

The Helotidae of Taiwan (Coleoptera: Cucujoidea)

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(Accepted November 15, 2005)

Chi-Feng Lee and Masataka Satô (2006) The Helotidae of Taiwan (Coleoptera: Cucujoidea). *Zoological Studies* 45(4): 529-552. Species of the family Helotidae are reviewed. Five known species are recognized: *Neohelota helleri* (Ritsema, 1911), *N. montana* (Ohta, 1929), *N. sonani* (Ohta, 1929), *N. taiwana* (Ohta, 1929), and *Helota thoracica* Ritsema (1895). Four species are new to science: *Neohelota babai* sp. nov., *N. chunlini* sp. nov., *N. lini* sp. nov., and *N. similis* sp. nov. *Helota oberthueri* Ritsema (1889), *Metahelota semifulva* (Ritsema, 1881), and *Helota sinensis* Oliff (1883) are attributed to the "Shiraki specimens" and removed from the Taiwanese fauna. <http://zoolstud.sinica.edu.tw/Journals/45.4/529.pdf>

Key words: Taxonomy, *Helota*, *Neohelota*, New species, Taiwan.

The Helotidae was a small and monogeneric family of the Coleoptera, which comprises around 100 species (Wegryniewicz 2000). Eighty percent of the species were described before 1920. Very few species have been described or redescribed in the modern sense, except for those by Nguyen-Phung (1984 1985). In the present study, a search for diagnostic characters by comparing sufficient materials indicated that the male reproductive organs have high diagnostic value, as well as the protibiae, 5th abdominal ventrite, 8th abdominal tergite, parameres, penis, and internal sac.

Only minimal biological studies of the Helotidae are available. Only Oliff (1883) and Fukuda (1943) mentioned the behavior of *Helota gemmata* Gorham. Both indicated that adults and larvae of this species feed on sap exuding from trees. However, when we used baited traps (containing rotten fruit) in Taiwan, only *H. thoracica* Ritsema was collected. Sweeping flowers was found to be a good method for collecting members of the genus *Neohelota*.

Two species of the Helotidae were first reported and described from Taiwan by Ritsema (1911b): *Helota helleri* Ritsema, 1911b and *H. tho-*

racica Ritsema, 1895. Later, Ohta (1929a b 1931) described four species of *Helota* (*H. feae* (sic!) ab. *mushana* Ohta, 1929a; *H. taiwana* Ohta, 1929b; *H. sonani* Ohta, 1929b; and *H. montana* Ohta, 1929b) and erected a new genus *Neohelota* for two species from Taiwan (*N. tumaaka* Ohta, 1929b and *N. miwai* Ohta, 1931). Miwa (1931) listed these species and added three more species to the Taiwanese fauna: *H. oberthueri* Ritsema, 1889; *H. semifulva* Ritsema, 1881; and *H. sinensis* Oliff, 1883. Kôno (1939) revised the Taiwanese species and synonymized several taxa: *Neohelota* Ohta, 1929b was synonymized with *Helota* MacLeay, 1825; *H. feae* (sic!) ab. *mushana* Ohta, 1929a was synonymized with *H. thoracica* Ritsema, 1895; *N. tumaaka* Ohta, 1929b was synonymized with *H. helleri* Ritsema, 1911b; and *N. miwai* Ohta, 1931 was synonymized with *H. sonani* Ohta, 1929b. The total number of the Taiwanese species was reduced to eight. However, this number might not be accurate because "Shiraki specimens" exist in various families of beetles (Kurosawa 1980a b 1981 Chu and Hsiao 1981). These papers indicated that Dr. T. Shiraki brought a number of foreign specimens

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from the British Museum back to Taiwan and placed Taiwanese labels on specimens. Unfortunately, some Japanese researchers cited these specimens without any doubt, including Miwa's (1931) catalogue of Taiwanese Coleoptera. Therefore the accurate number of known species of Helotidae in Taiwan is very questionable. We examined the types and voucher specimens of all the known species from Taiwan, including specimens in our own collections to study the diversity of the Helotidae of Taiwan in detail.

MATERIALS AND METHODS

Color variations which occur on the thoracic ventrites within helotid species are illustrated in figure 1A. Nguyen-Phung (1984 1985) indicated some diagnostic characters for helotid species. However, we found that the antennae and spermatheca did not have reliable diagnostic value. The aedeagus bears a lot of taxonomic information, best illustrated by separately drawing the penis and parameres. The position of the male

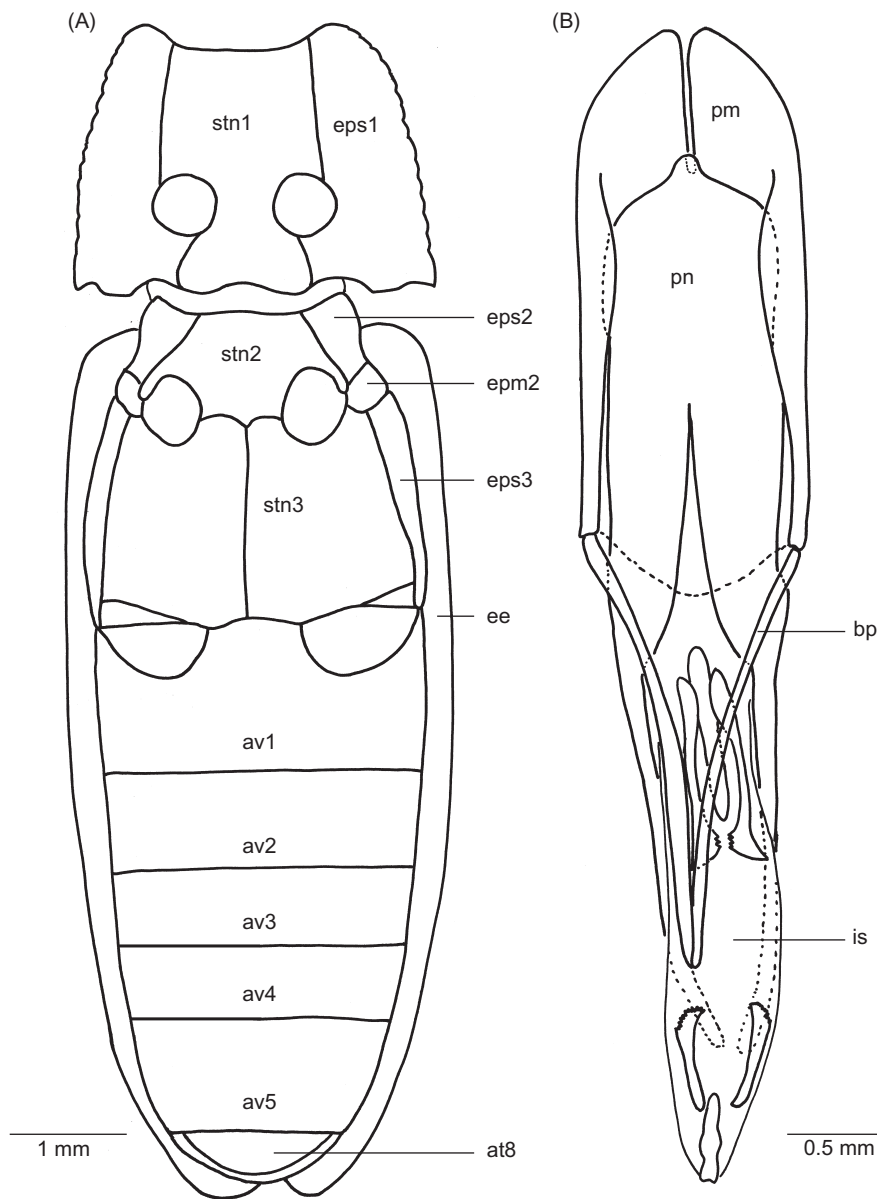


Fig. 1. *Neohelota helleri*. (A) Ventral surface. at8, eighth abdominal tergite; av1-5, first to fifth abdominal ventrites; ee, elytral epipleuron; epm2, mesepimeron; eps1, propisternum; eps2, mesepisternum; eps3, metepisternum; stn1, prosternum; stn2, mesoventrite; stn3, metaventrite; (B) genitalia, ventral view. bp, basal piece; is, internal sac; pn, penis; pm, parameres.

genitalia is shown in figure 1B. Because basal pieces and basolateral apophyses of the penis are not diagnostic, they were omitted when the penis and parameres were separately illustrated. Sclerotized portions of the internal sac also have high diagnostic value. In addition, the 8th abdominal tergite and 5th abdominal ventrite of males are also diagnostic and should be illustrated. Special attention should be given to the chaetotaxy of the fifth abdominal ventrite and parameres.

When Ohta (1929a b 1931) described new species, the number of types was not indicated. However, information about types was provided in detail, including date, locality, and collectors. Thus those specimens bearing the same collecting data he indicated are regarded as syntypes even though some of them do not have type labels. Some specimens bearing the types labels with different collecting labels were removed from the type series. To clarify the taxonomic concepts of *Helota helleri* Ritsema, 1911b, *H. montana* Ohta, 1929b, and *H. taiwana* Ohta, 1929b, lectotypes are designated for these species.

Specimens examined are deposited in the following museums or institutions (letter codes largely follow Arnett et al. 1993): BPBM, Bernice P. Bishop Museum, Honolulu, HI, USA; DEI, Deutsches Entomologisches Institut im ZALF, Müncheberg, Germany; EIHU, Hokkaido Univ., Sapporo, Hokkaido, Japan; EUMJ, Ehime Univ., Matsuyama, Japan; HNHM, Hungarian Natural History Museum, Budapest, Hungary; MNHN, Muséum National d'Histoire Naturelle, Paris, France; MTD, Staatliches Museum für Tierkunde, Dresden, Germany; NMNS, National Museum of Natural Science, Taichung, Taiwan; NMW, Naturhistorisches Museum Wien, Wien, Austria; RMNH, Nationaal Natuurhistorische Museum, Leiden, the Netherlands; RCBAS, Research Center for Biodiversity, Academia Sinica, Taipei, Taiwan; TARI, Taiwan Agricultural Research Institute, Taichung, Taiwan; ZIN, Russian Academy of Sciences, Zoological Institute, St. Petersburg, Russia; ZMHB, Museum für Naturkunde der Humboldt-Univ. Berlin, Germany.

Systematic accounts

The Taxonomy of the family Helotidae was recently discussed by Kirejtschuk (2000). Generic assignment of the species here follows his classification.

