital camera with a Canon MP-E65 mm 1–5×macro lens. The mouthparts and spermatheca was photographed with a Canon EOS kiss X8i digital camera attached to an Olympus BX50 compound microscope. The photos were combined by the Zerene Stacker software (Zerene System LLC, USA). Line drawings were made using a Nikon ECLIPSE Ci-L microscope fitted with a Nikon Y-IDT drawing tube and the Clip Studio Paint Pro software (Celsys, Inc., Tokyo, Japan). Figures were edited using the GIMP 2. 8. 22 software. Dissected body parts were mounted in Euparal on a small glass cover slip glued onto a paper card and pinned under the respective specimen, following the procedure of Maruyama (2004).

The label data of the holotype is quoted verbatim, with the text in double quotation marks (“”); slash (/) was used to separate lines on the same label.

The side of the median lobe of aedeagus containing the medial foramen is referred to as the ventral side; the opposite side is referred to as the dorsal side. Left and right is defined as viewed from the dorsum.

The following abbreviations were used for measurements: BL—length of body from the anterior margin of clypeus to posterior margin of tergite VII; FBL— forebody length from the anterior margin of clypeus to posterior end of elytral suture; HW—width of head, including eyes; PL—pronotal length; PW—pronotal width; EL—length of elytra, from humeral angle to posterolateral angle; EW—elytral width. All measurements are in millimeters and are reported in the format “minimum–maximum”.

Taxonomy

Tribe Diestotini Mulsant & Rey, 1871

Remarks. The morphological definition of this tribe is not clearly defined. Ashe (2001) defined Diestotina (treated as a subtribe of Homalotini at that time) with the following characteristics: tarsal formula 4-4-5, labial palps with two palpomeres, unusually long and filiform or stylate, sutures between palpomeres indistinct in many taxa; ligula divided into two lobes apically; mesocoxal cavities broadly separated by broad meso- and metaventrite processes; metaventrite process as long as, or longer than, mesoventrite process. Asenjo *et al*. (2019) transferred six genera to Diestotini from Autaliini or Homalotini without any discussion. Presumably, the tarsal formula, the shape of the labial palps, and the shape of the spermatheca are important features for distinguishing this tribe.

Genus *Diestota* Mulsant & Rey, 1870

[Japanese name: Kawari-hanekakushi-zoku]

Diestota Mulsant & Rey, 1870: 194 (original description; type species: *Bolitochara mayeti* Mulsant & Rey, 1870 (= *Diestota testacea* (Kraatz, 1859)), fixed by monotypy).

Ousilusa Cameron, 1920: 234 (original description; type species: *Ousilusa myrmicobia* Cameron, 1920); Pace, 2000: 131 (synonymized with *Diestota*).

Prosilusa Cameron, 1920: 237 (original description; type species: *Prosilusa rufa* Cameron, 1920 (= *Diestota testacea* (Kraatz, 1859)); Cameron, 1936: 3 (synonymized with *Diestota*).

Hypselusa Bernhauer, 1931: 592 (original description; type species: *Hypselusa scotti* Bernhauer, 1931); Pace, 1986: 108 (synonymized with *Diestota*).

Remarks. Among the genera recognized within Diestotini, the genus *Diestota* shares similarities with *Parasilusa* Bernhauer, 1908 and *Tachiona* Sharp, 1883 particularly in having a broad neck and widely separated mesocoxal cavities. *Parasilusa* is distinguished from *Diestota* by having the anterior margin of the pronotum longer than the posterior margin (Pace 2008). *Tachiona* differs from *Diestota* in having a flat body with a wide head and pronotum, and a clypeal margin that is slightly to markedly emarginate (Ashe & Wheeler 1988). *Aleomallus* Rainey & Ivie, 2023 is also described to have widely separated mesocoxal cavities (Rainey & Ivie 2023). However, the photograph of the ventral habitus (Rainey & Ivie 2023: fig. 1b) suggests that this description is probably inaccurate, as the mesocoxal cavities are not separated by the meso- and metaventrite processes. While the attempt to characterize *Aleomallus* is largely based on its body shape, the mouthparts and thoracic structures are likely crucial for distinguishing it from other genera. Pace (1986) provided the key to subgenera of the genus *Diestota*. Among the subgenera in this key,

Parasilusa is now considered a genus (e.g., Asenjo *et al*. 2019; Newton 2025). *Aphaenoglossa* Peyerimhoff, 1937, currently treated as a subgenus of *Diestota*, is not included in the key, although it was regarded as a subgenus of *Diestota* at the time of Smetana (2004).

