A New Species of the Genus *Anisolabis* FIEBER (Dermaptera, Anisolabididae) from the Ogasawara Islands, Japan

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A New Species of the Genus *Anisolabis* FIEBER (Dermaptera, Anisolabididae) from the Ogasawara Islands, Japan

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Abstract A new anisolabidid earwig of the genus *Anisolabis* is described from Haha-jima and Otôto-jima, the Ogasawara Islands, Japan, with the illustration of salient features to distinguish it from the related species. This is possibly the first endemic species of the Dermaptera from the Ogasawara Islands.

Introduction

The Ogasawara (Bonin) Islands are a group of oceanic Volcano Islands, lying about 1,000 km south of Tokyo, in the subtropical region of Japan. Only two species of the genus *Anisolabis* are known from the Ogasawara Islands, namely *A. maritima* (BONELLI, 1832) (OHBAYASHI *et al*., 2004) and *A. seirokui* NISHIKAWA, 2008 (NISHIKAWA & YAMASAKI, 2013, in press).

KUSUI & ICHIKAWA (2002) recorded "*Anisolabis maritima* var. *longiforceps* SAKAI" based on a female specimen from Haha-jima, the Ogasawara Islands. This female specimen was miss-identified by me as "*Anisolabis maritima* (BONELLI)", but it has been recognized as a different species from *A. maritima* after my recent re-examination. Before then, ICHIKAWA (1999) recorded a curious male earwig named as "Nazo-no-hasamimushi [mysterious earwig]" from Haha-jima, and briefly illustrated its forceps which was symmetrical and had sinuate inner margin of arm. This earwig was listed as "Sayûtaishô-hasamimusi [earwig having a symmetrical forceps]" in the distribution table of Japanese earwigs by Battarigisu Ed. Dept. (2001). Through the courtesy of Mr. Naoki TODA of Nagoyakonchûkan Co. Ltd., I could examine this male specimen preserved in the collection of the late Mr. Masaya OKADA, and recognized that it is an undescribed species of the genus *Anisolabis* FIEBER.

Recently, I have examined some additional specimens collected on Haha-jima and Otôto-jima both in the Ogasawara Islands through the kindness of my friends and colleagues. After a careful examination, I have concluded that these specimens and the female specimen recorded as "*Anisolabis maritima* var. *longiforceps* SAKAI" are belong to a new species, which is described in this paper, under the name, *Anisolabis boninensis* NISHIKAWA, sp. nov. This is the first endemic species of the Dermaptera from the Ogasawara Islands. The holotype, the allotype and some paratypes are deposited in the collection of Ehime University Museum, Matsuyama, Japan (EUMJ). A male paratype is preserved in the late Masaya OKADA's Collection in Nagoyakonchûkan Co. Ltd. (MONK), a female paratype is preserved in KUSUI Collection in the Osaka Museum of Natural History, Japan (OMNH) and a female paratype is preserved in the collection of Kanagawa Prefectural Museum of Natural History, Japan (KMNH).

Before going further, I wish to express my sincere thanks to Prof. Dr. Masahiro SAKAI of Ehime University Museum for his critical reading the original draft of this paper. Thanks are also due to Mr. Hitoshi ISHIKAWA (Shizuoka) and Dr. Toshio KISHIMOTO (Japan Wildlife Research Center, Tokyo) for their kind offering valuable specimens and biological information, to Mr. Naoki TODA (Nagoya) for his help to examine the late Mr. Masaya OKADA's Collection, to Dr. Haruki KARUBE and Mr. Itsuro KAWASHIMA (Kanagawa Prefectural Museum of Natural History) for their help to examine the earwig specimens collected from the Ogasawara Islands, to Mr. Yoshihisa KUSUI (Okinawa) for lending me his collection, to Mr. Akira OZONO (Kanagawa) for his offering of a specimen and permission to use his photograph of this new species, to Mr. Akihiko ICHIKAWA (the Orthopterological Society of Japan) for giving me much information about "Nazo-no-hasamimushi"; and to Mr. Fukuo ITO (Nara) for his help in taking the photographs of the specimens.