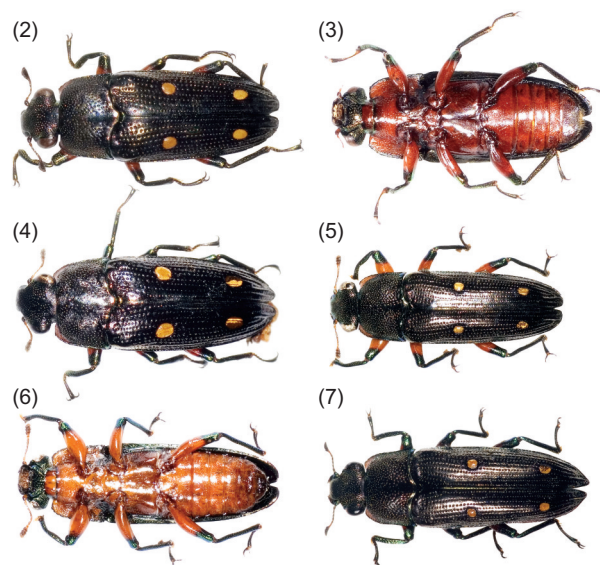
Neohelota babai Lee and Satô sp. nov.

(Figs. 2-4, 8)

Holotype ♂: Taiwan: Nantou Co., Lienhua-chih, 6-8 Mar. 2000, C.S. Lin and W.T. Yang, mercury light, NMNS ENT 3372-186 (NMNS).

Paratypes (4 specimens): 1 ♂, same locality and collector as holotype, 23 July 1986 (RCBAS); 1 ♀, Kaohsiung Co., Sha Ping (= Shanping) near Liukuei, 10 July 1986, K. Baba (NMNS); 1 ♂, Tengchih, 10 June 1977, K. Ushijima (EUMJ); 1 ♂, Thu Yun Shan near Liukuei, 17 June 1986, K. Baba (NMW); 1 ♀, Taitung Co., Taimali, 5-7 July 2006, C. F. Lee (RCBAS).

Description: Male: Length (excluding head) 7.5-7.6 mm; width (= width of elytra) 3.0-3.2 mm. Dorsal surface (Fig. 2) blackish-bronze; mandibles, basal margins of pronotum and elytra green; antennae yellowish brown with three apical antennomeres darkened; anterolateral angles of pronotum yellowish-brown; each elytron with two small yellow spots, anterior spots between third (or fourth) and seventh striae, posterior ones between third and sixth striae. Ventral surface (Fig. 3) pale yellow with head, anterior margin of prosternum, margins of proepisternum except internal margin, and elytral epipleuron metallic-green. Legs yellowish-brown with tibiae and apical 1/3 of femora metallic-green; tarsi and claws dark brown.



Figs. 2-7. Habitus illustrations of *Neohelota* species. (2) *Neohelota babai* sp. nov., male, dorsal view; (3) ditto, ventral view; (4) *N. babai* sp. nov., female, dorsal view; (5) *N. chunlini* sp. nov., male dorsal view; (6) ditto, ventral view; (7) *N. chunlini* sp. nov., female dorsal view.

Dorsal surface of head randomly and densely punctate; ventral surface with more-prominent punctures. Pronotum 0.61-0.64 times longer than wide, lateral margins with weak apical crenulations, basally abbreviated, apically narrowed, surface with random and dense punctures, abbreviated at middle of base. Elytra 1.86-1.93 times longer than wide, subparallel, each elytron with a very small apical tooth, apex moderately rounded and serrate, each elytron with 10 striae, surface flat. Thoracic ventrites with random and prominent punctures, reduced medially and basally on metaventrite. Punctures on abdominal ventrites

very small. Protibia (Fig. 8B) moderately curved, dorsally depressed at apical 1/3 of internal edge. Fifth abdominal ventrite (Fig. 8C) with rounded apical margin, surface with sparse fine setae, relatively longer setae confined to one small area at apical margin, several long setae surrounding lateral sides. Eighth abdominal tergite (Fig. 8A) transverse, apical margin moderately emarginate. Penis (Fig. 8D) with narrowly rounded apex, internal margin truncate between dorsal lobes, dorsal lobes narrowed near apex, apices narrowly rounded, projecting from penis, notch between connection of dorsal lobes moderate; two pairs of sclerites

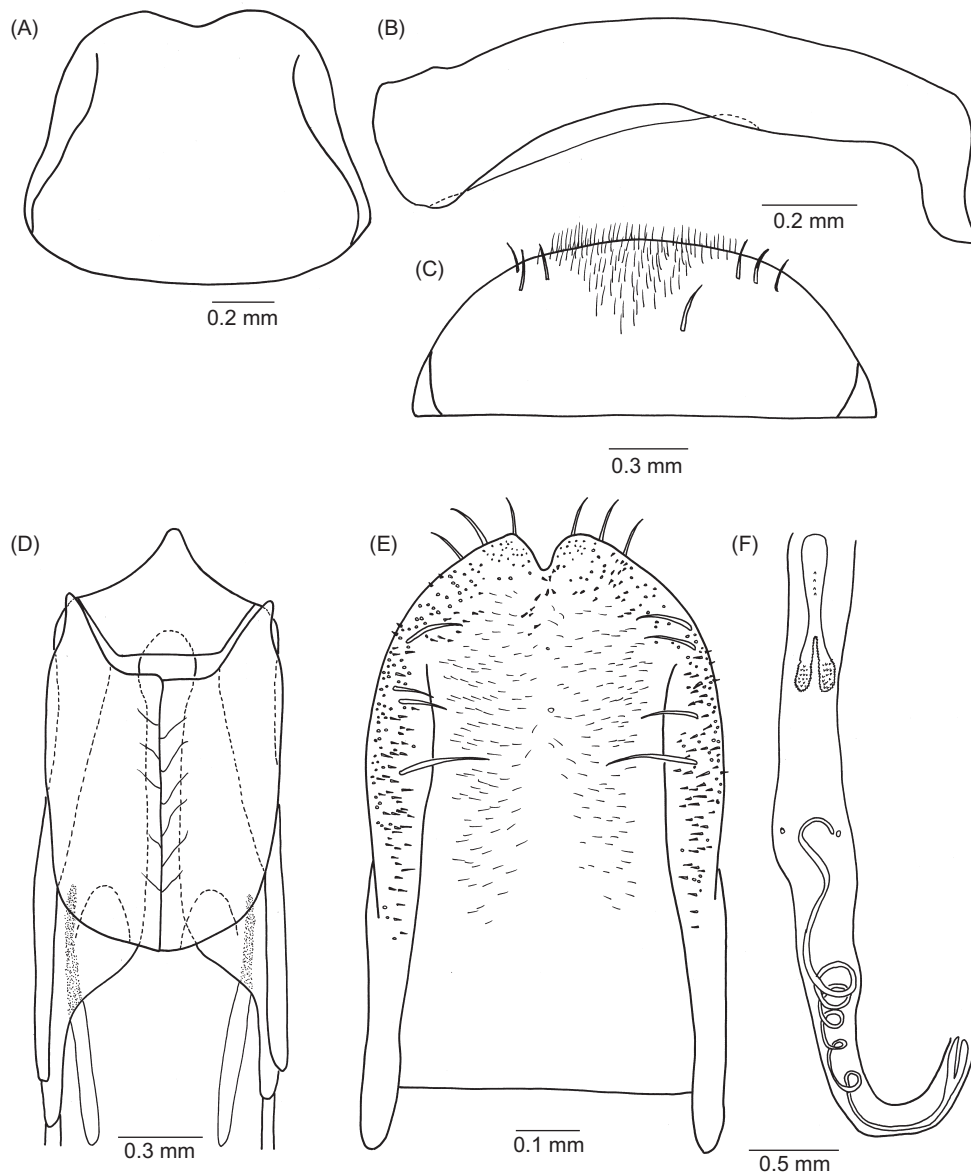


Fig. 8. *Neohelota babai* sp. nov. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac.

at base. Parameres (Fig. 8E) elongate and parallel, middle of apical margin with a moderate notch, ventral surface with sparse setae, stout setae and several long setae at sides, basal margin truncate. Internal sac (Fig. 8F) with a reverse Y-shaped sclerite at apex, with dense teeth at bases, a twisted flagellum at basal 1/2, bifurcated basally.

Female (Fig. 4): Length 8.0 mm; width 3.3 mm. Differing from males by the straight protibiae

and narrower elytral apices.

Etymology: This species is dedicated to the late Dr. Kintaro Baba, who made a great contribution to our knowledge of Taiwanese beetles.

Diagnosis: The new species has a similar body shape of *N. sonani* (Ohta), but differs by being longer and having serrate apical margins on the elytra.

Distribution: Central and southern Taiwan.

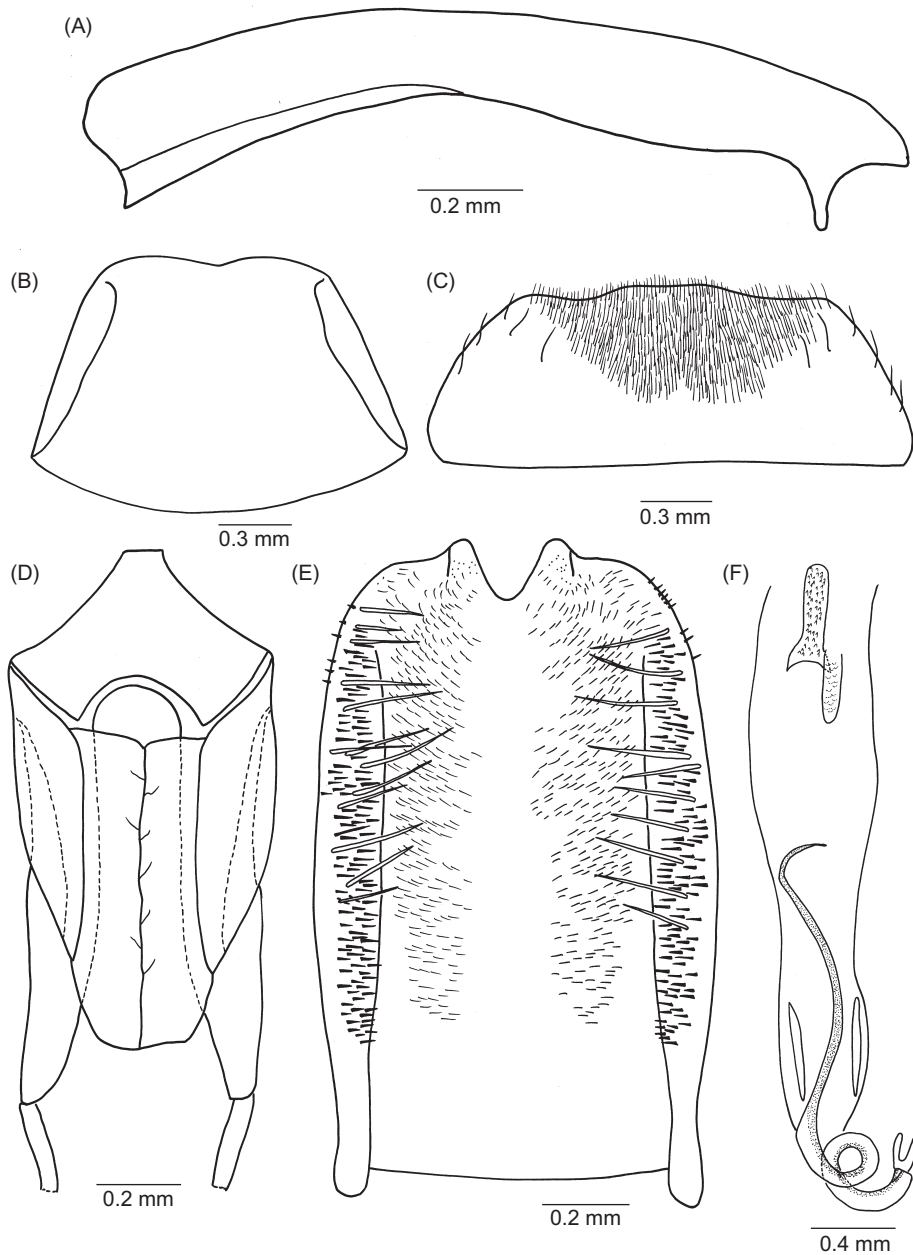


Fig. 9. *Neohelota chunlini* sp. nov. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac.

