

Further Study on Pselaphine Fauna (Coleoptera, Staphylinidae) from the Izu-shotô Isls., Tokyo, Japan

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Abstract Further species and records of the subfamily Pselaphinae, Staphylinidae from the Izu-shotô Islands, Tokyo, Japan are revised. Twenty-seven species were recognized from nine islands. Numbers of recorded species from respective islands are as follows: Izu-ôshima Is. (16), Toshima Is. (8), Niijima Is. (7), Shikinejima Is. (4), Kôzushima Is. (8), Miyakejima Is. (8), Mikurajima Is. (12), Hachijôjima Is. (6), and Aogashima Is. (2).

Key words: Pselaphinae, Staphylinidae, *Diartiger*, Izu-shotô Isls., Tokyo, fauna.

Nineteen species of the subfamily Pselaphinae, family Staphylinidae were recorded by NOMURA, KAMEZAWA and ARAI (2013) from the Izu-shotô Islands off Central Honshu in Pacific Ocean. After NOMURA, KAMEZAWA and ARAI (2013), numbers of pselaphine species known from each island are as follows: Izu-ôshima Is. (7), Miyakejima Is. (7), Niijima Is. (1), Kôzushima Is. (1), Mikurajima Is. (7), and Hachijôjima Is. (4).

Some scientists of Tokyo University of Agriculture in Atsugi (TUA) and KAMEZAWA visited the Izu-shotô Isls. for several times, and they collected many pselaphine specimens in 2011–2013. NOMURA examined the collection and recognized twenty-seven species from all the nine islands of Izu-shotô Isls. Numbers of pselaphine species recorded from the respective islands in the present study are as follows: Izu-ôshima Is. (16), Toshima Is. (8), Niijima Is. (7), Shikinejima Is. (4), Kôzushima Is. (8), Miyakejima Is. (8), Mikurajima Is. (12), Hachijôjima Is. (6), and Aogashima Is. (2).

Materials and Methods

The material used in this study was collected from Izu-shotô Isls. by some scientists of the Entomological Laboratory of TUA and by the second author H. KAMEZAWA. Many pselaphine specimens were collected by shifting leaf litter, checking under bark and ant nests. Some specimens were collected by KAMEZAWA with portable light trap in NAKASE system (NLT) also used in Thailand (NOMURA, SAKCHOOWONG & MARUYAMA, 2013). The specimens were examined by a digital microscope (KEYENCE digital microscope system VHX-2000 + VHX-D510) for SEM observation. All SEM samples were non-coated, and photographed with a low acv 1.2 kV. The pselaphine collection of TUA examined in the present study was returned, and the rest specimens are deposited in the National Museum of Nature and Science, Tsukuba (NMNS).

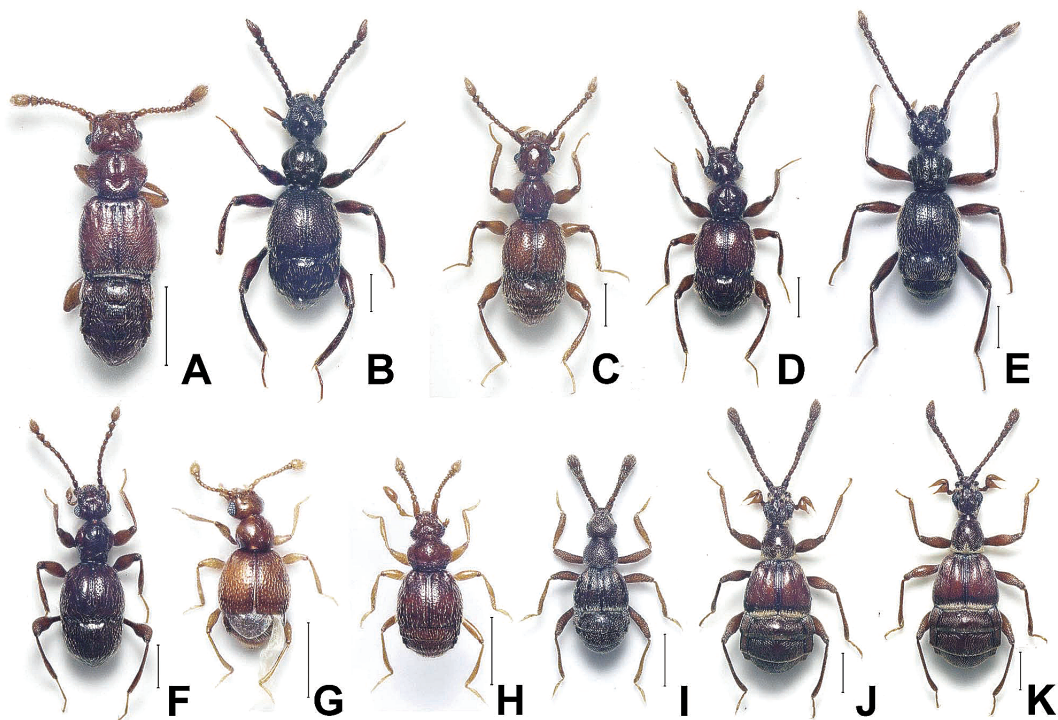


Fig. 1. Pselaphine species newly recorded from Izu-shotô Isls. — A, *Euplectus* sp., male; B, *Batrisodellus* sp. 1, female; C, *B.* sp. 2, male; D: ditto, female; E, *Tribasodes* sp., female; F, *Batriscenellus uenoi*, male; G, *Eupines?* sp., male; H, *Tychobythinus aino*, male; I, *Stipesa rudis*, female; J, *Poroderus similis*, male; K, ditto, female. Scale = 0.5 mm.

An Additional List of Pselaphine Species from the Izu-shotô Islands

The previous and additional records of the already known species and newly collected species of the subfamily Pselaphinae from the Izu-shotô Isls. are listed below. Asterisked name of species indicates newly added species, and asterisked name of island is new distributional record of island in this study (See also Appendix).

Supertribe Euplectitae

1. *Nipponozethus* sp.

(Fig.2)

Record. [Hachijôjima Is.] Noboryô-tôge Pass (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Nijijima Is.*] 1 male, Mt. Miyatsukayama, 8.IX.2012, Y. SHIMIZU leg. [Shikinejima Is.*] 1 male, 1 female, Kumanoi Yûhodô, 7.IX.2012, Y. SHIMIZU & S. OBATA leg. [Mikurajima Is.*] 1 female, Mt. Funakiyama, 9.IX.2012, H. KOJIMA leg.; 1 female, Camp-site, 26.X.2012, H. KOJIMA leg. [Hachijôjima Is.] 2 females, Mihara Rindô, 10.X.2011, H. KOJIMA, Y. SHI-