***Diestota* (*Diestota*) *ogasawarana* Hashizume & Kishimoto, sp. nov.**

(Fig. 1)

[Japanese name: Ogasawara-kawari-hanekakushi]

Type materials. Holotype: male, JAPAN: "Ogasawara Islands / Haha-jima Is. / Sekimon / 3. vii. 1997 / T. Kishimoto leg." (SPMN). Paratypes: JAPAN: Ogasawara Islands: Haha-jima: 2 males, 3 females, same data as holotype (SPMN); 3 males, 2 females, same data, but 5 VII 1997 (SPMN); 1 male, 3 females, same data, but 8 VII 1997, by Tullgren extractor (SPMN); 2 males, Sakaigatake, 5 VII 1997, T. Kishimoto leg. (SPMN); 1 male, Sakaigatake–Sekimon, 9 III 1999, T. Kishimoto leg. (SPMN); 9 males, 5 females, Mt. Chibusa-yama, 6 VII 1997, T. Kishimoto leg. (SPMN).

Diagnosis. This species is somewhat similar to *Diestota ming* Pace, 2004, described from Hong Kong, China, in the appearance and the shape of the spermatheca, but it can be distinguished by the smaller elytra and the smaller widely coiled portion of the spermatheca. This species also similar to *D. tongana* Pace, 1993, described from Tonga, but it can be distinguished by the smaller elytra, the longer processes of the male tergite VIII, the larger basal bulb of median lobe of aedeagus.

Description. Measurements (n = 5): BL: 1.82–2.00; FBL: 0.83–0.86; HW: 0.33–0.36; PL: 0.28–0.31; PW: 0.39–0.43; EL: 0.32–0.34; EW: 0.44–0.47.

Relative length of antennomeres 1–11 (n = 1): 26 : 19.1 : 17.9 : 11.7 : 10 : 10.7 : 11.1 : 11.5 : 12.5 : 12.3 : 33.2. Ratio of length/width of antennomeres 1–11 (n = 1): 2.14, 1.68, 1.68, 0.96, 0.77, 0.72, 0.63, 0.68, 0.65, 0.58, 1.65.

Body (Fig. 1A) yellowish to reddish brown, antennomeres 4–11 and abdomen somewhat darker.

Head almost circular, sparsely punctured with fine punctures, without microsculpture; setae suberect and directed anteromedially. Eyes small, almost as long as temporal length. Antennomeres 1–3 and 11 longer than wide, 4 as long as wide, 5–10 wider than long. Labium (Fig. 1B) with ligula slender, divided in basal 2/5, approximately 1/2 times as long as labial palpomere 1; two medial setae of prementum arranged transversely, close each other; medial pseudopore field narrow, without pseudopores. Labial palpus (Fig. 1B) moderately long, with two palpomeres; palpomere 1 somewhat longer than 2. Mentum trapezoidal, anterior margin deeply emarginate, lateral margin slightly sinuate.

Thorax. Pronotum transverse, 1.29–1.38 times as wide as long, widest around anterior 2/5, densely covered with punctures larger than those of head, without microsculpture; 1.15–1.17 times as broad as head, with shallow posteromedian transverse impression; setae on disc suberect and directed posterolaterally. Elytra transverse, 1.36–1.45 times as wide as long, 1.04–1.15 times as long as pronotum, 1.10–1.19 times as wide as pronotum, puncturation sparser than pronotum with punctures larger than those of pronotum, without microsculpture; posterior margin distinctly sinuate; setae suberect and directed posteriorly. Hind wings reduced, approximately as long as elytra.