***Neohelota chunlini* Lee and Satô sp. nov.**

(Figs. 5-7, 9)

Holotype ♂: "Taiwan: Ilan Co., Fushan Botanical Garden, 28 Mar. 2004 leg. C. F. Lee (NMNS).

Paratypes (3 specimens): 1 ♂, same locality as holotype, swept from vegetation, 8-11 Apr. 2002, leg. O. Merkl (HNHM); 1 ♀, same locality, 28 Mar. 2004 leg. T. Kurihara (NMNS); 1 ♂, Taoyuan, Mingchi 121°27'35"E, 24°38'34"N, elev. ~1020 m, by Flight Intercept Traps, 16 July- 4 Aug. 2004 C. L. Lin (RCBAS).

Description: Male: Length 8.1-8.3 mm, width 2.9-3.0 mm. Dorsal surface (Fig. 5) dark purplish-bronze; mandibles, clypeus, and scutellum metallic-green; margins of pronotum and elytra green; antennae dark brown, scape with one metallic green spot, three distal antennomeres darkened; antero-lateral angles of pronotum yellowish-brown; each elytron with two small yellow spots, anterior one between fourth and sixth striae, posterior one between third and sixth striae. Ventral surface (Fig. 6) pale yellow; head, outer, posterior, anterior margins of proepisternum, anterior margin of prosternum, base of mesepisternum, mesepimeron except for base; and elytral epipleuron metallic-green. Legs yellowish-brown with tibiae, tarsi and apical 1/3 of femora metallic-green.

Dorsal surface of head randomly and densely punctate; ventral surface with more prominent punctures. Pronotum 0.72-0.74 times longer than wide, lateral margins with weak crenulations, basally abbreviated, sides apically narrowed, surface randomly and densely punctate, abbreviated at middle of base. Elytra 2.20-2.36 times longer than wide, widest at base, gradually narrowed toward apices, apical third remotely and minutely serrate, each elytron with a very small apical tooth, apex narrowly rounded, each elytron with 10 striae, surface flat. Thoracic ventrites with random and prominent punctures, reduced medially and basally on metaventrite. Punctures on abdominal ventrites very small. Protibiae (Fig. 9A) moderately curved, internal edges dorsally depressed from apical 1/3 to apex. Fifth abdominal ventrite (Fig. 9C) with sinuate apical margin, surface with sparse and random fine setae, dense long setae confined to medioapical area along apical margin; several long setae at lateral margins. Apical margin of eighth abdominal tergite (Fig. 9B) weakly emarginate mesially. Penis (Fig. 9D) with widely truncate apex, internal margin medially emarginate, sides narrowed at apical 1/3; dorsal lobes nar-

rowed near apex, apices acute, notch between connection of dorsal lobes shallow, sides widest at apical 1/3, covering penis; basal margin with deep and wide median longitudinal notch, not exceeding internal margin. Parameres (Fig. 9E) elongate and parallel, middle of apical margin with a moderate notch, ventral surface with dense short setae, basal margin truncate, dense stout setae and several long setae at sides. Internal sac (Fig. 8F) with one longitudinal sclerite at apex, dorsally covered with teeth, base with lateral extensions, a longitudinal sclerite ventrally with dense teeth behind; a twisted flagellum occupying basal half, bifurcate basally; a pair of longitudinal sclerites at basal 1/3.

Female (Fig. 7): Length 8.6 mm; width 3.1 mm. Differing from male by the straight protibiae and narrower elytral apices.

Etymology: This new species is named after Dr. Chun-Lin Li, who collected one of the type specimens.

Diagnosis: *Neohelota chunlini* and *N. lini* are smaller than *N. thoracica* and *N. helleri* but longer than other species (Fig. 45). *Neohelota chunlini* differs from *N. lini* by its darker coloration and serrate elytral apices. It is easy to distinguish both species by the genitalic structures.

Distribution: Northern Taiwan.

***Neohelota helleri* (Ritsema, 1911b) comb. nov.**

(Figs. 10-12, 16)

Helota Helleri Ritsema 1911b: 51; Ritsema 1915: 133 (specimens in the Leiden Museum).

Helota helleri: Ohta 1929a: 109 (list); Miwa 1931: 59 (list); Kôno 1939: 160 (list); Hornig 1992: 70 (types); Wegrzynowicz 2000: 399 (list).

Neohelota tumaaka Ohta 1929b: 68 (synonymized by Kôno 1939).

Neohelota tumaaka (sic!): Kôno 1939: 160.

Type series: Lectotype ♂ (here designated): "Typus (red) / Formosa Hoozan (= Fengshan, Kaohsiung Co.) H. Sauter 1910 (yellow) / 1911 14 (yellow) / *Helota Helleri*, Rits. ♂ type. N. L. M. 1911 p.51 / Staatl. Museum für Tierkunde Dresden" (MTD). Paralectotype: 1 ♀: "Type / Cat No. 43a / Formosa Taihorinsho H. Sauter 1909 / *Helota Helleri*, Rits. ♀ N. L. M. 1911 / Hus. Dresden Formose" (RMNH).

Synonym: We examined the holotype ♂ of *Neohelota tumaaka* (automatically fixed by monotype): "Formosa Musha (= Wushe, Nantou Co.), 1919. V 18-VI 15, T. Okuni, J. Sonan, K. Miy. M. Yosh / *Neohelota tumaaka* (sic!) Ohta Type (red) / Gena Type (red) / *Helota Helleri* Ritsema det. H.

Kôno" (EIHU).

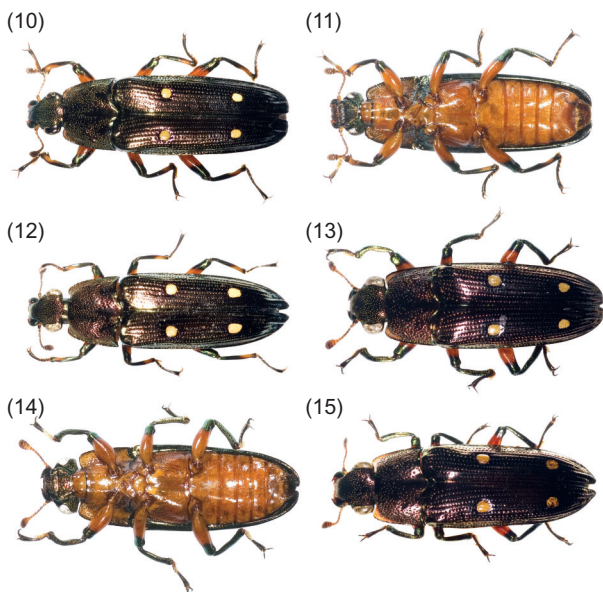
Description: Male: Length 9.3-10.1 mm, width 3.2-3.4 mm. Dorsal surface (Fig. 10) dark purplish-bronze; head and scutellum metallic-green, margins of pronotum and elytra green; antennae dark brown, scape with one metallic-green spot, three apical antennomeres darkened; antero-lateral angles of pronotum yellowish-brown; each elytron with two small yellow spots between 3rd and 6th striae. Ventral surface (Fig. 11) pale yellow; head, outer, posterior, and anterior margins, and margins of proepisternum surrounding procoxae, anterior margin and margins of prosternum surrounding procoxae, lateral angles and margins of mesoventrite surrounding mesocoxae, base of mesepisternum, mesepimeron, and elytral epipleuron metallic-green. Legs yellowish-brown, tibiae and apical 1/3 of femora metallic green; tibiae with one brown spot on ventral surface of apical 1/2; tarsi dark brown; claws brown.

Dorsal surface of head randomly and densely punctate; ventral surface with more-prominent punctures. Pronotum 0.75-0.79 times longer than wide, trapezoidal, lateral margins with moderate crenulations, apically narrowed, surface with irregular and dense punctures, abbreviated on three subtriangular spots at middle of base. Elytra 2.30-2.36 times longer than wide; subparallel, each elytron with a very small apical tooth, apex widely

rounded; each elytron with 10 striae, surface flat. Thoracic ventrites with random and prominent punctures, reduced medially and basally on metaventrite. Punctures on abdominal ventrites very small. Protibia (Fig. 16B) slightly curved, internal edge notched at middle dorsally, an oblique triangular tooth at apical 1/3 with broad base and acute apex; meso- and metatibiae without such notches and tooth. Fifth abdominal ventrite (Fig. 16C) with truncate apical margin, surface with sparse and random fine setae, a big semicircular area at apical margin with dense and stout setae, several long setae surrounding sides of semicircular area. Apical margin of eighth abdominal tergite (Fig. 16A) rounded. Penis (Fig. 16D) with narrowly rounded apex, internal margin with two lateral processes between dorsal lobes, medially convex, dorsal lobes narrowed near apex, apices narrowly rounded, notch between connection of dorsal lobes moderate, two pairs of sclerites behind notch and base respectively. Parameres (Fig. 16E) longitudinal and parallel, middle of apical margin with a deep notch, margined with dense long setae, ventral surface with dense and stout setae; basal margin rounded. Internal sac (Fig. 16F) with one pair of slender longitudinal sclerites, latero-basal process with three teeth, one slender sclerite between apices of both sclerites with teeth near apex, another slender sclerite halfway between both sclerites, apically toothed, another pair of longitudinal and slender sclerites near base, with apical teeth, basal sclerite with short basolateral apophyses.

Female (Fig. 12): Length 9.4-10.3 mm; width 3.4-3.6 mm. Differing from males by lacking triangular teeth and notch on protibiae and narrower elytral apices.