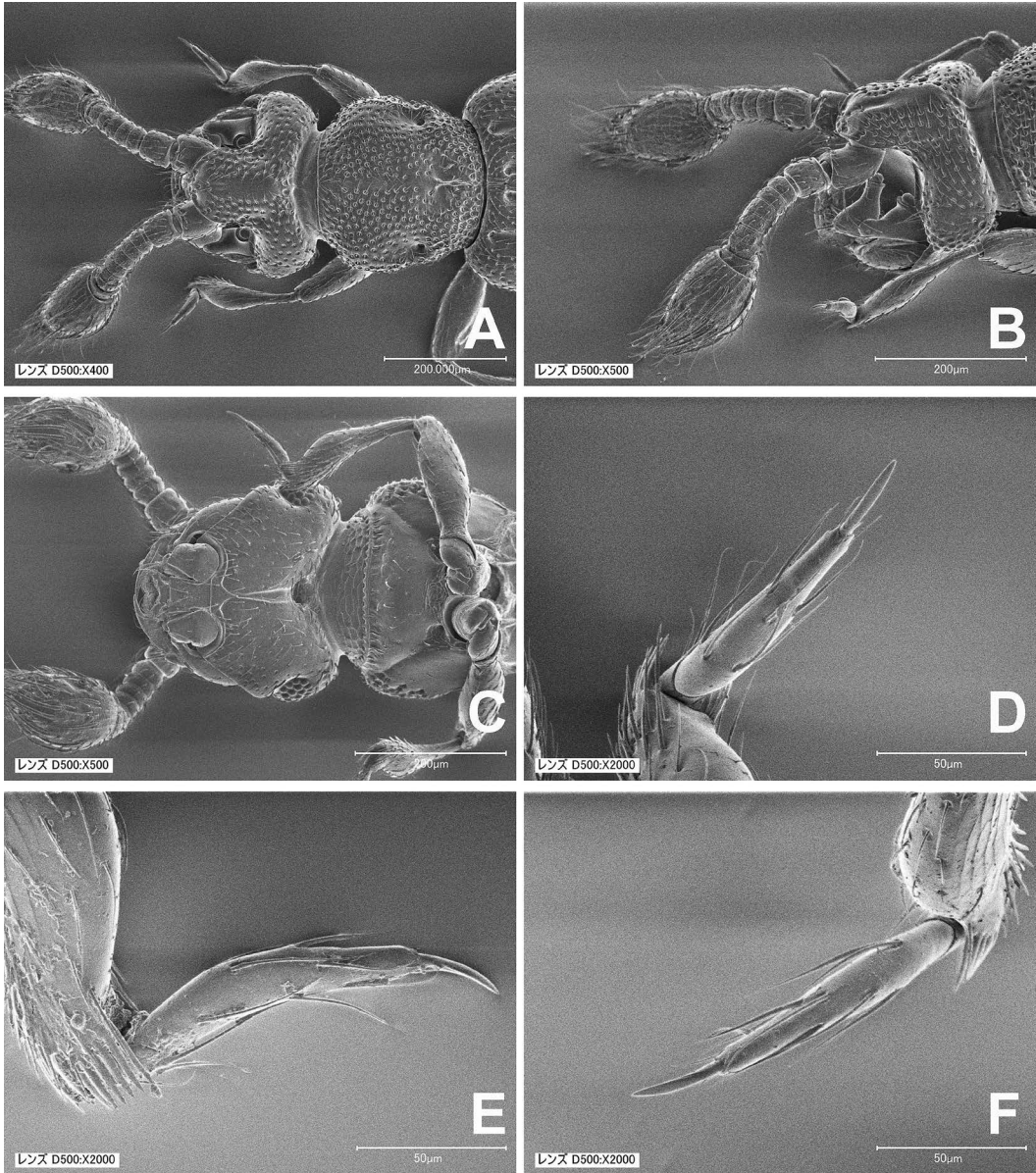


Fig. 2. SEM photos of *Nipponozethus* sp. — A, Head and pronotum in dorsal view; B, head in lateral view; C, head and pronotum in ventral view; D, fore tarsus; E, mid tarsus; F, hind tarsus.

MIZU & S. OBATA leg.; 1 female, Jinta, 8.XI.2012, H. KOJIMA leg.

Remarks. This species has been known from Hachijôjima Is. in the Izu-shotô Isls. In this study, it is discovered also from Nijijima, Shikinejima and Mikurajima Isls. As shown in Fig. 2, the head of this species bears a pairs of excavations where the maxillary palpi contracted on anterolateral sides (Figs. 2A–C). Each of the fore, mid and hind tarsi is seemingly formed by very short basal, very large apical segments and single elongate claw (Figs. 2D–F).

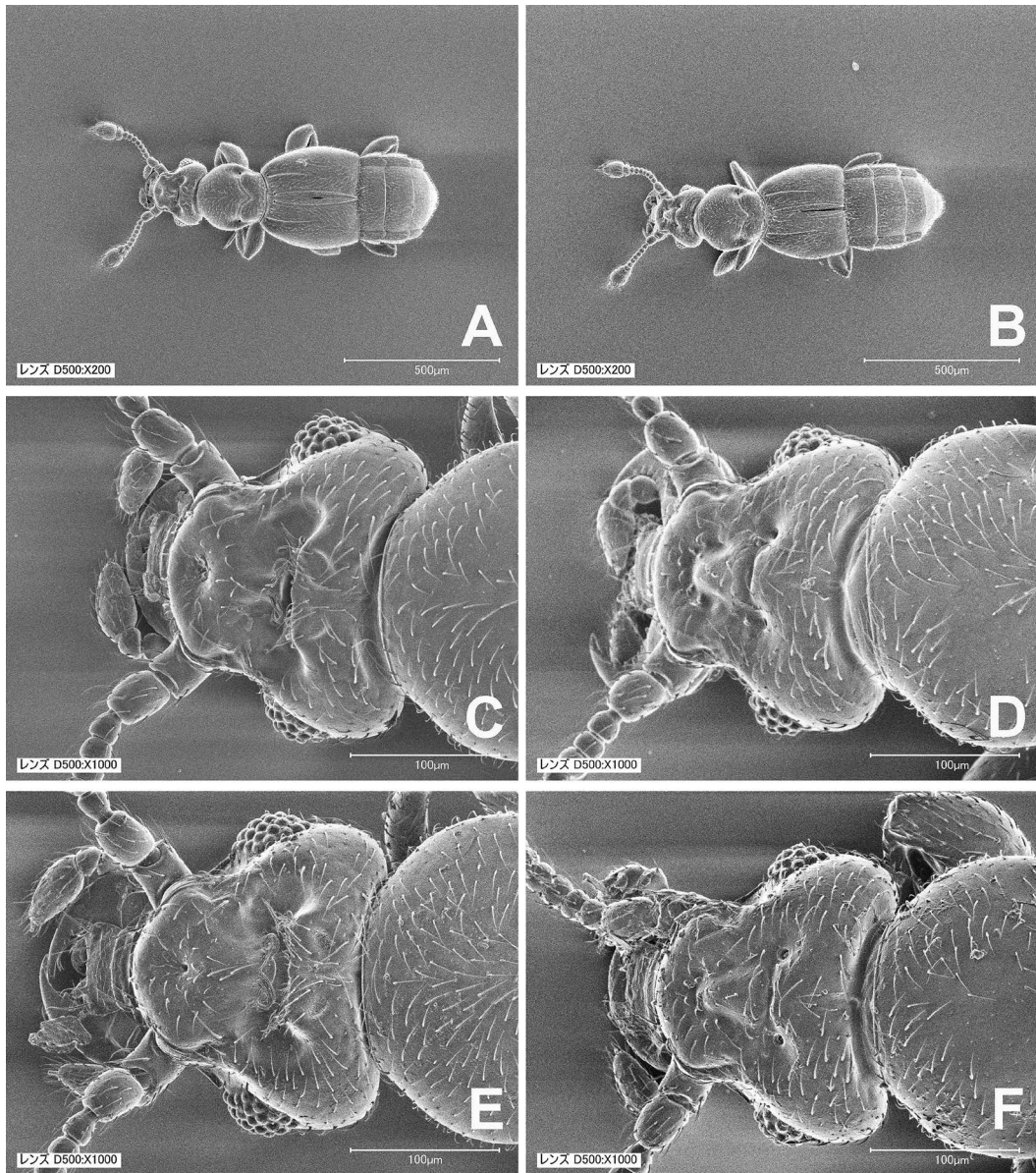


Fig. 3. SEM photos of *Pseudoplectus* sp. — A & C, Male from Izu-ôshima Is.; B & D, female from Izu-ôshima Is.; E, male from Mikurajima Is.; F, female from Mikurajima Is. — A & B, Habitus in dorsal view; C-F, head in dorsal view.

2. *Euplectus* sp.*

(Fig. 1A)

Specimens examined. [Mikurajima Is.] 1 male, Sato [N33°53'44" E139°35'50"], 18.VI.2013, H. KAMEZAWA leg.; 1 female, Sato [N33°53'41" E139°35'59"], 12–16.V.2013, H. KAMEZAWA leg.

Remarks. This is the first record of this species from Izu-shotô Isls. This genus has been poorly studied and includes many undescribed species in Japan.