Abdomen sparsely punctured with fine punctures; tergites III–V with basal impressions; impression of tergite IV with a few short longitudinal keels; anterior area of tergites V–VII with several longitudinal keels, usually ten or more keels on tergite VI; setae suberect, longer and sparser than those of forebody.

Male. Sternite VII with small medial lobate projection on posterior margin (Fig. 1C). Tergite VIII (Fig. 1D) with eight processes on posterior margin, outer ones sharp and slightly curved, second outer ones longer than the others. Parameres of aedeagus (Fig. 1E) with broad apical lobe. Median lobe of aedeagus (Figs. 1F, G) with moderately large basal bulb; apical process narrow and sinuate in lateral view; copulatory piece simple.

Female. Sternite VII and tergite VIII not modified. Spermatheca (Fig. 1H) extremely long, coiled narrowly at the proximal part, coiled widely near distal end; distal portion (Fig .1I) slightly thickened, its terminal part round and flattened.

Distribution. Japan (Ogasawara Isls: Haha-jima Is.).

Etymology. Named after the Ogasawara Islands, which include Haha-jima Island, where all specimens were collected.

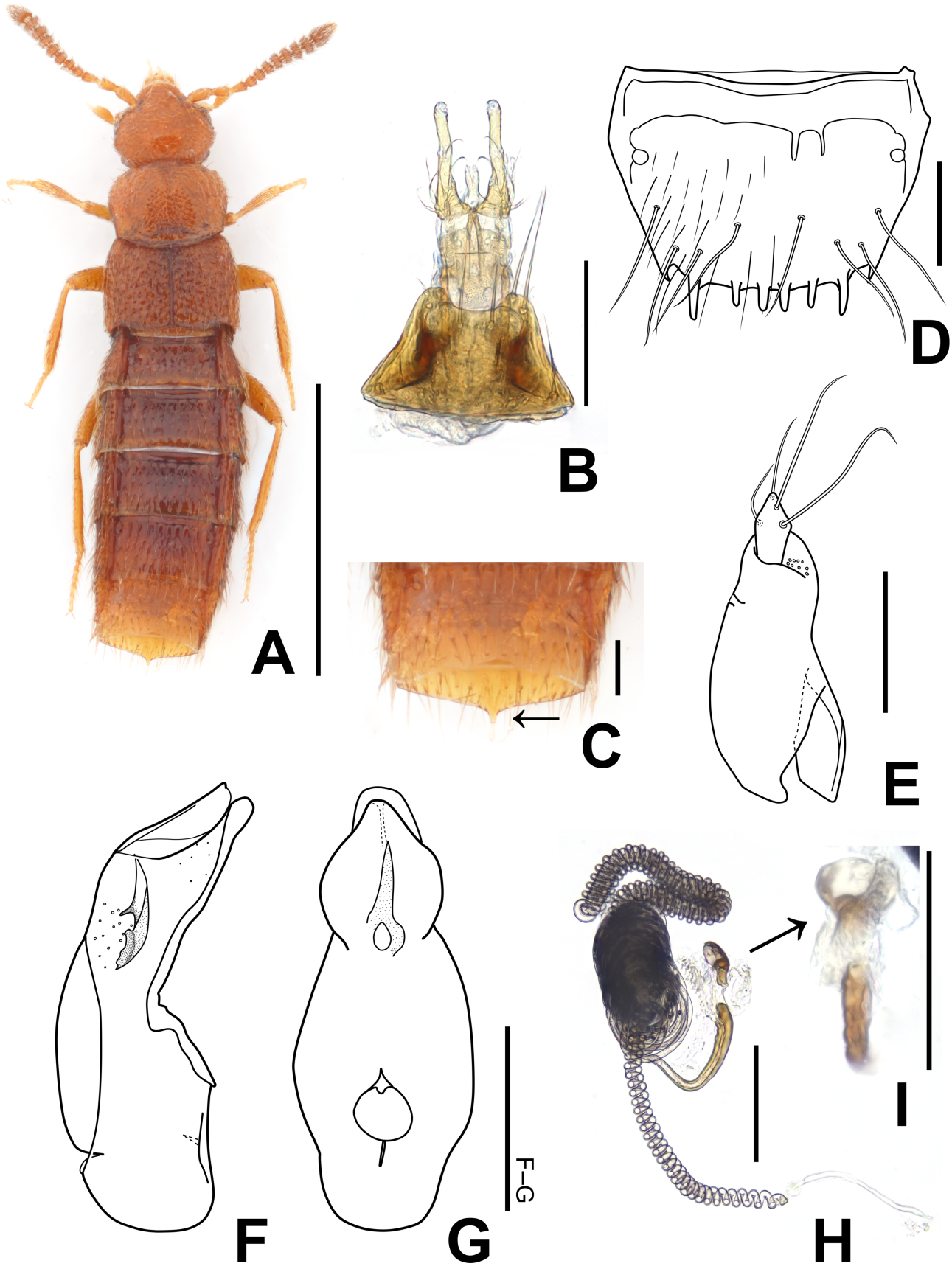

FIGURE 1. *Diestota* (*Diestota*) *ogasawarana* Hashizume & Kishimoto, **sp. nov.** A, habitus in dorsal view; B, labium; C, male abdominal segment VII (arrow indicates medial lobate projection of sternite VII); D, male tergite VIII; E, right paramere of aedeagus; F, median lobe of aedeagus, lateral; G, ditto, ventral; H, spermatheca; I, distal portion of spermatheca. Scale bars: 1.0 mm for A; 0.1 mm for B–I.

Remarks. In referring to the key to subgenera provided by Pace (1986), this species is considered to belong to the subgenus *Diestota* because the anterior margin of the mentum is deeply emarginate.