Other material examined (188 specimens): 1 ♂, 3 ♀♀, Taiwan: Taipei Co., Wulai, 27 Feb. 2004, leg. C.F. Lee (MTD); 3 ♂♂, same locality, 9 Mar. 1997, leg. Y.L. Lin (RCBAS); 3 ♂♂, 2 ♀♀, same locality and collector as preceding, 21 Feb. 2004 (DEI, ZMHB); 3 ♂♂, 2 ♀♀, same locality and collector as preceding, 01 May 2005 (RMNH); 2 ♀♀, Fushan, 29 Mar. 2004, leg. T. Kurihara (RCBAS); 1 ♂, Taoyuan Co., Hsuanyuan, 15 May 1982, leg. B.S. Chang (NMNS); 1 ♀, Sankuan, 15 May 1978, leg. N. Yashiro (EUMJ); 2 ♀♀, Junghua, 7 Apr. 1971, leg. B.S. Chang (NMNS); 1 ♀, same locality and collector as preceding, 11 Mar. 1972 (NMNS); 1 ♂, 1 ♀, Paling, 14 July 1981, leg. B.S. Chang (NMNS); 3 ♀♀, same locality as preceding, 31 Mar. 1998, leg. M. Satô (RCBAS); 1 ♂, 1 ♀, Ilan Co., Fushan Botanical



Figs. 10-15. Habitus illustrations of *Neohelota* species. (10) *Neohelota helleri*, male dorsal view; (11) ditto, ventral view; (12) *N. helleri*, female dorsal view; (13) *N. lini* sp. nov., male dorsal view; (14) ditto, ventral view; (15) *N. lini* sp. nov., female dorsal view.

Garden, 24 Mar. 2004, leg. C.F. Lee (RCBAS); 1 ♀, same locality and date as preceding, leg. T. Kurihara (RCBAS); 1 ♂, Chihtuan, 23 Apr. 1982, leg. B.S. Chang (NMNS); 1 ♂, 3 ♀♀, Taipingshan, 1 Apr. 2004, leg. C.F. Lee (RCBAS); 4 ♀♀, Nantou Co., Nan Shan Hsi (= Nanshanchi), 11 May 1993 leg. C. L. Li (NMW); 1 ♀, same locality as preceding, 17 May 1969, leg. S. Hisamatsu (EUMJ); 1 ♂, same locality as preceding, 3 Apr. 1970, leg. H. Nomura (EUMJ); 1 ♀, same locality

and collector as preceding, 3 Apr. 1971, (EUMJ); 1 ♀, same locality as preceding, 22 Apr. 1973, leg. S. Takeda (EUMJ); 1 ♀, same data as preceding but 24 Apr. 1973 (EUMJ); 2 ♀♀, same locality as preceding, 21 Apr. 1978, leg. K. Murakami (EUMJ); 1 ♂, 1 ♀, same locality as preceding, 1 May 1982, leg. N. Ohbayashi (EUMJ); 1 ♂, same data as preceding but 26 Apr. 1982 (EUMJ); 1 ♂, same locality as preceding, 27 June 1977, leg. K. Ushijima (EUMJ); 1 ♂, same locality as preceding,

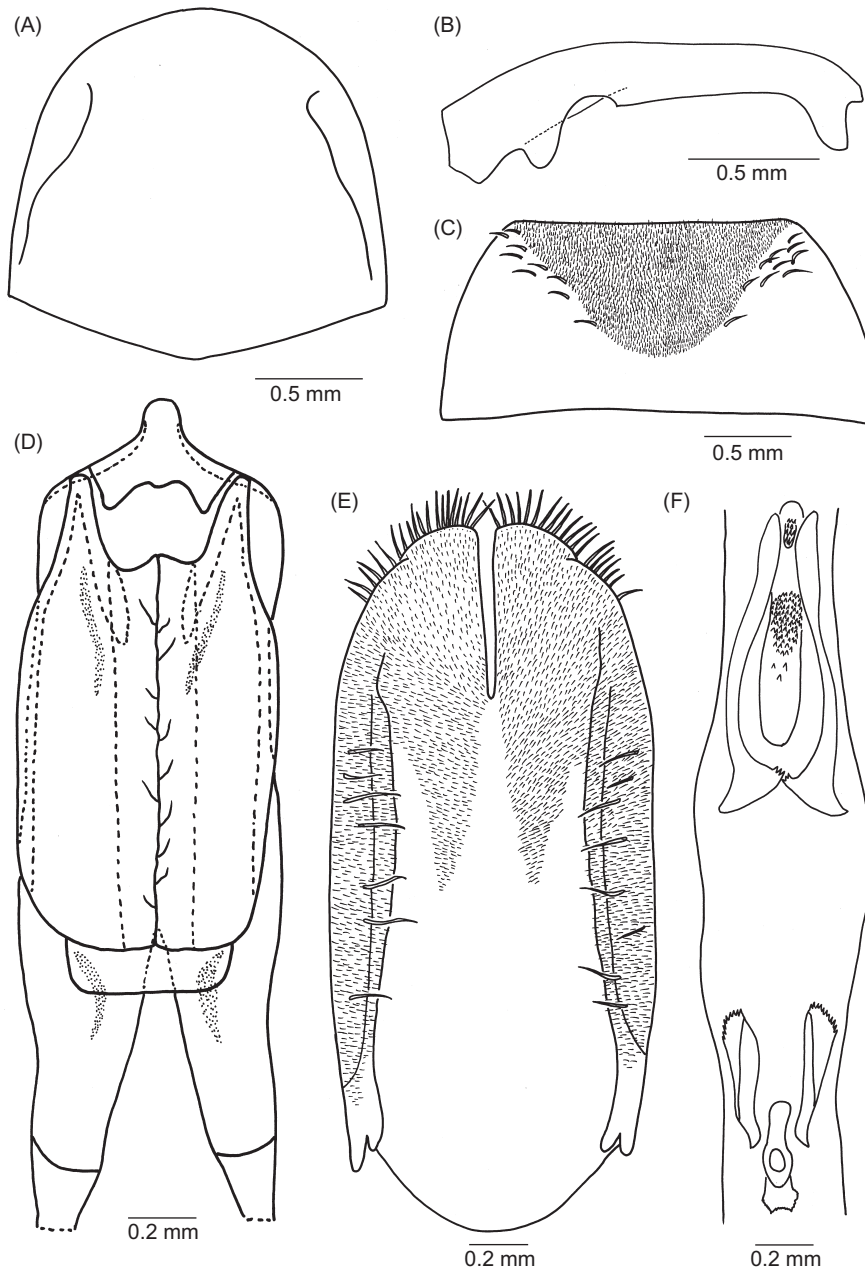


Fig. 16. *Neohelota helleri*. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac.

20 Mar. 1994, leg. Y. Arita (RCBAS); 1 ♂, 1 ♀, Sun Kang (= Sungkang), 26 June 1991, leg. Lo (NMW); 1 ♀, same locality as preceding, 9 May 1978, leg. H. Yashiro (EUMJ); 1 ♂, 2 ♀♀, Musha (= Wushe), May-June 1960 (EUMJ); 1 ♂, 2 ♀♀, Puli (Hori), May-July 1959 (EUMJ); 1 ♂, same locality and date as preceding, bought from J. Ohkura (EUMJ); 6 ♀♀, same locality as preceding, June 1954, Native Collector (BPBM); 14 ♂♂, 26 ♀♀, same locality and collector as preceding, July 1954 (BPBM); 1 ♂, 1 ♀, same locality as preceding, 20 Nov. 1954 leg. C. Hweiyu (BPBM); 2 ♀♀, Taichung Co., Ku Kwang (= Kukuan), 10 Apr. 1991, leg. C. L. Li (NMW); 3 ♂♂, Chiayi Co., Tahorin (= Talin), 10 Apr., leg. S. Sauter (ZMHB); 4 ♀♀, same locality and collector as preceding, 10 May (ZMHB); 1 ♀, Kaohsiung Co., Hoozan (= Fengshan), leg. Sauter (NMW); 8 ♂♂, 3 ♀♀, same locality and collector as preceding, 10 Mar. (ZIN, ZMHB); 1 ♂, Fujieda (= Tengchih), 10 June 1977, leg. K. Ushijima (EUMJ); 1 ♀, same locality as preceding, 14 May 2003, leg. H.S. Lin (RCBAS); 2 ♂♂, Thu Yun Shan (= Chuyunshan), 23 July 1986, leg. K. Baba (RCBAS); 2 ♂♂, 1 ♀, same locality and collector as preceding, 30 May 1986 (RCBAS); 2 ♀♀, Shyk Shan (= Shihshan), 17 June 1986, leg. K. Baba (RCBAS); 1 ♀, Liu Kui (= Liukuei), 28 Mar. 1986, leg. K. Baba (RCBAS); 5 ♂♂, 5 ♀♀, Nanfengshan, 18 Apr. 1986, leg. K. Baba (RCBAS); 1 ♂, same locality and collector as preceding, 25 Apr. 1986 (RCBAS); 1 ♂, Tao Nah (= Tona), 30 May 1986, leg. K. Baba (RCBAS); 1 ♂, 2 ♀♀, Pingtung Co., Wutai, 3 Apr. 2005, leg. Y.L. Lin (RCBAS); 8 ♂♂, 1 ♀, Dahanshan, 17 Feb. 2005, leg. Y.L. Lin (MSNG, RCBAS); 3 ♂♂, 1 ♀, same locality and collector as preceding, 21 Apr. 2005 (RCBAS); 3 ♂♂, 2 ♀♀, same locality and collector as preceding, 1 May 2005 (RCBAS); 1 ♀, same locality and collector as preceding, 28 July 2005 (RCBAS); 6 ♀♀, Formosa (= Taiwan), leg. S. G. Sauter (ZMHB); 5 ♂♂, 2 ♀♀, Formosa (Taiwan) (ZMHB).

Diagnosis. As the second largest species (Fig. 44) in Taiwan, it is easy to distinguish *N. helleri* from other species.

Distribution: Taiwan. This is one of the most common species in Taiwan; widespread from low to high elevations (0-2500 m).

***Neohelota lini* Lee and Satô sp. nov.**

(Figs. 13-15, 17)

Holotype ♂: Taiwan: Hsinchu Co., Lidungshan, 22 May 2005, leg. Y. L. Lin (NMNS).