3. *Pseudoplectus?* sp.

(Fig. 3)

Record. [Hachijôjima Is.] Noboryô-tôge Pass (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Izu-ôshima Is.*] 1 female, Senzu, 12.IX.2012, Y. SHIMIZU leg.; 3 males, 5 females, Motomachi, 13.IX.2012, Y. SHIMIZU leg.; 1 male, Tsubaitsuki, Motomachi [N34°45'60" E139°22'25"], 4.X.2012, H. KAMEZAWA leg. [Toshima Is.*] 1 male, Sandô, Mt. Miyatsukayama, 22.VIII.2013, D. AOYAMA leg. [Nijijima Is.*] Miyatsukuri-jinja Shrine, 9.IX.2012, Y. SHIMIZU leg. [Mikurajima Is.*] 2 males, 3 females, Boro-sawa, 6.IX.2012, H. KOJIMA leg.; 1 male, Mt. Funakiyama, 6.IX.2012, H. KOJIMA leg.; 1 male, Goban-no-o, 6.VI.2013, H. KOJIMA leg.

Remarks. This species is probably a member of the genus *Pseudoplectus* including many undescribed species in Japan. The genus is distinguished from the other euplectine genera by having the very small (usually less than 1 mm) and subparallel-sided body, the abdominal tergite IV about as long as V, and the sternite VIII formed from three sclerites.

In this species, the frontal structure of the head is different between male and female. The frons is shallowly concave, with a median fovea, broadly concave around dorsal tentorial pits in the male. It bears a pair of small concavities on the frons, with a small and trapezoid protuberance between vertex and frons in the female. These sexual characters shown above are not different between the specimens from Izu-ôshima and Mikurajima Islands.

4. *Aphilia longicollis* (JEANNEL, 1958)

[Japanese name: Hoso-hime arizukamushi]

Record. [Hachijôjima Is.] Noboryô-tôge Pass (NOMURA, KAMEZAWA & ARAI, 2013, as “*Aphilia* sp.”).

Additional specimens examined. [Izu-ôshima Is.*] 1 female, Senzu, 18.V.2012, S. OBATA leg.; 6 females, same locality as above, 12.IX.2012, Y. SHIMIZU leg.; 1 female, Ômiya-jinja Shrine, 12.IX.2011, H. KOJIMA leg.; 1 female, same locality as above, 17.V.2012, S. OBATA leg.; 1 female, same locality as above, 13.IX.2012, Y. SHIMIZU leg.; 4 females, Mt. Shiinoki-yama, 10.VI.2013, H. KOJIMA leg. [Toshima Is.*] 1 male, 2 females, Mt. Miyatsukayama, 10.IX.2012, Y. SHIMIZU leg.; 1 female, the top of Mt. Miyatsukayama, 22.VIII.2013, D. AOYAMA leg.; 1 female, Jinja, North side, 6.V.2013, H. KOJIMA leg. [Nijijima Is.*] 2 males, 2 females, Mt. Miyatsukayama, 8.IX.2012, Y. SHIMIZU leg. [Kôzushima Is.*] 1 male, Mt. Chichibuyama, 25.V.2013, H. KOJIMA leg.; 1 female, Rindô Tenjouyama-sen, 25.V.2013, H. KOJIMA leg.; 2 males, 6 females, Mt. Koushoyama, 25.V.2013, H. KOJIMA leg. [Hachijôjima Is.] 1 male, 1 female, 10.X.2011, H. KOJIMA, Y. SHIMIZU & S. OBATA leg.

Remarks. This species was recorded from Hachijôjima Is. as “*Aphilia* sp.”, which is identified as the species shown above. It was discovered also from Izu-ôshima, Toshima and Nijijima Isls. in this study.

Supertribe **Batrisitae**

5. *Batrisodellus* sp. 1*

(Figs. 1B, 4A)

Specimen examined. [Izu-ôshima Is.] 1 female, Mt. Nisentsuboyama [N34°44'17" E139°22'51"], 29.V.2013, H. KAMEZAWA leg.

Remarks. This is a middle sized species of *Batrisodellus*. This species is easily separated from *B.* sp. 2 by the large body size and the narrowed head and pronotum (Fig. 4A). It is regarded to be myrmecophilous because the specimen shown above was collected from the ant nest of *Aphaenogaster famelica* F. SMITH (1874) (Hymenoptera, Formicidae).

6. *Batrisodellus* sp. 2*

(Figs. 1C, D, 4B, C)

Specimens examined. [Izu-ôshima Is.] 2 males, 1 female, Genya (50 m alt.), Senzu [N34°44'53" E139°27'01"], 27.V.2013, H. KAMEZAWA leg.

Remarks. This species is a middle sized and looks closely allied to *Batrisodellus laticollis* JEANNEL known from Honshu and Kyushu. All specimens shown above were collected from the ant nest of *Formica japonica* MOTSCHULSKY, 1866 (Hymenoptera, Formicidae). It is easily separated from the other species by having the thick body, the well projected antennal segment I and the mid tibia with a short spine on the dorsal side. The male of this species is differentiated from the female by having the well projected antennal segment I (Figs. 4B, C) and the mid tibia with a small spine on dorsal side near the middle (Figs. 1C, D).

7. *Tribasodes* sp.*

(Fig. 1E, 4D)

Specimens examined. [Izu-ôshima Is.] 1 female, Ômiya-jinja Shrine, 13.IX.2012, Y. SHIMIZU leg.; 1 female, Okuyama-sabaku, Genya [N34°44'40" E139°26'06"], 28.V.2013, H. KAMEZAWA leg. [Toshima Is.] 1 female, Sandô, Mt. Miyatsukayama, 6.V.2013, H. KOJIMA leg.

Remarks. This species is newly recorded from Izu-shotô Isls. in this study. It could not be identified with known species of *Tribasodes* from Japanese mainland, because the male sexual character is unknown. The genus group of *Tribasodes* including this genus and the next genus is characterized by a pair of denticles on the lateral sides as shown in Fig. 4D.

8. *Tribasodes?* sp.

(Fig. 4E)

Record. [Miyakejima Is.] Tsubota (NOMURA, KAMEZAWA & ARAI, 2013).

Remarks. There is no additional specimen in this study. This species is easily separated from the former species by the smaller body, short and transverse head with larger eyes, and larger denticles on the prothorax.