Genus *Anisolabis* FIEBER

Anisolabis FIEBER, 1853, *Lotos*, **3**: 257 (Type species: *Forficula maritima* BONELLI, in GENÉ, 1832 – designated by SCUDDER, 1876, *Proc. Boston Soc. nat. Hist.*, **18**: 289); SRIVASTAVA, 1999, *Rec. zool. Surv. India*, **97**(1): 89; SRIVASTAVA, 2003, *Fauna of India*, *Dermaptera*, part 2: 116.

Forcinella DOHRN, 1862, *Ent. Ztg.*, **23**: 226 (Type species: *Forficula maritima* BONELLI, in GENÉ, 1832).

This genus was redefined by SRIVASTAVA (1999) on the basis of the shape of parameres of male genitalia and diagnosed in his 2003 work as follows: "Build slender or stout. Mesosternum convex posteriorly. Metasternum produced between hind coxae with hind margin truncate. Male genitalia with parameres five (perhaps erroneous for "three" or "four") to seven times longer than broad, parallel sided or slightly dilated in middle or at base, tip obtuse, virga present or absent."

This genus comprises 50 species (including 13 uncertain species) in the world on record (SRIVASTAVA, 1999; NISHIKAWA, 2008). Only two species, *A. maritima* (BONELLI, 1832) and *A. seirokui* NISHIKAWA, 2008, have hitherto been recorded from Japan.

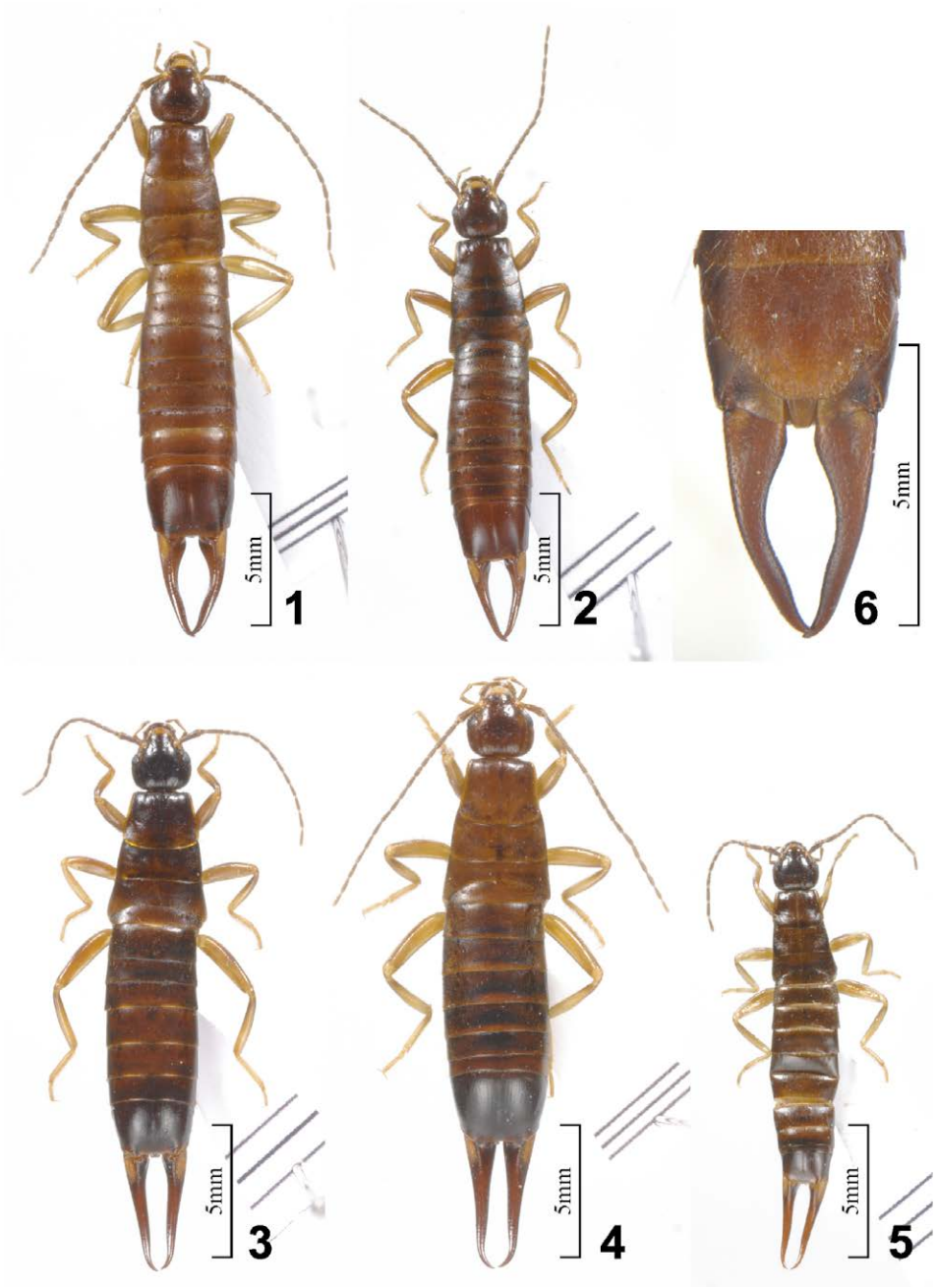
Key to the Japanese species of *Anisolabis*