Paratypes (22 specimens): 1 ♀, same collection data as holotype (NMNS); 2 ♂♂, same locality and collector, 7 May 2006 (RCBAS); 1 ♀, same locality and collector, 21 May 2006 (RCBAS); 2 ♂♂, Nan Tow (= Nantou) Co., Yu Shih, elev. 1900 m, 4 July 1986, leg. K. Baba (RCBAS); 3 ♂♂, 3 ♀♀, Sungkang, elev. 2044 m, 8 May 1978 leg. N. Yshiro (EUMJ); 1 ♀, same locality as preceding, 6.VIII.1969, T. KOBAYASHI (EUMJ); 1 ♀, same locality as preceding, 1 Apr. 1971, leg. H. Nomura (EUMJ); 1 ♀, same locality as preceding, 15 Apr. 1973, leg. S. Takeda (EUMJ); 1 ♀, same locality and collector as preceding, 20 Apr. 1973 (EUMJ); 1 ♂, same locality as preceding, 17 Apr. 1991, leg. Lo (NMW); 1 ♂, Meifeng, elev. 2150 m, 24-26 June 1981, leg. K.S. Lin and W.S. Tang (TARI); 1 ♀, Kao-Leng Dyi, 18 km W of Wushe, 24°4.561'N, 121°8.046'E, elev. 1945 m, swept from vegetation, 18-19 Apr. 2002, leg. D. Ansine, Gy. Fábíán and O. Merkl (HNHM); 1 ♂, Taichung Co., Ku Kwang (= Kukuan), 5 Sept. 1992, leg. C. L. Li (NMW); 1 ♀, Hualien Co., Tayuling, elev. 2560 m, 10-16 June 1980 leg. K.S. Lin and B.H. Chen, malaise trap (TARI); 1 ♂, 1 ♀, Pilu, 18 May 1990 (RCBAS).

Description: *Male:* Length 7.7-8.4 mm; width 3.0-3.3 mm. Dorsal surface (Fig. 13) bronze; mandibles, basal margins of pronotum and elytra green; antennae yellowish-brown, with a dark spot on scape and darkened apical antennomere; antero-lateral angles of pronotum yellowish-brown; each elytron with two small yellow spots, anterior ones between 4th and 7th striae, posterior ones between 3rd and 7th striae. Ventral surface (Fig. 14) pale yellow with head, anterior margin of prosternum, lateral margins proepisternum, bases of metepisternum, and elytral epipleuron metallic-green. Legs yellowish-brown with tibiae and apical 1/3 of femora metallic-green, tarsi and claws dark brown.

Dorsal surface of head randomly and densely punctate; ventral surface with more prominent punctures. Pronotum 0.67-0.72 times longer than wide, lateral margins straight with weak crenulations, apically narrowed, surface with irregular and dense punctures, abbreviated at middle of base. Elytra 1.94-2.06 times longer than wide, widest at base, narrowed toward apices, each elytron with a very small apical tooth, apex widely rounded, each elytron with 10 striae, surface flat. Thoracic ventrites with random and prominent punctures, reduced medially and basally on metaventricle. Punctures on abdominal ventrites very small. Protibia (Fig. 17B) moderately curved, dorsally

depressed at apical 1/3 of internal edge. Fifth abdominal ventrite (Fig. 17C) with bisinuate apical margin, surface with sparse and random fine setae, dense stout setae confined to medial area, several long setae on lateral sides, apical margin with dense long setae. Apical margin of eighth abdominal tergite (Fig. 17A) pointed. Penis (Fig. 17D) abruptly narrowed near apex, apex widely rounded, mesial margin covered by dorsal lobes, dorsal lobes widest near apex, apices widely rounded, notch between connection of dorsal lobes weak. Parameres (Fig. 17E) longitudinal

and apically narrowed, abruptly narrowed near apex, forming two acute apical processes, middle of apical margin with a moderate notch, laterally margined with sparse long setae, sides of ventral surface with dense tiny setae, basal margin medially emarginate. Internal sac (Fig. 17F) with a cluster of small teeth at apex, followed by a longitudinal band with small teeth, a transverse sclerite with lateral teeth on one side of a longitudinal band, one pair of curved sclerites internally margined with teeth at middle, one flagellum between middle and base and a Y-shaped sclerite basally.

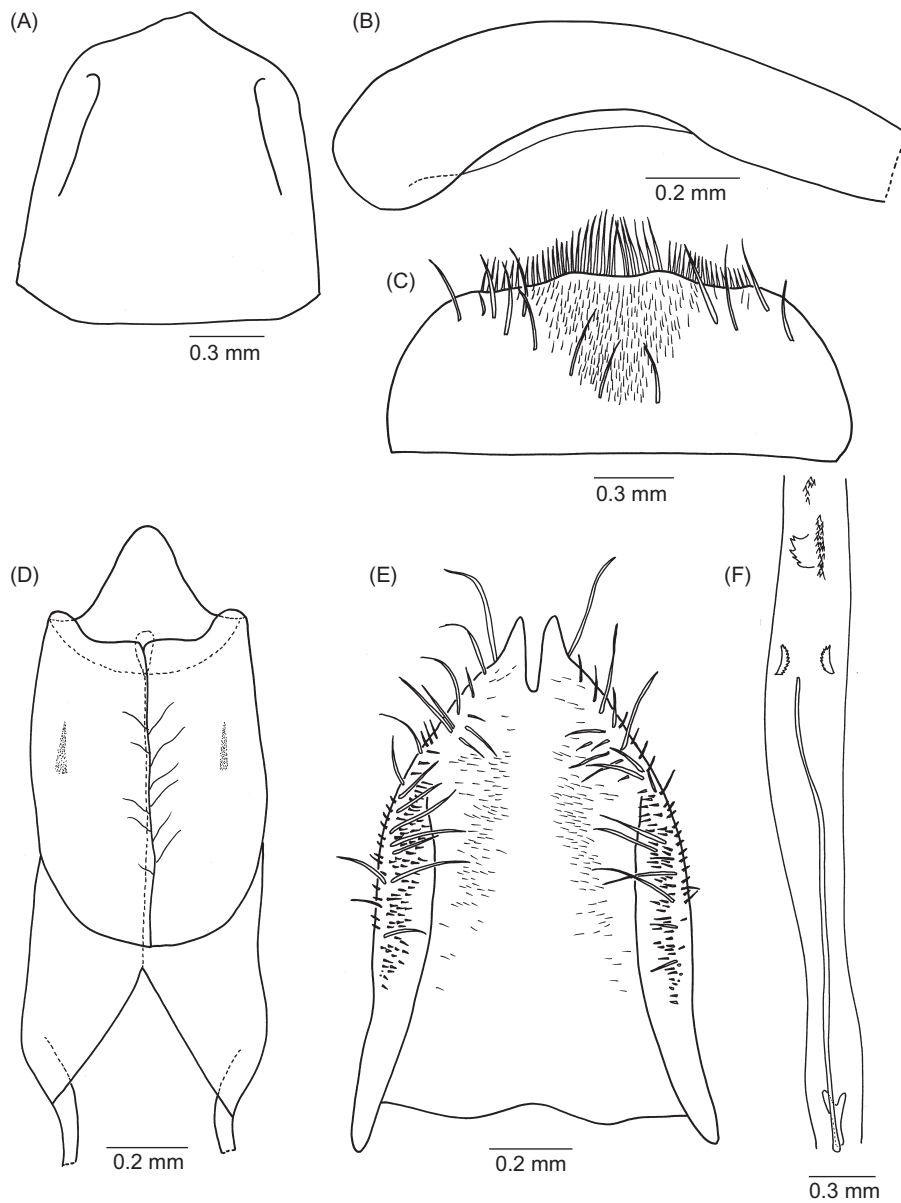


Fig. 17. *Neohelota lini* sp. nov. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac.

Female (Fig. 15): Length 7.8-8.8 mm; width 3.0-3.3 mm. Differing from male by the straight protibiae and narrower elytral apices.

Etymology: This new species is dedicated to one of our friends, Mr. Yu-Lon Lin, who collected a number of specimens of this new species.

Diagnosis: See diagnosis of *N. chunlini*.

Distribution: central Taiwan.

***Neohelota montana* (Ohta, 1929b)**

(Figs. 18-20, 24)

Helota montana Ohta 1929b: 67; Miwa 1931: 60 (list); Kôno 1939: 160 (list); Wegrzynowicz 2000: 401 (list).

Neohelota montana: Kirejtshuk 2000: 30.

Type series: Lectotype ♀ (herewith designated): "Formosa Musha (= Wushe, Nantou Co.), 1919. V 18-VI 15, T. Okuni, J. Sonan, K. Miy., M. Yosh / *Helota montana* Ohta Type (red) / *Hoelota montana*, Miwa det. Y. Miwa" (EIHU). Although detailed information (locality, date, and collectors) were provided while Ohta described new species, the number of types were not clearly indicated. One male specimen bearing the collecting label was found at the TARI. It is designated as a paralectotype despite a lack of determination and type labels.

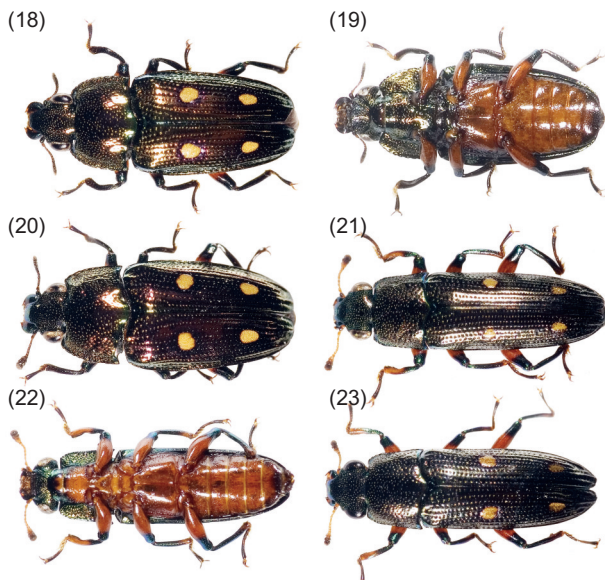
Description: Male: Length 4.6-4.7 mm; width 2.1-2.2 mm. Dorsal surface (Fig. 18) purplish-

bronze, with metallic-green mandibles, clypeus, and scutellum, margins of pronotum and elytra green, antennae brown with metallic-green scape and three distal antennomeres darkened except for apical 1/2 of last antennomere, each elytron with two small yellow spots, an anterior one between 3rd and 6th striae, a posterior spot between 3rd and 7th striae. Ventral surface (Fig. 19) pale yellow, with metallic-green head, prosternum, proepisternum, mesepisternum, mesepimeron, metepisternum, and elytral epipleuron; fifth abdominal ventrite dark brown. Legs yellowish-brown, with metallic-green tibiae and apical third of femora; tarsi dark brown, claws brown.