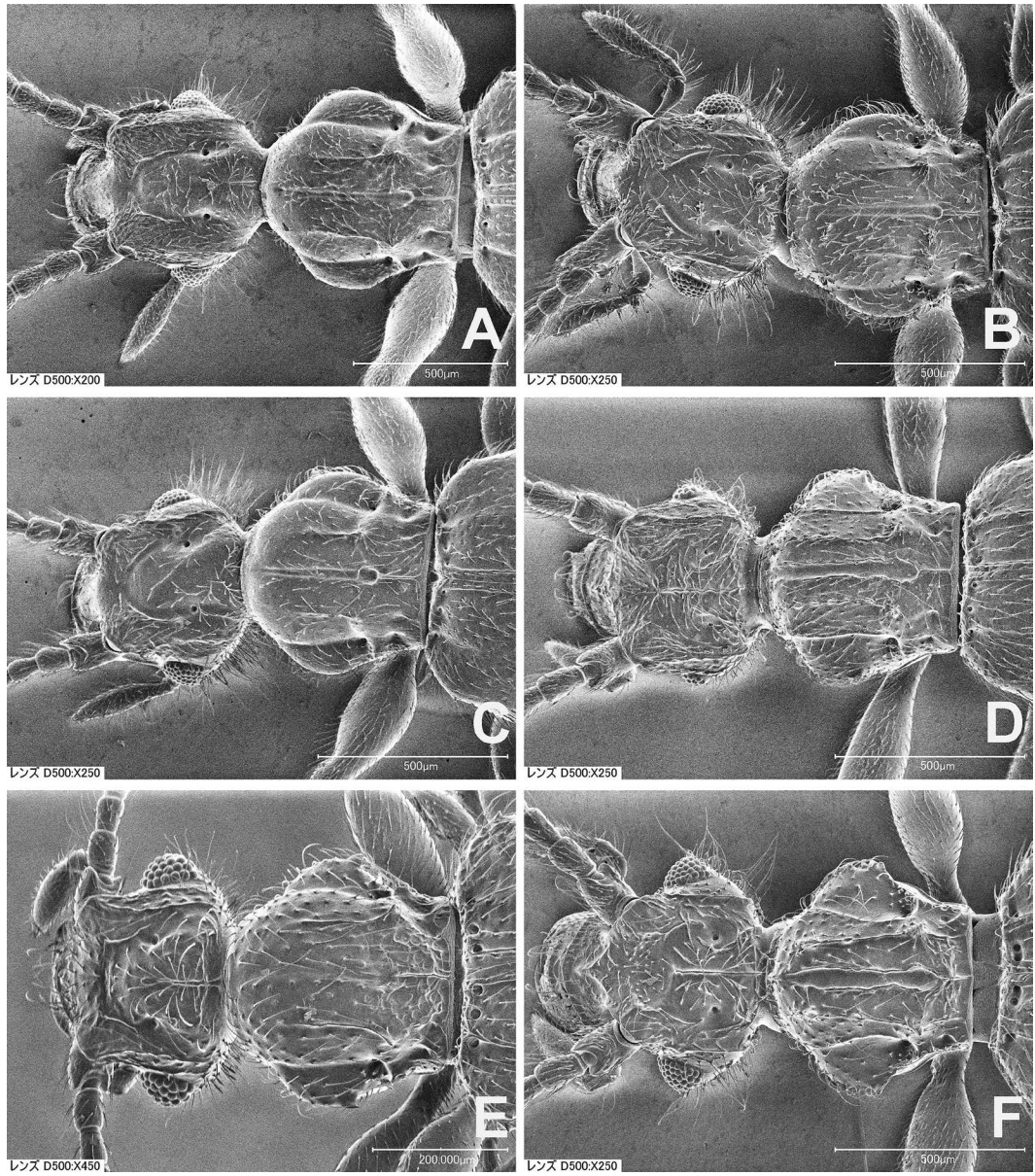


Fig. 4. SEM photos of the head and pronotum of the batrisine species collected from the Izu-shotô Isls. — A, *Batrisodellus* sp. 1, female; B, *B.* sp. 2, male; C, ditto, female; D, *Tribasodes* sp., female; E, *Tribasodes*? sp., female; F, *Coryphomodes dionysius*, female.

9. *Coryphomodes dionysius* (SCHAUFUSS, 1888)

[Japanese name: Futaana-munetoge arizukamushi]

(Fig. 4F)

Record. [Miyakejima Is.] Tsubota (NOMURA, KAMEZAWA & ARAI, 2013).

Remarks. This large sized species is known from Honshu, Kyushu and Oki Isls. It is usually inhabits underside of bark of rotten wood. No specimen was added in the present study. This genus is easily separated from the other genera by the inner two basal foveae of elytra very closed to each other as shown in Fig. 4F.

10. *Batriscenellus (Batriscenellus) fallax* (SHARP, 1883)

[Japanese name: Hime-harakubo arizukamushi]

Records. [Miyakejima Is.] Mt. Oyama; Tsubota (NOMURA, KAMEZAWA & ARAI, 2013). [Mikurajima Is.] Mt. Oyama (700–750 m alt., 490 m alt., 790–830 m alt.); Sato (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Mikurajima Is.] 1 male, Sato [N33°53'44" E139°35'50"], 17.VI.2013, H. KAMEZAWA leg.; 2 females, Akazawa, 6.VI.2013, H. KOJIMA leg.; 1 female, Inane-jinja Shrine, 6.VI.2013, H. KOJIMA leg.

Remarks. This species has been known from Hokkaido, Honshu and Kunashiri Island. It was recorded from Izu-shotô Isls. (Miyakejima and Mikurajima Isls.) by NOMURA, KAMEZAWA and ARAI (2013).

11. *Batriscenellus (Scaioscenellus) similis* (SHARP, 1883)

[Japanese name: Anabara arizukamushi]

Record. [Izu-ôshima Is.] Genya, Senzu (NOMURA, KAMEZAWA & ARAI, 2013).

Remarks. There is no additional specimen in this study.

12. *Batriscenellus (Batriscenellinus) uenoi* NOMURA, 1992*

[Japanese name: Ueno-tsuya arizukamushi]

(Fig. 1F)

Specimen examined. [Izu-ôshima Is.] 1 male, Okuyama-sabaku, Genya [N34°44'40" E139°26'06"], 28.V.2013, H. KAMEZAWA leg.

Remarks. This is the first record of this species from Izu-shotô Isls. It has been known from Hokkaido, Honshu, Shikoku and Kyushu.

13. *Batriscenaulax longipes longipes* JEANNEL, 1958

[Japanese name: Nagasune arizukamushi]

Record. [Izu-ôshima Is.] Genya, Senzu; Tsubaitsuki, Motomachi (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Izu-ôshima Is.] 1 female, Ômiya-jinja Shrine, 17.V.2012, S. OBATA leg. [Toshima Is.*] 1 female, Jinja, North side, 6.V.2013, H. KOJIMA leg.; Azusawake-jinja Shrine, 22.VIII.2013, D. AOYAMA leg. [Niijima Is.*] 1 female, Mt. Tangoyama, 9.IX.2012, Y. SHIMIZU leg. [Kôzushima Is.*] 1 female, Mt. Chichibuyama, 25.V.2013, H. KOJIMA leg.; 1 female, Mt. Kôshoyama, 25.V.2013, H. KOJIMA leg.

Remarks. This species is distributed in Hokkaido, Honshu, Shikoku, Kyushu and Sado Island. In the Izu-shotô Isls., it has been known from Izu-ôshima Island, and it is recorded also from Toshima, Niijima and Kôzushima Islands in this study.