1(2) Pronotum transverse; male forceps symmetrical; female forceps long and slender. (Ogasawara Isls.).....*A. boninensis* NISHIKAWA sp. nov.
2(1) Pronotum not transverse; male forceps asymmetrical, right arm more strongly incurved than the left.....3
3(4) Pronotum almost quadrate or a little longer than wide; female forceps comparatively short and stout. (Cosmopolitan).....*A. maritima* (BONELLI, 1832)
4(3) Pronotum longer than wide; female forceps long and slender. [Korea and Japan: Hokkaido (?), Honshu, Shikoku, Kyushu, Nansei Isls., Izu Isls. (Hachijo Is.), and Ogasawara Isls. (Iwo-to Is.)].....*A. seirokui* NISHIKAWA, 2008

Anisolabis boninensis NISHIKAWA, sp. nov.

[Japanese name: Munin-hasamimushi]

(Figs. 1–16)



Figs. 1–6. *Anisolabis boninensis* sp. nov. ——— 1, Large male having slightly sinuate inner margins of forceps (paratype: Haha-jima); 2, small male having simple forceps (paratype: Otôto-jima Is); 3, female having slightly undulate forceps (paratype: Otôto-jima); 4, female having straight forceps (paratype: Haha-jima); 5, nymph having slightly undurate forceps (Otôto-jima); 6, penultimate sternite and forceps of male (Haha-jima).

Anisolabis maritima (*pars*): TAKAHASHI, 2004 in KARUBE *et al.*, 2004: 69 [1 nymph, Mt. Sakai-ga-dake, Haha-jima Is., 1.X.2003, H. KARUBE leg. (KMNH)].

Anisolabis maritima var. *longiforceps*: KUSUI & ICHIKAWA, 2002: 39 [♀, Mt. Kuwanoki, Haha-jima Is., ii.iv.1972 (KUSUI collection in OMNH)].

"Nazo-no-hasamimushi" in Japanese, ICHIKAWA, 1999: 28, fig. (♂ forceps) [♂, Mar.12.1986, Mt. Kuwanoki-yama, Hahajima Is., N. ISHIHARA leg. (Nagoyakonchukan)].