Dorsal surface of head randomly and densely punctate; ventral surface with more-prominent punctures. Pronotum 0.63-0.68 times longer than wide, lateral margins with moderate crenulations, rounded, apically narrowed, surface with irregular and dense punctures, abbreviated at middle of base. Elytra 1.58-1.69 times longer than wide, widest at basal 1/3, each elytron with a very small apical tooth, apex widely rounded, each elytron with 10 striae of punctures, surface flat. Thoracic ventrites with random and prominent punctures, reduced medially and basally on metaventrite. Punctures on abdominal ventrites very small. Protibia (Fig. 24B) slightly curved, internal edge apically and dorsally dilated, ventrally depressed at apex. A minute tooth near apex of meso- and metatibiae. Fifth abdominal ventrite (Fig. 24C) with rounded apical margin, surface with sparse and random fine setae; dense, stout setae confined to apical margin; a pair of long setae at sides. Apical margin of eighth abdominal tergite (Fig. 24A) weakly rounded. Penis (Fig. 24D) abruptly narrowed near apex, apex truncate and weakly serrate, mesial margin with a small medial process, dorsal lobes widest near apex, apices very narrowly rounded, with prominent notch between connection of dorsal lobes. Parameres (Fig. 24E) elongate and apically narrowed, abruptly narrowed near apex, middle of apical margin with a prominent notch, apically margined with sparse small setae, laterally margined with a cluster of long setae; ventral surface without setae. Internal sac (Fig. 24F) with three elongate, flattened apical sclerites, two at sides smaller, all three densely and apically toothed. Basal sclerite wide, baso-lateral apophyses recurved.

Female (Fig. 20): Length 4.7-4.9 mm; width 2.2-2.3 mm. Differing from males by simple and straight protibiae and without teeth on tibiae.

Other material examined (43 specimens):



Figs. 18-23. Habitus illustrations of *Neohelota* species. (18) *Neohelota montana*, male, dorsal view; (19) ditto, ventral view; (20) *N. montana*, female, dorsal view; (21) *N. similis* sp. nov., male, dorsal view; (22) ditto, ventral view; (23) *N. similis* sp. nov., female, dorsal view.

1 ♀, Taiwan: Taipei Co., Wulai, 21 Feb. 2004, leg. Y.L. Lin (NMW); 3 ♂♂, same locality and collector, 28 Feb. 2004 (MSNG); 2 ♂♂, 1 ♀, same locality and collector, 1 May 2005, (NMW); 1 ♂, same locality as preceding, 27 Feb. 2004, leg. C.F. Lee (RCBAS); 8 ♂♂, 5 ♀♀, same locality and collector as preceding, 28 Feb. 2004 (DEI, MTD, RCBAS, RMNH, ZMHB); 1 ♂, Taoyuan Co., Hsileng (= Suleng), 20 Apr. 1982, leg. N. Ohbayashi (EUMJ); 1 ♂, Paling, 1 Aug. 1970, leg. B.S. Chang (NMNS); 2 ♂♂, same locality as preceding, 31 Mar. 1998, leg. M. Satô (RCBAS); 2 ♀♀, Hsinchu Co., Leedonshan (= Lidungshan), 27 July 2004, leg. Y.L. Lin (MSNG); 1 ♂, Nantou Co., Nanshanchi, 26 Mar. 1977, leg. Y. Notsu

(EUMJ); 1 ♀, same locality as preceding, 1 May 1982, leg. N. Ohbayashi (EUMJ); 1 ♀, Wushe, 1965, leg. Smpule (EUMJ); 1 ♀, Hori (= Puli), June 1954, native collector (BPBM); 2 ♂♂, 2 ♀♀, Mong Gwu, 14 km E of Puli, 24° 1.367'N, 121°5.063'E, elev. 850 m, swept from vegetation, 20 Apr. 2002, leg. D. A. Anstine, Gy. Fábíán and O. Merkl (HNHM); 1 ♂, Kaohsiung Co., Rokki (= Liukuei), 14 June 1932, leg. J.L. Gressitt (BPBM); 1 ♂, same locality and collector as preceding, 16-17 May 1934 (BPBM); 1 ♀, Nanfenshan near Liukuei, 1 Oct. 1986, leg. K. Baba (RCBAS); 1 ♀, Hoozan (=Fengshan), leg. S. Sauter (ZMHB); 1 ♂, Pingtung Co., Kararu (= Kenting), 10 May 1934, leg. L. and M. Gressitt (BPBM); 1 ♂, Hualien

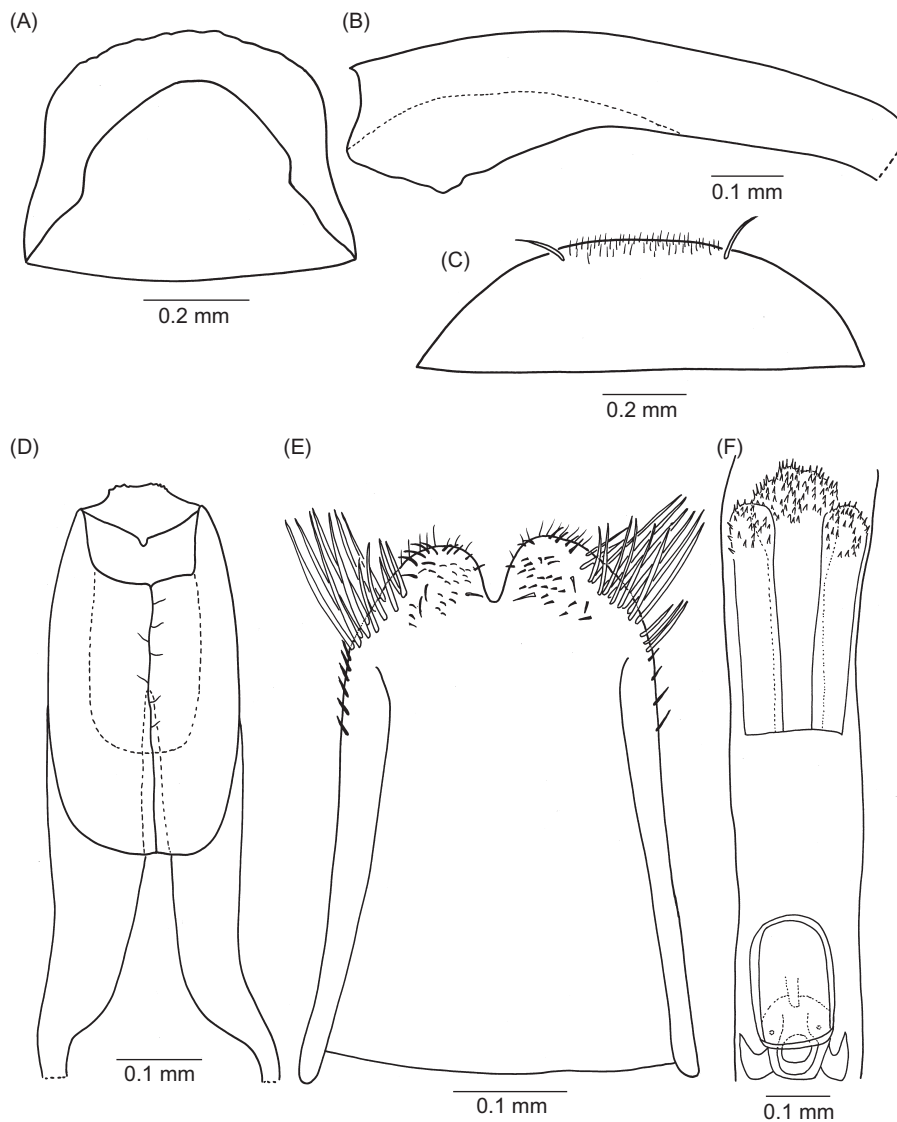


Fig. 24. *Neohelota montana*. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac.

Co., Mizuho (= Juisui), 21 Apr. 1932, leg. L. and M. Gressitt (BPBPM); 4 ♂♂, same locality and collector as preceding, 22 Apr. 1932 (BPBPM); 1 ♀, Taito (= Taitung), 25 Feb.-27 Mar. 1919 (TARI)

Diagnosis: *Neohelota montana* and *N. sonani* are characterized by the small body size and wider elytra. *Neohelota montana* differs from *N. sonani* by its smaller body size, the metallic-green tibiae, and prothoracic ventrites.

Distribution: Taiwan. It is widespread from low to middle elevations (0-1500 m).

***Neohelota similis* Lee and Satô sp. nov.**

(Figs. 21-23, 25)

Holotype ♂: Taiwan: Hsinchu Co., Leedonshan (= Lidungshan), 22 May 2005, leg. Y. L. Lin

(NMNS).

Paratypes (85 specimens): 2 ♂♂, 2 ♀♀: Taiwan: Taipei Co., Wulai, 21 Feb. 2004, leg. Y.L. Lin (BPBM); 1 ♂, same locality as preceding, 27 Feb. 2004, leg. C. F. Lee (RCBAS); 1 ♂, same locality and collector as preceding, 20 Apr. 2004 (RCBAS); 4 ♂♂, 3 ♀♀, same locality and collector as preceding, 1 May 2005 (MSNG, RCBAS); 2 ♂♂, 1 ♀, Fushan, Wulai Township, elev. 600 m, 29 Mar. 2004, leg. T. Kurihara (RCBAS); 1 ♂, Ilan Co., Chihtuan, 23 Apr. 1982, leg. B.S. Chang, 1282-34273 (NMNS); 4 ♂♂, 4 ♀♀, Fushan Botanical Garden, 28 Mar. 2004, leg. C. F. Lee (RCBAS); 3 ♂♂, Nantou Co., Nan Shan Hsi (Nanshanchi), 28 Mar. 1992, leg. C. L. Li (NMW); 3 ♂♂, 1 ♀, same locality and collector as preceding, 11 May 1993 (NMW); 1 ♂, 1 ♀, Sun Kang (=

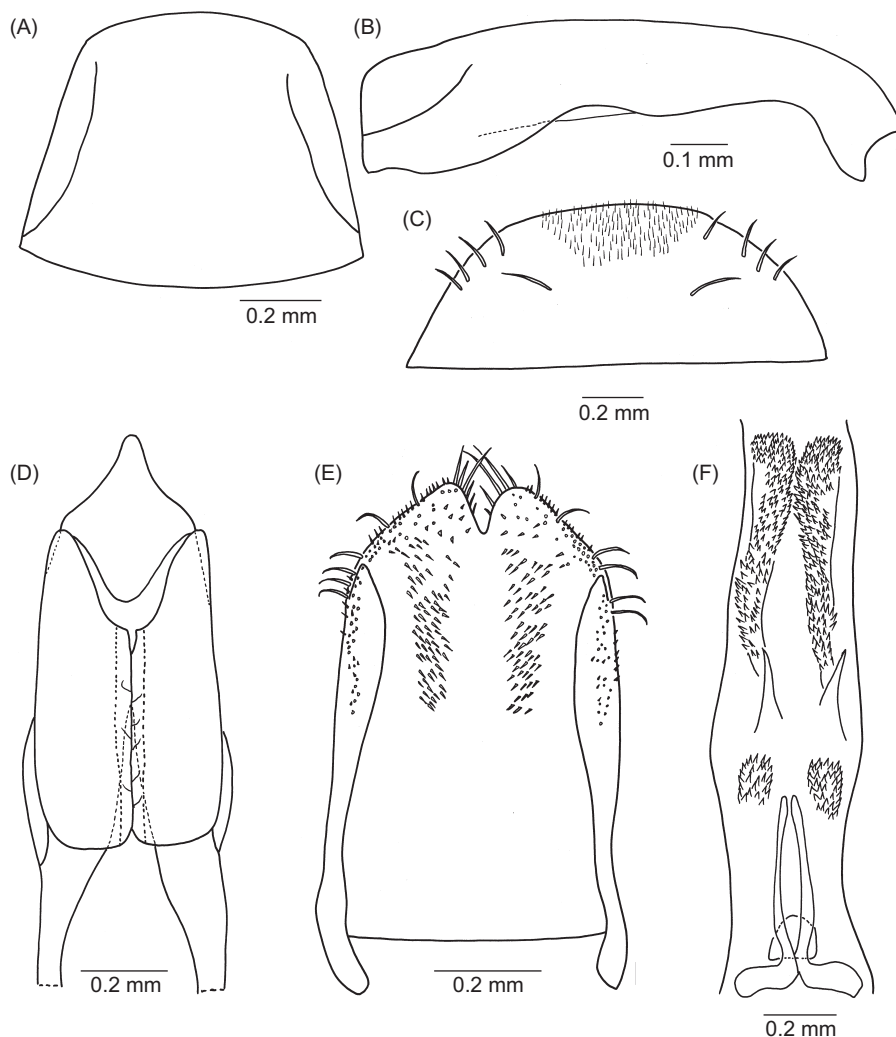


Fig. 25. *Neohelota similis* sp. nov. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac.