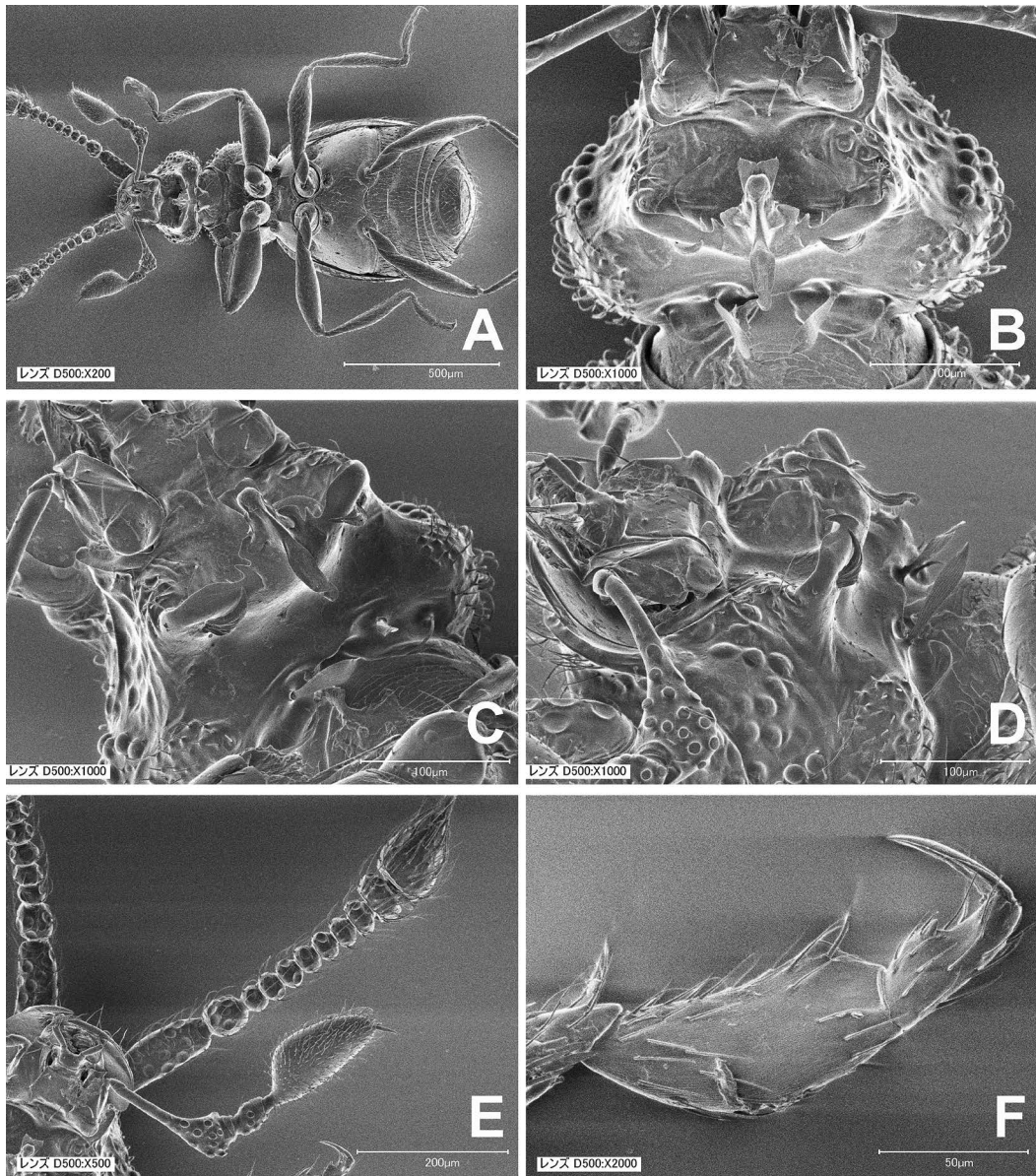


Fig. 5. SEM photos of the male of *Tychobythinus aino*. — A, Habitus in ventral view; B, head in ventral view; C, ditto in oblique view; D, ditto in lateral view; E, antenna and maxillary palpus in ventral view; F, fore tarsus in ventral view.

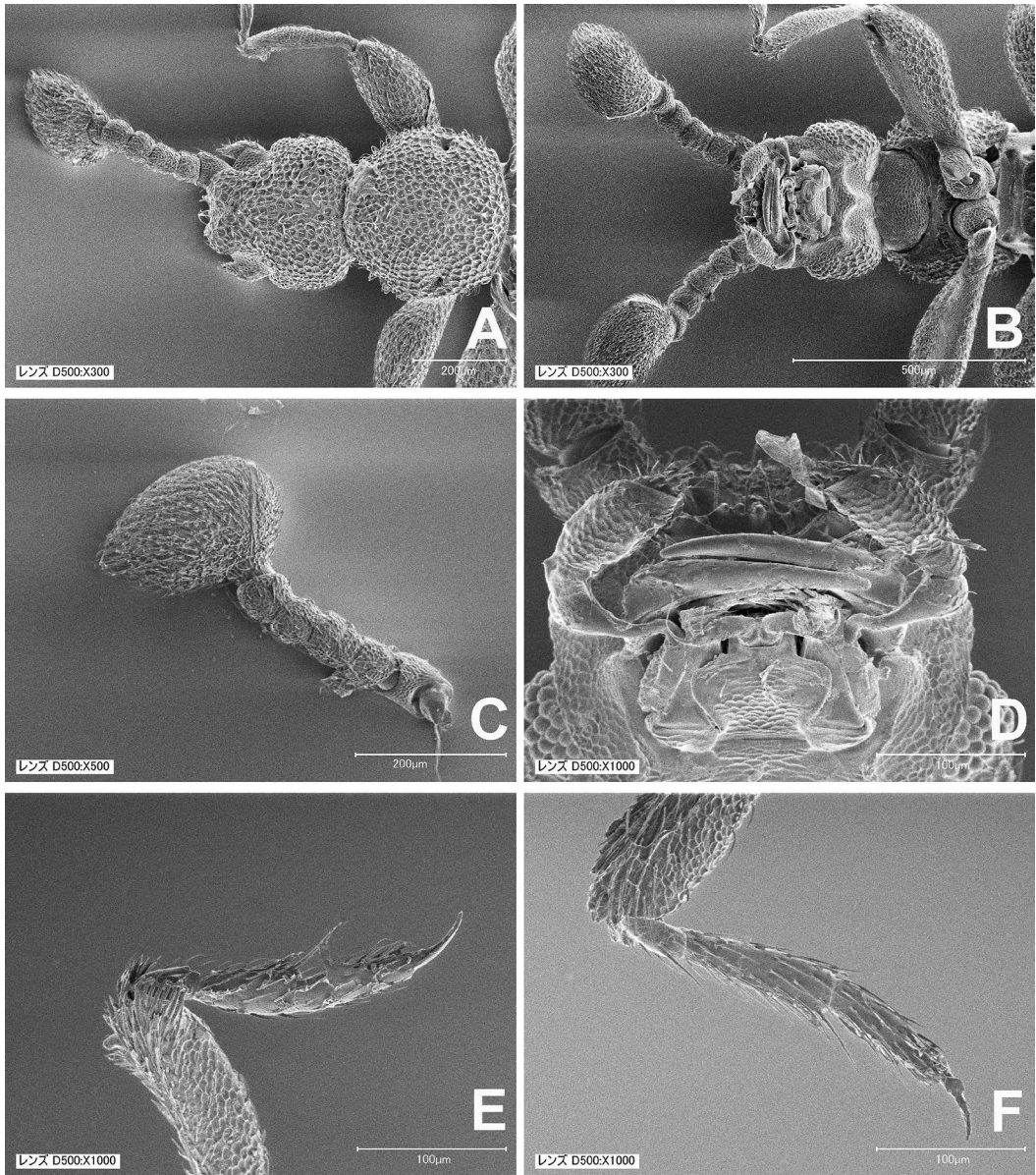


Fig. 6. SEM photos of the male of *Plagiophorus fujiyamai*. — A, Head and pronotum in dorsal view; B, ditto in ventral view; C, left antenna; D, mouthparts; E, fore tarsus; F, hind tarsus.

Supertribe **Goniaceritae**14. *Morana elegans* TANOKUCHI, 1988

[Japanese name: Tôkai-mame arizukamushi]

Record. [Izu-ôshima Is.] Genya, Senzu (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Izu-ôshima Is.] 1 male, Senzu, 18.V.2012, S. OBATA leg. [Toshima Is.*] 1 male, 1 female, Mt. Miyatsukayama, 10.IX.2012, Y. SHIMIZU; 1 female, Azusawake-enomikoto-hongû Shrine, 10.IX.2012, Y. SHIMIZU leg.; 2 males, 5 females, The top of Mt. Miyatsukayama, 22.VIII.2013, D. AOYAMA leg.; 1 male, Azusawake-jinja Shrine, 22.VIII.2013, D. AOYAMA leg.; 3 females, Sandô, Mt. Miyatsukayama, 22.VIII.2013, D. AOYAMA leg.; 1 male, 2 females, Jinja, North side, 6.V.2013, H. KOJIMA leg.; 3 females, Sandô, Mt. Miyatsukayama, 6.V.2013, H. KOJIMA leg.

Remarks. This species is similar to *M. discedens* SHARP, 1874 common in Japanese mainland, but is easily separated in having the strongly thickened antennal segment XI in the male. It has been known from pacific side of Honshu and Izu-shotô Isls. This is the first record of this species from Toshima Island.

15. *Trissemus alienus* (SHARP, 1874)

[Japanese name: Nami-enma arizukamushi]

Records. [Miyakejima Is.] Tsubota; Son-ei Bokujô (NOMURA, KAMEZAWA & ARAI, 2013). [Mikurajima Is.] Mt. Oyama (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Aogashima Is.*] 1 male, by NLT, Ikenosawa [N32°27'25" E139°46'09"], 1–2.VII.2014, H. KAMEZAWA leg.; 1 male, same data as above, but 2–3.VII.2014.