"Sayûtaishô-hasamimushi" in Japanese, Battarigisu Ed. Dept., 2001: 38–39, table (Ogasawara: Haha-jima Is.).

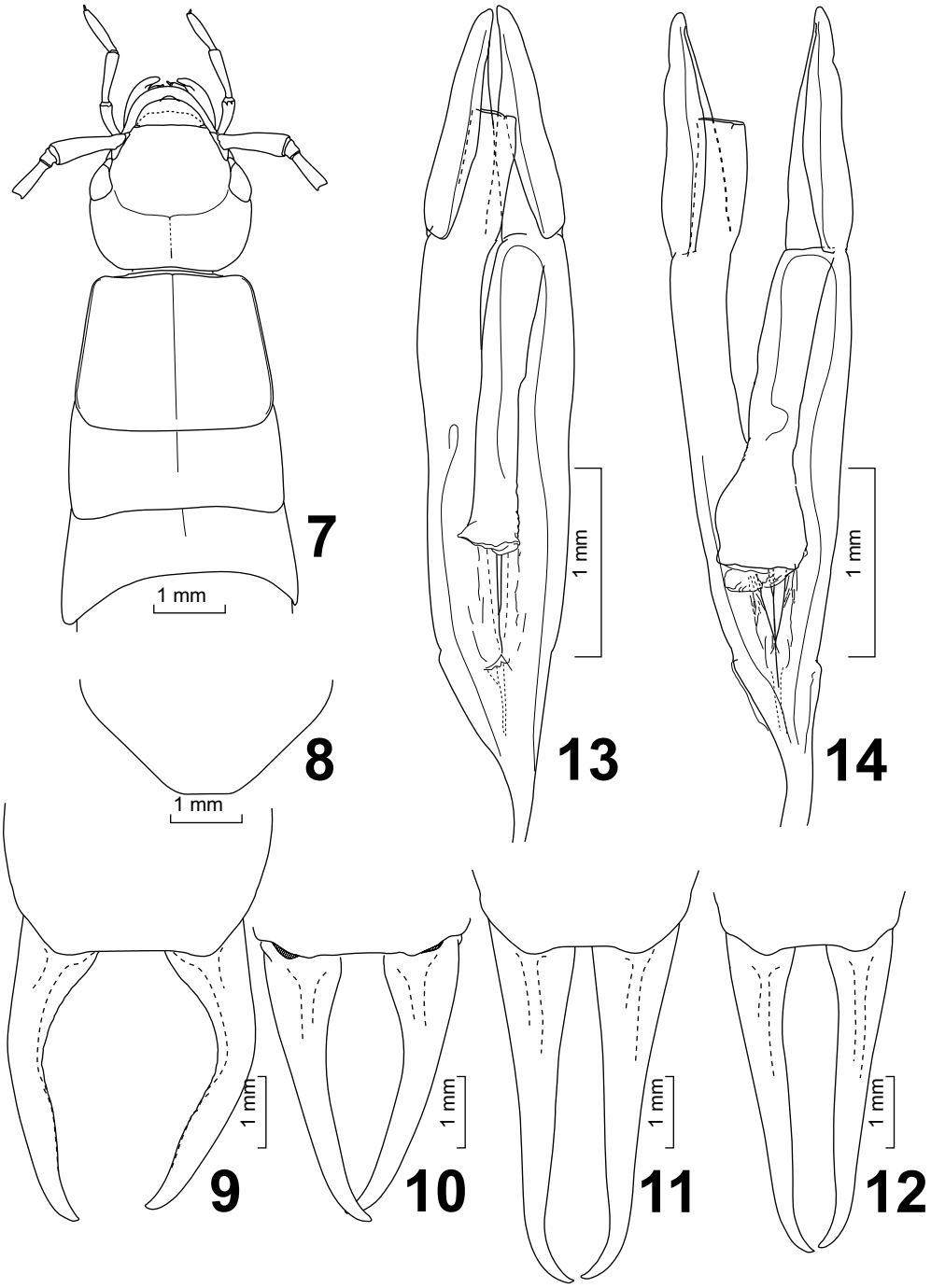
Length of body (without forceps): male, 13.1–17.2 mm; female, 15.6–17.3 mm.