Sung kang), elev. 1800 m, 28 June 1991, leg. Lo (NMW); 1 ♀, Wushe region, 1965, leg. Smpule (EUMJ); 1 ♀, Puli, May-July 1959, collection of S. Hisamatsu (EUMJ); 1 ♀, Lienhuachih, 7-8 Mar. 2000 leg. C.S. Lin and W.T. Yang, mercury light, NMNS ENT 3372-449 (NMNS); 1 ♂, Jihyuetan near Puli, 23 Apr. 1978, leg. Kôzô Murakami; 1 ♀, Kaohsiung Co., Fujieda (= Tengchih), 10 June 1977, leg. K. Ushijima (EUMJ); 1 ♂, Paoshan, 23 May 1977, leg. W. L. Cheng (EUMJ); 1 ♂, 2 ♀♀, Sha Ping (= Shanping) near Liukuei, 10 Apr. 1986, leg. K. Baba (RCBAS); 4 ♂♂, 2 ♀♀, Liu Kui (= Liukuei), 28 Mar. 1986, leg. K. Baba (RCBAS); 4 ♂♂, 2 ♀♀, Nan Feng Shan near Liu Kui (= Liukuei), 18 Apr. 1986, leg. K. Baba (RCBAS); 1 ♂, same data but 25 Apr. 1986 (RCBAS); 16 ♂♂, 4 ♀♀: Pingtung Co., Dahanshan, 17 Feb. 2005, leg. Y. L. Lin (RMNH, RCBAS, EIHU); 1 ♂, 1 ♀, same locality and collector as preceding, 17 Mar. 2005 (ZMHB); 3 ♂♂, 1 ♀, same locality and collector as preceding, 21 Apr. 2005 (MTD); 2 ♂♂, 1 ♀, Payuchih, 19 May 2005, leg. Y.L. Lin (DEI).

Description: Male: Length 6.1-6.6 mm; width 2.1-2.2 mm. Dorsal surface (Fig. 21) dark purplish-bronze, with metallic-green head and scutellum, margins of pronotum and elytra green, antennae yellowish-brown, scape with one metallic-green spot, two apical antennomeres darkened, each elytron with two small yellow spots: anterior one between fourth and seventh striae, posterior one between third and sixth striae. Ventral surface (Fig. 22) pale yellow, with metallic-green head, proepisternum (excluding internal angles), anterior margin of prosternum, and elytral epipleuron; fifth abdominal ventrite with dark brown apical 1/2. Legs yellowish-brown, tibiae and apical 1/3 of femora metallic green, apical 1/2 of protibiae yellowish, meso- and metatibiae slightly paler on ventral surface of apical 1/3, tarsi dark brown, claws brown.

Dorsal surface of head randomly and densely punctate, ventral surface with more-prominent punctures. Pronotum 0.76-0.84 times longer than wide, lateral margins with moderate crenulations, narrowed at apex, surface with irregular and dense punctures, abbreviated at middle of base. Elytra 2.20-2.28 times longer than wide, subparallel, each elytron with a very small apical tooth, apex moderately rounded, each elytron with 10 striae, surface flat. Thoracic ventrites with random and prominent punctures, reduced medially and basally on metaventrite. Punctures on abdominal ventrites very small. Protibia (Fig. 25B) slightly curved, with a notch at middle of internal edge ventrally, one

short carinae starting from apex to apical 1/5, dilated near apex. Fifth abdominal ventrite (Fig. 25C) with rounded apical margin, surface with sparse and fine setae, dense setae confined to one small semicircular area at apical margin, five pairs of long setae surrounding lateral sides. Eighth abdominal tergite (Fig. 25A) transverse, apical margin truncate. Penis (Fig. 25D) abruptly narrowed near apex, apex rounded, mesial margin convex, dorsal lobes parallel, apices widely rounded, notch between connection of dorsal lobes prominent. Parameres (Fig. 25E) elongate and parallel, abruptly narrowed near apex, middle of apical margin with a moderate notch, margined with several long setae, ventral surface with sparse short and stout setae confined to middle of apical 1/2, basal margin truncate. Internal sac (Fig. 25F) with one pair of longitudinal tube-like sclerites, another pair of slender sclerites near base of tube-like sclerites, apex acute, one pair of small sclerites with dense teeth surrounding apex of basal sclerite, baso-lateral apophyses of basal sclerite long.

Female (Fig. 23): Length 6.1-7.0 mm; width 2.1-2.4 mm. Differing from male by simple and straight protibiae.

Etymology: The specific name refers to its similarity to *N. taiwana*.

Diagnosis: This species can be confused with *N. taiwana* which has a similar body size and shape, but differs by the reduced pale spots on the ventral surface of the tibiae, the more-impressed crenulations on the lateral margins of the pronotum, the presence of a notch on the protibiae, a larger area with dense setae on the apical margin of abdominal ventrite five, more setae on the ventral surface, the moderate notch of the parameres, and the separate tubelike sclerite inside the internal sack.

Distribution: Taiwan. It is widespread at low and middle elevations (0-1500 m).

***Neohelota sonani* (Ohta, 1929b)**
(Figs. 26-28, 32)

Helota sonani Ohta 1929b: 67; Miwa 1931: 60 (list); Kôno 1939: 160 (list); Wegrzynowicz 2000: 404 (list).

Neohelota miwai Ohta 1931: 136; Miwa 1931: 60 (list). (synonymized by Kôno 1939).

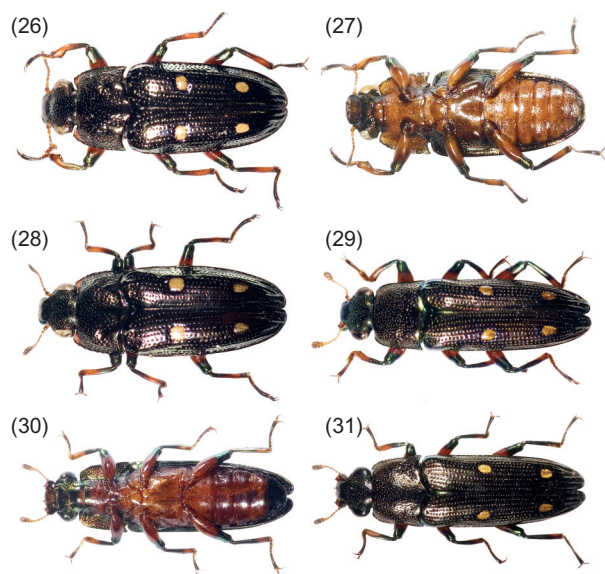
Neohelota sonani: Kirejtshuk 2000: 30.

Type series: Holotype ♀ (automatically fixed by monotypy): "Arison 24.IV.1928 Coll. J. Sonan / *Helota sonani* ♂ Ohta Type (red) / *Helota sonani* Ohta ♀ det. H. Kôno (EIHU)". There is one spec-

imen at the TARI that bears a type and determination label by Kôno (Taiheizan 23 May 1931, coll. R. Takahashi / *Helota sonani* ♂ Ohta Type (red) / *Helota sonani* Ohta ♀ det. H. Kôno). It cannot be regarded as a syntype because types must have been collected by Sonan as Ohta (1929b) indicated.

Synonym: We examined the holotype ♂ of *N. miwai* (automatically fixed by monotypy): “Formosa Y. Miwa (Kayahara [in Japanese] [= Hsuanyuan, Taoyuan] 23.VII.1929 on the back) / *Helota montana* Miwa det. Y. Miwa (misidentification) / *Neohelota miwai* Ohta Type (red) / *Helota sonani* ♂ det. H. Kôno” (EIHU).

Description: *Male:* Length 5.5-5.8 mm; width 2.1-2.3 mm. Dorsal surface (Fig. 26) dark greenish-bronze, antennae dark brown, anterolateral angles of pronotum yellowish-brown, each elytron with two small yellow spots, anterior one between third and sixth striae, posterior one between third and seventh striae. Ventral surface (Fig. 27) pale yellow, with metallic-green head, outer, posterior, and anterior margins, and margins of proepisternum surrounding procoxae, anterior margin and margin of prosternum surrounding procoxae, lateral angles and margins of mesoventrite surrounding mesocoxae, base of mesepisternum, margins of mesepimeron, metepisternum excluding base, lateral margins and margins of metaventrite surrounding metacoxal cavity, and elytral epipleuron.



Figs. 26-31. Habitus illustrations of *Neohelota* species. (26) *Neohelota sonani*, male dorsal view; (27) ditto, ventral view; (28) *N. sonani*, female dorsal view; (29) *N. taiwana*, male, dorsal view; (30) *N. taiwana*, female, ventral view; (31) ditto, dorsal view.

Legs yellowish-brown, with metallic-green tibiae and apical 1/3 of femora; tibia with one brown spot on ventral surface of apical 1/3, tarsi dark brown, claws brown.