Remarks. This is one of the commonest species in Japanese mainland. It is newly recorded from Aogashima Island in this study.

16. *Eupines?* sp.*

(Fig. 1G)

Specimen examined. [Aogashima Is.] 1 male, by NLT, Ikenosawa [N32°27'21" E139°46'38"], 2–3.VII.2014, H. KAMEZAWA leg.

Remarks. This is a small sized species of the tribe Brachyglutini. It is probably most closely allied to the genus *Eupines*. The species has been collected from a few points in Kanto District.

17. *Tychobythinus aino* KURBATOV, 1993

[Japanese name: Aino-oni-onohige arizukamushi]

(Fig. 1H, 5)

Record. [Mikurajima Is.] Mt. Oyama (790–830 m alt.: NOMURA, KAMEZAWA & ARAI, 2013, as “*Tychobythinus* sp.”).

Additional specimens examined. [Izu-ôshima Is.*] 1 female, Senzu, 12.IX.2012, Y. SHIMIZU leg.; 2 females, Mt. Shiinokiyama, 10.VI.2013, H. KOJIMA leg. [Toshima Is.*] 1 male, 2 females, Sandô, Mt. Miyatsukayama, 6.V.2013, H. KOJIMA leg. [Niijima Is.*] 2 males, 1 female, Habushiura, 8. IX.2012, Y. SHIMIZU leg.; 1 female, same locality as above, 30.V.2012, H. KOJIMA leg. [Shikinejima

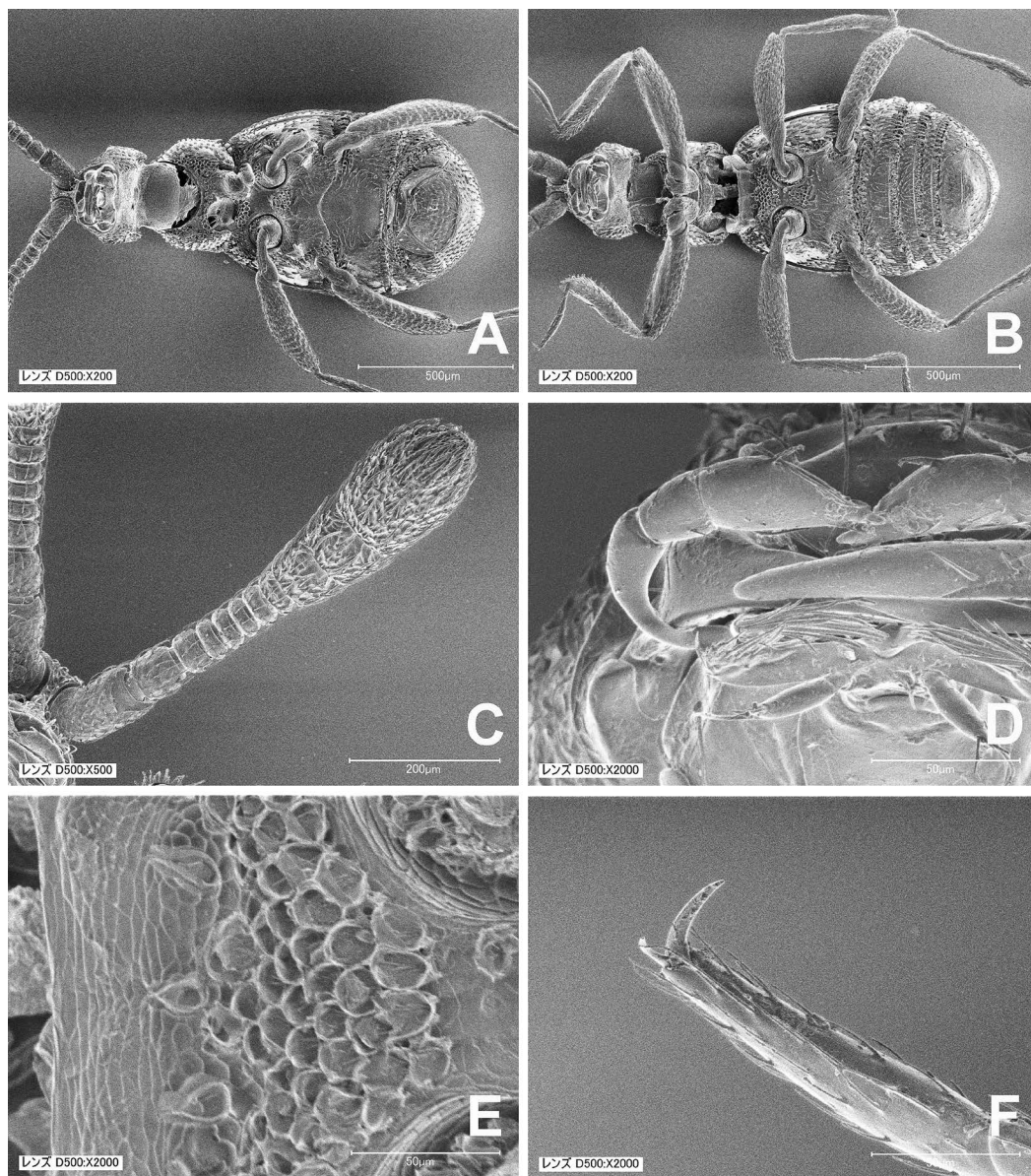


Fig. 7. SEM photos of *Stipesa rudis*. — A, Male habitus in ventral view; B, female habitus in ventral view; C, female antenna; D, mouthparts; E, microstructure between mid coxae; F, fore tarsus in ventral view.

Is.*] 1 female, Ôsaki-yûhodô, 7.IX.2012, Y. SHIMIZU & S. OBATA leg.; 2 females, Kumanoi-yûhodô, 7.IX.2012, Y. SHIMIZU leg. [Kôzushima Is.*] 1 female, Takowankôen, 5.IX.2012, Y. SHIMIZU & S. OBATA leg.; 1 female, Rindô Kôbeyama-sen, 5.IX.2012, Y. SHIMIZU & S. OBATA leg.; 1 female, Takanedô, 6.IX.2012, Y. SHIMIZU & S. OBATA leg.; 6 females, Mt. Kôshoyama, 25.V.2013, H. KOJIMA leg.; 1 male, Mt. Chichibuyama, 25.V.2013, H. KOJIMA leg. [Miyakejima Is.*] 1 female, Gosai-jinja Shrine, 10.VI.2012, Y. SHIMIZU leg.; 1 female, Dôjima, 14.V.2013, H. KOJIMA leg. [Mikurajima Is.] 1

male, Akazawa, 6.VI.2013, H. KOJIMA leg. [Hachijôjima Is.*] 1 female, Sueyoshi, 10.X.2011, H. KOJIMA, Y. SHIMIZU & S. OBATA leg.

Remarks. This species was described by KURBATOV, 1993 from Kunashiri Is., Chishima Isls. which has been recorded from Honshu. In the Izu-shotô Isls., it is recorded from Izu-ôshima, Nijijima, Shikinejima, Kôzushima, Miyakejima and Hachijôjima Isls. for the first time in the present study. This species is characterized by the male character presented on the ventral side of head and the fore tarsi as shown in Fig. 5A–F.

18. *Tychus dichotomus* NOMURA et LEE, 1992

[Japanese name: Tairiku-mori arizukamushi]

Record. [Mikurajima Is.] Mt. Oyama (790–830 m alt.: NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Mikurajima Is.] 1 female, Boro-sawa, 13.III.2012, S. OBATA & Y. SHIMIZU leg.; 1 female, Akazawa, 6.VI.2013, H. KOJIMA leg.

Remarks. This middle sized species has been known also from Kunashiri Is., Honshu, Kyushu, Tsushima Is. and South Korea.