Length of forceps: male, 3.5–4.3 mm; female, 4.3–5.3 mm.

Colour: Body reddish to dark reddish brown; legs and antennae yellowish to reddish brown.

Male (Figs. 1, 2): Head longer than broad; lateral margins slightly rounded and curving smoothly into posterior margin which is almost straight or very slightly concave; frons moderately convex, smooth and glabrous; vertex depressed, the sides with short setae; sutures distinct, sometimes coronal suture indistinct or party visible. Eyes small, about as long as half length of the post-ocular length. Antennae around 18-segmented (remaining segments in holotype being 16 in the right and 15 in the left), 1st stout, expanded apically, about as long as the distance between antennal bases; 2nd minute, slightly broader than long; 3rd long and slender, about 2/3 times as long as 1st, and about 2 times as long as 4th; 5th onwards gradually increasing in length. Pronotum smooth, transverse, wider than head, widened posteriorly; sides almost straight but curving to the posterior angles; posterior margin almost truncate or slightly rounded; median sulcus distinct; division into prozona and metazoa not expressed. Meso- and metanota transverse; the former almost truncate posteriorly, weakly punctured and pubescent with short yellowish hairs; the latter broadly concave posteriorly, weakly but more finely punctured and pubescent than in mesonotum; median sutures distinct. Thoracic sternites typical in conformation of the genus; mesosternum with posterior margin convex and rounded; metasternum truncate posteriorly. Hind tarsi with 1st segment longer than the third. Abdomen more or less depressed or moderately convex, nearly parallel-sided, slightly narrowed towards base; tergites I–IX finely punctured and pubescent; tergites VI–IX obtusely angled posteriorly, rugoso-striate at sides but without lateral longitudinal ridges. Penultimate sternite (Figs. 6, 8) transverse, with posterior margin truncate at middle. Ultimate tergite transverse, slightly narrowed posteriorly, with a median sulcus sometimes indistinct and provided with about ten longitudinal rows of fine pubescences; disc in the middle of posterior half depressed; posterior margin almost straight or weakly concave between the arms of forceps. Forceps remote at base, symmetrical; the arm curved and its inner margin slightly sinuate (Fig. 9) or almost straight (Fig. 10). Genitalia with parameres narrow, about four times as long as broad, broadest at base, narrowing apically with tip obtuse; outer margin of paramere almost straight or very weakly sinuate (Fig. 13) [in one specimen (Fig. 14), concave at apical one third]; virga long and simple.

Female (Figs. 3–4): Similar to male, but abdominal punctures weaker; sides of abdominal tergites rounded and not rugose; ultimate tergite narrower and more strongly narrowed posteriorly; penultimate sternite rounded posteriorly; forceps symmetrical, long and slender, almost straight except for the apical portion which is incurved (Fig. 11) or slightly undulate (Fig. 12).



Figs. 7–14. *Anisolabis boninensis* sp. nov. —— 7–9 and 13, Holotype male (Haha-jima); 10, paratype male (Otôto-jima); 11, allotype female (Haha-jima); 12, paratype female (Otôto-jima); 14, paratype male (Haha-jima); 7, head and thorax; 8, hind portion of penultimate sternite; 9, hind portion of ultimate tergite, and forceps with slightly sinuate inner margin; 10, simple forceps; 11, straight forceps; 12, slightly undulate forceps; 13 and 14, genitalia.

Figs. 15–16. Photographs of a habitat and a female of *Anisolabis boninensis* sp. nov. —— 15, Habitat in Mt. Chibusa-yama on Haha-jima; 16, a female among litter, around Hasuike pond on Haha-jima, photographed by Toshio KISHIMOTO (15) and Akira OZONO (16).