The soil ecosystem of the Ogasawara Islands has suffered catastrophic decline due to predation by the non-native terrestrial nemertean (ribbon worm), *Geonemertes pelaensis* Semper, 1863 (Shinobe *et al*. 2017). *Geonemertes pelaensis* has also invaded Haha-jima Island, and, like many other soil-dwelling arthropods, *Diestota ogasawarana* sp. nov. is likely at high risk of extinction due to predation by *G. pelaensis*. In Haha-jima, *Platydemus* sp., a terrestrial flatworm, which is not known whether alien or native in the Ogasawara Islands, is also known to prey on terrestrial insects (Shoji & Karube 2023), and the impact of this terrestrial flatworm is also a concern.

Genus *Aphaenoglossa* Peyerimhoff, 1937

Aphaenoglossa Peyerimhoff, 1937: 103 (original description; type species: *Aphaenoglossa normandi* Peyerimhoff, 1937, fixed by monotypy); Scheerpeltz, 1944: 172 (key); Smetana, 2004: 421 (catalogue; as a subgenus of *Diestota*).

Remarks. *Aphaenoglossa* is monotypic and was described by Peyerimhoff (1937) from Tunisia. Since Smetana (2004), *Aphaenoglossa* has been treated as a subgenus of *Diestota* (Newton 2025). Based on the original description of *Aphaenoglossa* (Peyerimhoff 1937) and the illustrations provided therein, its mouthparts and tarsal formula differ markedly from the diagnostic features of the tribe Diestotini, not only from those of *Diestota* (*Aphaenoglossa*: labial palps with three palpomeres and appear unfused; ligula indistinct; mandibles bifid at apex; tarsal formula 5-5-5. Diestotini: labial palpus with two palpomeres; ligula distinct, bifid at apex; mandibles not bifid at apex; tarsal formula 4-4-5). Considering these characters, we re-elevate *Aphaenoglossa* to generic rank. Although its affiliation with Diestotini appears to be inappropriate, the tribe to which it should be affiliated remains uncertain; therefore, it is provisionally retained in Diestotini until a detailed phylogenetic study is conducted. The following combination is resurrected: *Aphaenoglossa normandi* Peyerimhoff, 1937.

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