19. *Plagiophorus fujiyamai* (KUBOTA, 1944)

[Japanese name: Fujiyama-daruma arizukamushi]

(Fig. 6)

Records. [Izu-ôshima Is.] Fukujû, Senzu; Tsubaitsuki, Motomachi (NOMURA, KAMEZAWA & ARAI, 2013). [Miyakejima Is.] Tsubota (NOMURA, KAMEZAWA & ARAI, 2013). [Hachijôjima Is.] Noboryô-tôge Pass (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Izu-ôshima Is.] 2 males, 7 females, Ômiya-jinja Shrine, 12.IX.2011, H. KOJIMA leg.; 5 females, same locality as above, 17.V.2012, S. OBATA leg.; 2 males, 6 females, same locality as above, 13.IX.2012, Y. SHIMIZU leg.; 3 males, 4 females, Nomasu, 17.V.2012, S. OBATA leg.; 1 female, Mt. Nisentsuboyama [N34°44'17" E139°22'51"], 29.V.2013, H. KAMEZAWA leg. [Toshima Is.*] 8 females, Mt. Miyatsukayama, 10.IX.2012, Y. SHIMIZU leg.; 1 female, same data as above, but Azusawakenomikoto-hongû Shrine; 1 male, 1 female, Azusawake-jinja Shrine, 22.VIII.2013, D. AOYAMA leg.; 1 male, 1 female, Jinja, North side, 6.V.2013, H. KOJIMA leg.; 1 male, 1 female, Sandô, Mt. Miyatsukayama, 6.V.2013, H. KOJIMA leg. [Shikinejima Is.*] 1 male, 5 females, Shikinejima Is., 1.VI.2012, H. KOJIMA leg.; 3 females, Ôsaki-yûhodô, 7.IX.2012, Y. SHIMIZU and S. OBATA leg.; 4 males, 20 females, Kumanoi-yûhodô, 7.IX.2012, Y. SHIMIZU & S. OBATA leg. [Kôzushima Is.*] 1 male, 6 females, Takanedô, 6.IX.2012, Y. SHIMIZU & S. OBATA leg.; 4 females, Rindô Kôbeyama-sen, 5.IX.2012, Y. SHIMIZU & S. OBATA leg.; 2 males, 1 female, Mt. Kôshoyama, 25.V.2013, H. KOJIMA leg.; 1 male, Rindô Tenjôyama-sen, 25.V.2013, H. KOJIMA leg.; 1 female, Mt. Chichibuyama, 25.V.2013, H. KOJIMA leg. [Miyakejima Is.] 1 male, 6 females, Gosai-jinja Shrine, 10.X.2011, H. KOJIMA leg.; 1 male, 1 female, same locality as above, 10.VI.2012, Y. SHIMIZU leg.; 1 male, Shiitori-jinja Shrine, 11.VI.2012, Y. SHIMIZU leg. [Hachijôjima Is.] 3 females, 10.X.2011, H. KOJIMA, Y. SHIMIZU & S. OBATA leg.; 1 female, “Hachijôjima-1”, 15.V.2013?, collector unknown.

Remarks. This species is known from Honshu, Shikoku, Kyushu in the Japanese mainland, Amami-Ôshima and Ishigakijima Islands in the Ryukyus, and Korea and China in abroad. In the Izu-shotô Isls, it has been known from three islands shown above. In the present study, it was newly recorded from Toshima, Shikinejima and Kôzushima Islands. It is characterized by the small and thick body (Fig. 6A, B), the seven-segmented antenna with the strongly swollen last segment (Fig. 6C). The

male is separated by the fore tibia with very short mucro at apex (Fig. 6E).

Supertribe **Pselaphitae**

20. *Stipesa rudis* SHARP, 1883*

[Japanese name: Hanadaka arizukamushi]

(Fig. 1I, 7)

Specimens examined. [Izu-ôshima Is.] 4 females, Senzu, 18.V.2012, S. OBATA leg.; 1 female, same locality as above, 12.IX.2012, Y. SHIMIZU leg. [Niijima Is.] 1 female, 8.IX.2012, Y. SHIMIZU leg.; 7 females, Miyatsukuri-jinja Shrine, 9.IX.2012, Y. SHIMIZU leg. [Kôzushima Is.] 1 female, Rindô Kôbeyama-sen, 5.IX.2012, Y. SHIMIZU & S. OBATA leg. [Hachijôjima Is.] 2 males, Sueyoshi, 12. IX.2011, H. KOJIMA leg.

Remarks. This is first recorded species from Izu-shotô Isls. It has been known from Honshu, Shikoku and Kyushu. It is one of the typical inhabitants of evergreen forest. This species is characterized by the short and thick antennae each with three-segmented club (Fig. 7C), the very short and curved maxillary palpi (Fig. 7D), and the asymmetrical tarsal claws (Fig. 7F). The male is separated from the female by the very large third + fourth abdominal segments and the larger last (eighth) abdominal tergite (Fig. 7A, B).

21. *Ctenisodes discedens* (SHARP, 1883)

[Japanese name: Hoso-kushihige arizukamushi]

Record. [Mikurajima Is.] Sato (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Mikurajima Is.] 2 males, 3 females, Sato [N33°53'44" E139°35'50"], 17.VI.2013, H. KAMEZAWA leg. [Kôzushima Is.*] 1 female, Mt. Chichibuyama, 25.V.2013, H. KOJIMA leg.; 1 female, Rindô Mt. Tenjô-yama sen, 25.V.2013, H. KOJIMA leg.

Remarks. This is a middle sized species known from Honshu, Kyushu, Awashima, Sadogashima and Tsushima Isls. In the Izu-shotô Isls., it has been known only from Mikurajima Island. However, it is recorded also from Kôzushima Is. in the present study.

22. *Poroderus similis* (SHARP, 1874)*

[Japanese name: Susuki-kushihige arizukamushi]

(Figs. 1J, K)

Specimens examined. [Mikurajima Is.] 1 male, 2 females, Sato [N33°53'44" E139°35'50"], 15.V.2013, H. KAMEZAWA leg.

Remarks. This species has been known from Honshu and Kyushu. It is firstly recorded from Mikurajima Is., which is the first record of this species from the Izu-shotô Isls.

23. *Raphitreus speratus* (SHARP, 1874)

[Japanese name: Higebuto-ekubo arizukamushi]

Record. [Izu-ôshima Is.] Fukujû, Senzu (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Shikinejima Is.*] 1 male, Kumanoi-yûhodô, 7.IX.2012, Y. SHIMIZU & S. OBATA leg.; 1 female, Ôsaki-yûhodô, 7.IX.2012, Y. SHIMIZU & S. OBATA leg.

Remarks. This tmesiphorine species is distributed in Honshu, Shikoku and Kyushu. In the Izu-shotô Isls., it has been known from Izu-ôshima Is., and it is recorded from Shikinejima Is. in this study for the first time.

24. *Saltisedes brunneus* KUBOTA, 1943

[Japanese name: Sedaka arizukamushi]

Records. [Izu-ôshima Is.] Fukujû, Senzu (NOMURA, KAMEZAWA & ARAI, 2013). [Miyakejima Is.] Tsubota (NOMURA, KAMEZAWA & ARAI, 2013).

Remarks. This species usually inhabits old and well-grown broadleaved forest. The distributional area of this species reaches Hokkaido, Honshu, Shikoku and Kyushu. In Izu-shotô Isls., it has been known from Izu-ôshima and Miyakejima Isls. There is no additional record in this study.

25. *Lasinus mikado* BEKCHIEV *et al.*, 2013

[Japanese name: Mikado-ootoge arizukamushi]

Record. [Izu-ôshima Is.] Genya, Senzu; Fukujû, Senzu; Tsubaitsuki, Motomachi (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimen examined. [Izu-ôshima Is.] 1 female, Nomasu, 17.III.2012, S. OBATA leg.

Remarks. In NOMURA, KAMEZAWA and ARAI (2013), this species was recorded as “*Lasinus* sp.” On the other hand, this species was named by BEKCHIEV *et al.* (2013) as shown above. It has been known from Hokkaido, Kunashiri Is., Honshu, and Shikoku as shown in NOMURA (2014). In Izu-shotô Isls., it is known only from Izu-ôshima Is.