Nymph (Fig. 5): Similar to female, but abdomen being 10 segmented; forceps similar to that of female.

Type series. Holotype: ♂, **Haha-jima**: Mt. Sakaigadake (堺ヶ岳), 18.XI.2011, T. KISHIMOTO leg. Allotype: ♀, same locality as the holotype, 23.XI.2011, T. KISHIMOTO leg. Paratypes: **Haha-jima**: 1♂, 2♀♀, same data as the holotype; 2♂♂, same locality as the holotype, 23.XI.2011, T. KISHIMOTO leg.; 1♂, same locality as the holotype, alt. ab. 400 m, 23.X.2009, H. ISHIKAWA leg.; 1♂, 1♀, Sekimon (石門), 3.VII.1977, T. MATSUMOTO leg.; 1♀, Mt. Chibusa-yama (乳房山), 1.II.1977, T. MATSUMOTO leg.; 1♀ (in ethanol), Hasuike (蓮池), Minamizaki (南崎), 15.III.2008, A. OZONO leg.; 1♂, Mt. Kuwanoki-yama (桑ノ木山), 12.III.1986, N. ISHIHARA leg. [MONK]; 1♀, Mt. Kuwanoki-yama, 11.IV.1972, Y. KUSUI leg. / ハマベハサミムシ小笠原亜種♀長角型 (presumably determined by Mr. A. ICHIKAWA) / *Anisolabis maritima* (BONELLI, 1832), ハマベハサミムシ♀, det. M. NISHIKAWA, 2001 [OMNH]. **Otôto-jima**: 1♂, 1♀, in subtropical rainforest (湿性高木林), 3.VII.2010, H. ISHIKAWA leg.; 1♂, around Ichinotani (一ノ谷周辺), 27.IV.1997, T. KISHIMOTO leg.; 1♀, Swamp at the foot of Mt. Tenkai-san (天海山山麓沢), 26.III.2006, H. KARUBE leg. [KMNH].

Additional materials examined. **Haha-jima**: 1 nymph, Sekimon, 3.VIII.1996, T. MATSUMOTO leg.; 1 nymph, from entrance of Sekimon to Mt. Sakaigadake, 3.VII. 1997, T. MATSUMOTO leg.; 1 nymph, Chibusa-yama (litter), 6.VII.1997, T. KISHIMOTO leg.; 2 nymphs, Chibusa-yama, 4.VIII.1996, T. KISHIMOTO leg.; 2 early instar nymphs (in ethanol), Minamizaki, 24.VI.2007, T. KISHIMOTO leg.; 1 ex. (posterior portion from 5th abdominal segments missing), 2 nymphs, Sekimon, 10. X. 2011, H. KARUBE leg. [KMNH]; 1 nymph (late instar), Mt. Sakaigadake, 1.X.2003, H. KARUBE leg. / *Anisolabis* (*A.*) *maritima* (GENE, 1832), det. TAKAHASHI K., 2004 [KMNH]; 1 nymph, Mt. Sakaigadake, 8.X.2008, H. KARUBE leg. [KMNH] **Otôto-jima**: 1 nymph, in subtropical rainforest, 3.VII.2010, H. ISHIKAWA leg.

Distribution. Ogasawara Islands (Haha-jima and Otôto-jima), Japan.

Etymology. The species epithet is derived from the type locality, Bonin Islands.

Biology. Some adults and nymphs were captured under stones in a forest (Fig. 15) and among in litter (Fig. 16) at some places on Haha-jima. A male, a female and a nymph were captured in subtropical rainforest on Otôto-jima.

Remarks. This species can be easily separated from the Japanese species of the genus in having the transverse pronotum and the entirely symmetrical male forceps.

It is interesting that this species is speciated in the Ogasawara Island whereas the remaining species are widely distributed in Japan.

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