Supertribe **Clavigeritae**

26. *Diartiger fossulatus izuinsulicola* NOMURA, 1997

[Japanese name: Ko-yamato-higebuto arizukamushi Izu-shotô asyu]

Records. [Miyakejima Is.] Mt. Oyama; Tsubota (NOMURA, KAMEZAWA & ARAI, 2013). [Niijima Is.] Niijima (NOMURA, KAMEZAWA & ARAI, 2013). [Kôzushima Is.] Kôzushima (NOMURA, 1997). [Mikurajima Is.] Sato-Kawada (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Izu-ôshima Is.*] 9 males, 6 females, Mt. Nisentsuboyama [N34°44'17" E139°22'51"], 29.V.2013, H. KAMEZAWA leg. [Toshima Is.*] 1 male, Mt. Miyatsukayama, 22.VIII.2013, D. AOYAMA leg.; 2 males, 3 females, Azusawake-jinja Shrine, 22.VIII.2013, D. AOYAMA leg.

Host ant. *Lasius japonicus* SANTSCHI (Miyakejima Is., Mikurajima Is.; NOMURA, KAMEZAWA & ARAI, 2013).

Remarks. This is an endemic subspecies of Izu-shotô Isls. which has been known from four islands as shown above. In the present study, it is recorded from Izu-ôshima and Toshima Isls. for the first time.

27. *Diartiger toshioi* NOMURA et KOMATSU, 2012

[Japanese name: Mikura-yamato-higebuto arizukamushi]

Record. [Mikurajima Is.] nr. Boro-sawa, 390m alt.; Mt. Oyama (NOMURA & KOMATSU, 2012); Sato (NOMURA, KAMEZAWA & ARAI, 2013).

Additional specimens examined. [Kôzushima Is.*] 1 female, Rindô Kôbeyama-sen, 5.IX.2012, Y. SHIMIZU & S. OBATA leg. [Mikurajima Is.] 1 male, Sato [N33°53'48" E139°35'29"], 15.V.2013, H. KAMEZAWA leg.; 2 males, 12 females, Camp site, 26.X.2012, H. KOJIMA leg.

Host ant. *Lasius japonicus* SANTSCHI (Mikurajima Is.; NOMURA & KOMATSU, 2012; NOMURA, KAMEZAWA & ARAI, 2013).

Remarks. This species was originally described as a new subspecies of *D. fossulatus*, and it was upgraded to the species level in NOMURA, KAMEZAWA and ARAI (2013). It has been known as an endemic species of Mikurajima Is. But, it is recorded also from Kôzushima Is. in this study.

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要 約

野村周平・亀澤 洋：伊豆諸島産アリヅカムシ相の再検討（鞘翅目ハネカクシ科）。———東京都伊豆諸島から新たに採集されたアリヅカムシの標本をもとに、ハネカクシ科アリヅカムシ亜科の伊豆諸島におけるファウナを再検討した。その結果、伊豆諸島の9島（すべての島）から合計27種を見出した。各島から記録されたアリヅカムシの種数はカッコ内に示す通り：伊豆大島(16)、利島(8)、新島(7)、式根島(4)、神津島(8)、三宅島(8)、御蔵島(12)、八丈島(6)、青ヶ島(2)。

References

- BEKCHIEV, R., P. HLAVÁČ & S. NOMURA, 2013. A taxonomic revision of Tyrini of the Oriental region.V. Revision of the genus *Lasinus* SHARP, 1874 (Coleoptera, Staphylinidae, Pselaphinae). *Zookeys*, **340**: 21–42 (doi: 10.3897/zookeys.340.5980).
- NOMURA, S., 1997. A systematic revision of the clavigerine genus *Diartiger* SHARP from East Asia (Coleoptera, Staphylinidae, Pselaphinae). *Esakia*, (37): 77–110.
- NOMURA, S., 2014. Systematic notes on the Japanese species of the genus *Lasinus* SHARP, 1874 (Coleoptera, Staphylinidae, Pselaphinae). *Sayabane*, (n. ser.), (16): 1–12. (In Japanese, with English abstract)
- NOMURA, S., & T. KOMATSU, 2012. Two new subspecies of *Diartiger fossulatus* SHARP (Coleoptera, Staphylinidae, Pselaphinae) from Japan. *Esakia, Fukuoka*, (52): 9–15.
- NOMURA, S., H. KAMEZAWA & S. ARAI, 2013. A review of pselaphine beetles (Coleoptera, Staphylinidae) from the Izu-shotô Isls., Tokyo, Japan. *Elytra, Tokyo*, (n. ser.), **3**: 31–43.
- NOMURA, S., W. SAKCHOOWONG & M. MARUYAMA, 2013. Further study on the pselaphine fauna (Insecta, Coleoptera, Staphylinidae) of the Kaeng Krachan National Park, West Thailand in 2010–2012. *Bulletin of the National Museum of Nature and Science*, (A), **39**: 73–92.

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Appendix

A Table of Pselaphine Species Recorded from the Izu-shotô Isls. by the present study.

Species	IO	TS	NI	SK	KZ	MY	MK	HJ	AO
Euplectitae									
<i>Nipponozethus</i> sp.	—	—	+*	+*	—	—	+*	+	—
<i>Eulectus</i> sp.*	—	—	—	—	—	—	+	—	—
<i>Pseudoplectus</i> sp.	+*	+*	+*	—	—	—	+*	+	—
<i>Aphilia</i> sp.	+*	+*	+*	—	+*	—	—	+	—
Batrisitae									
<i>Batrisodellus</i> sp. 1*	+	—	—	—	—	—	—	—	—
<i>B.</i> sp. 2*	+	—	—	—	—	—	—	—	—
<i>Tribasodes</i> sp.*	+	+	—	—	—	—	—	—	—
<i>Tribasodes?</i> sp.	—	—	—	—	—	+	—	—	—
<i>Coryphomodes dionysius</i>	—	—	—	—	—	+	+	—	—
<i>Batriscenellus fallax</i>	—	—	—	—	—	+	+	—	—
<i>B. similis</i>	+	—	—	—	—	—	—	—	—
<i>B. uenoi</i> *	+	—	—	—	—	—	—	—	—
<i>Batriscenaulax longipes</i>	+	+*	+*	—	+*	—	—	—	—
Goniaceritae									
<i>Morana elegans</i>	+	+*	—	—	—	—	—	—	—
<i>Trissemus alienus</i>	—	—	—	—	—	+	+	—	+*
<i>Eupines?</i> sp.*	—	—	—	—	—	—	—	—	+
<i>Tychobythinus</i> sp.	+*	+*	+*	+*	+*	+*	+	+*	—
<i>Tychus dichotomus</i>	—	—	—	—	—	—	+	—	—
<i>Plagiophorus fujiyamai</i>	+	+*	—	+*	+*	+	—	+	—
Pselaphitae									
<i>Stipesa rudis</i> *	+	—	+	—	+	—	—	+	—
<i>Ctenisodes discedens</i>	—	—	—	—	+*	—	+	—	—
<i>Poroderus similis</i> *	—	—	—	—	—	—	+	—	—
<i>Raphitreus speratus</i>	+	—	—	+*	—	—	—	—	—
<i>Saltisedes brunneus</i>	+	—	—	—	—	+	—	—	—
<i>Lasinus mikado</i>	+	—	—	—	—	—	—	—	—
Claviberitae									
<i>Dartiger fossulatus izuinsulicola</i>	+*	+*	+	—	+	+	+	—	—
<i>D. toshioi</i>	—	—	—	—	+*	—	+	—	—
No. of species	16	8	7	4	8	8	12	6	2

Abbreviations — AO: Aogashima Is.; HJ: Hachijôjima Is.; IO: Izu-ôshima Is.; KZ: Kôzushima Is.; MK: Mikurajima Is.; MY: Miyakejima Is.; NI: Niijima Is.; SK: Shikinejima Is.; TS: Toshima Is.