Dorsal surface of head randomly and densely punctate, ventral surface with more-prominent punctures. Pronotum 0.64-0.66 times longer than wide, lateral margins with moderate crenulations, narrowed at apex, surface with irregular and dense punctures. Elytra 1.78-1.92 times longer than wide, widest near base, gradually narrowed toward apices, each elytron with a very small apical tooth, apex moderately rounded, each elytron with 10 striae of punctures, surface flat. Thoracic ventrites with random and prominent punctures, reduced medially and basally on metaventrite. Punctures on abdominal ventrites very small. Protibia (Fig. 32B) slightly curved, with a notch at middle of internal edge ventrally, and at apical 1/3 dorsally; with a rounded process at apical 1/4 of internal, dorsal margin. Fifth abdominal ventrite (Fig. 32C) with truncate apical margin, surface with sparse and random fine setae, dense stout setae confined to semicircular area on apical margin; six pairs of long setae surrounding lateral sides. Eighth abdominal tergite (Fig. 32A) transverse, apical margin weakly and medially emarginate. Penis (Fig. 32D) abruptly narrowed near apex, apex rounded, mesial margin truncate, dorsal lobes parallel, narrower than penis, apices acute, notch between connection of dorsal lobes weak, two pairs of sclerotized sclerites behind notch and base respectively. Parameres (Fig. 32E) longitudinal, apically and basally narrowed, middle of apical margin with a moderate and wide notch, ventral surface with sparse short setae; several long setae along outer margin, basal margin truncate. Internal sac (Fig. 32F) with visible sclerites on base, one pair of slender and curved sclerites at sides, one longitudinal sclerite between them, one longitudinal sclerite with internally recurved basolateral apophyses.

Female (Fig. 28): Length 5.9-6.4 mm; width 2.6-2.7 mm. Differing from male by simple and straight protibiae.

Other material examined (81 specimens): 1 ♀, Taiwan: Taoyuan Co., Lalashan, 23 May 1975, leg. M. Satô (RCBAS); 1 ♂, Hsinchu Co., Leedonshan (= Lidungshan), 22 May 2005, leg. Y.L. Lin (RMNH); 1 ♀, Ilan Co., Taiheizan (= Taipingshan), May-July 1934, leg. L. and M. Gresitt (BPBM); 2 ♂♂, 2 ♀♀, same locality as preceding, 1 Apr. 2004, leg. C.F. Lee (NMW); 3 ♂♂, 3 ♀♀, Taichung Co., Anmashan, 20 June 2005,

leg. C.F. Lee (MTD, DEI, ZMHB); 1 ♀, Hassenzan (= Pahsienshan), 3 June 1942, leg. A. Matuura (TARI); 2 ♀♀, Nantou Co., Yushih, 4 July 1986, leg. K. Baba (RCBAS); 1 ♀, Musha (= Wushe)-Sankakuho (= Meifeng), 25 May 1932, leg. J.L. Gressitt (BPBM); 1 ♂, Sungkang-Meifeng, 19 May 1969, leg. S. Hisamatsu (EUMJ); 1 ♀, same locality as preceding, 25-26 May 1972 (EUMJ); 3 ♂♂, 2 ♀♀, Meifeng, 20-22 June 1979, leg. K.S. Lin and B.H. Chen (TARI); 1 ♂, same locality as preceding, 2-4 June 1980, leg. L.Y. Chou and C.C. Chen (TARI); 2 ♀♀, same locality as preceding, 8 June 1980, leg. K.S. Lin and B.H. Chen (TARI); 1 ♂, 4 ♀♀, same locality as preceding, 7-9 May 1981, leg. K.S. Lin and S.C. Lin (TARI);

8 ♂♂, 6 ♀♀, same locality as preceding, 24-26 June 1981, leg. K.S. Lin and W.S. Tang (TARI); 2 ♀♀, same locality as preceding, 22 May 1982, leg. L. Y. Chou (TARI); 1 ♀, same locality as preceding, 15 Aug. 1982, leg. S.C. Lin and S.N. Lin (TARI); 1 ♂, Sungkang, 8 May 1978, leg. N. Yashiro (EUMJ); 1 ♂, 1 ♀, same locality as preceding, 1 Apr. 1971, leg. H. Nomura (EUMJ); 1 ♀, same locality as preceding, 6 Aug. 1984, leg. K. L. Lin (TARI); 1 ♂, same locality as preceding, 15-17 Aug. 1984, leg. K. C. Chou (TARI); 1 ♀, Tsuifeng-Sungkang, 23 Mar. 1977, leg. T. Notsu (EUMJ); 1 ♀, Tsuifeng, 8 May 1981, leg. K.S. Lin and S.C. Lin (TARI); 2 ♂♂, same locality as preceding, 25-27 June 1981, leg. K.S. Lin and W.S. Tang (TARI);

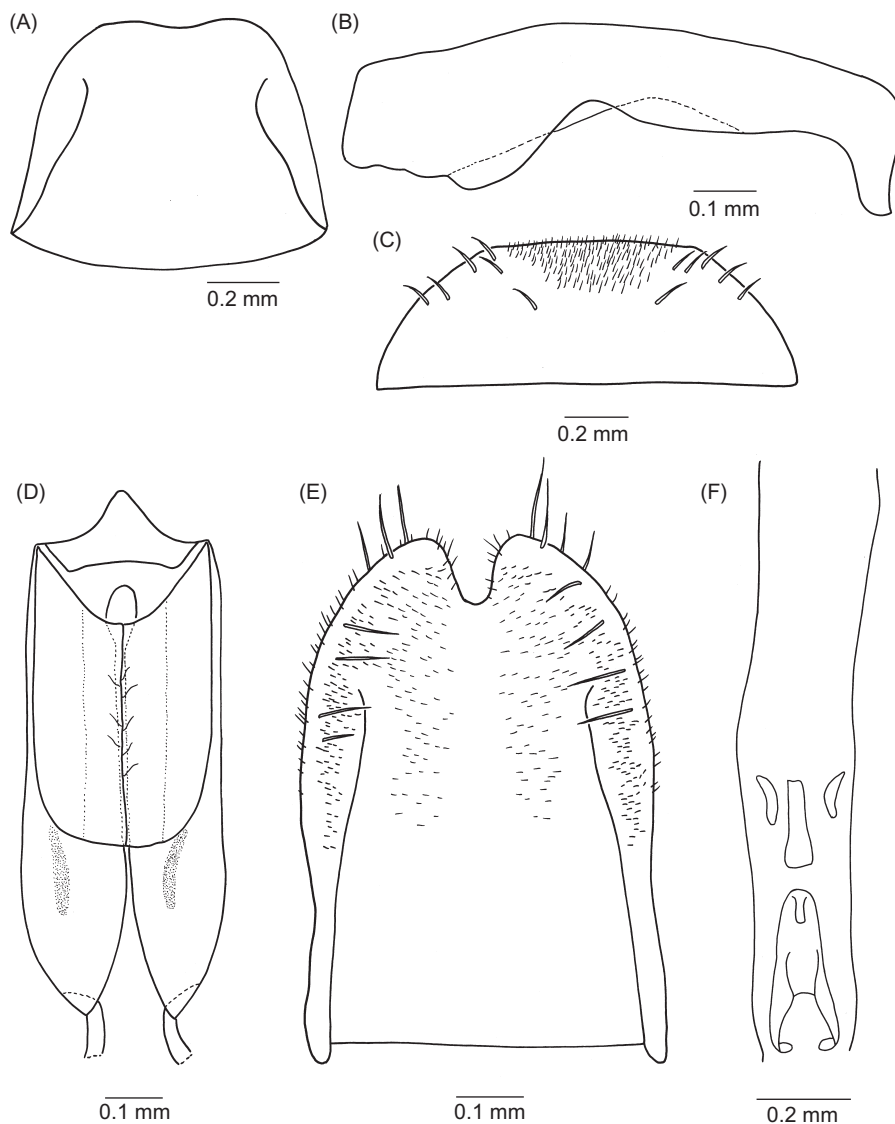


Fig. 32. *Neohelota sonani*. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac.

1 ♀, same locality as preceding, Apr. 1984, leg. K.S. Lin and K. C. Chou (TARI); 1 ♀, same locality as preceding, 15-16 Aug. 1984, leg. K. C. Chou (TARI); 1 ♂, Piluchi, 5 Aug. 1986, leg. K. Baba (RCBAS); 1 ♀, Tungpu, 20-22 June 1980, leg. C. C. Chen (TARI); 1 ♀, Rantaizan (= Lantashan), 20 May 1928, leg. J. Sonan (TARI); 1 ♂, Shitou, 11 May 2005, leg. C.F. Lee (RMNH); 1 ♀, Shanlinchi, 11 May 1990, leg. C.C. Chiang (NMNS); 2 ♀ ♀, Kao-Leng Dyi, 18 km W of Wushe, 24°4.561'N, 121°8.046'E, elev. 1945 m, swept from vegetation, 18-19 Apr. 2002, leg. D. Ansine, Gy. Fábíán and O. Merkl (HNHM); 1 ♀, Chiayi Co., Fenchihu (= Fenchifu), 27 June 1970, leg. Y. Hori (EUMJ); 1 ♂, same locality as preceding, 24 May 1981, leg. K. Sasagawa (EUMJ); 1 ♀, same locality and collector as preceding, 25 May 1981 (EUMJ); 1 ♀, same locality as preceding, 10-12 Apr. 1965, leg. C.M. Yoshimoto and B.D. Perkins (BPBM); 2 ♀ ♀, Arisan (= Alishan), 3 June 1932, leg. Gressitt (BPBM); 1 ♂, same locality as preceding, 26 Apr. 1990, leg. C.C. Chiang (NMNS); 1 ♀, Kaohsiung Co., Taiyuanshan, 10 June 1986, leg. K. Baba (MSNG); 1 ♂, Chuyunshan, 30 May 1986, leg. K. Baba (MSNG); 1 ♂, Tengchih, 7 Apr. 1989, leg. K. W. Huang (NMNS); 1 ♀, same locality as preceding, 15-16 June 2004, leg. C.F. Lee (RCBAS); 1 ♂, Hualien Co., Tayuling, 9-16 June 1980, leg. K.S. Lin and B. H. Chen (TARI); 1 ♀, Pilu, 25 Feb. 1998, leg. C.F. Lee (RCBAS); 2 ♀ ♀, Taitung, Siyangyang, 7 July 2005, leg. C.F. Lee (RMNH).

Diagnosis: See diagnosis of *N. montana*.

Distribution: Taiwan. It is widespread from middle to high elevations (1000-3000 m).

***Neotelota taiwana* (Ohta, 1929b)**

(Figs. 29-31, 33)

Helota taiwana Ohta 1929b: 66; Miwa 1931, 59 (list); Kôno 1939: 159 (list); Wegrzynowicz 2000: 404 (list).
Neotelota taiwana: Kirejtshuk 2000: 30.

Type series: Lectotype ♀ (designated herein): "Formosa Musha, 1919. V 18-VI 15, T. Okuni, J. Sonan, K. Miy., M. Yosh / *Helota taiwana* Ohta Type (red) / *Helota musha* Miwa det. Y. Miwa (manuscript name) / *Helota taiwana* ♀ Ohta det. H. Kôno / *H. taiwana* type ♀" (EIHU); paratypes: 1 female and 1 male: "Formosa Musha, 1919. V 18-VI 15 / T. Okuni, J. Sonan, K. Miy., M. Yosh" (TARI); one of these specimens bears the type label "*Helota taiwana* Ohta Type (red)". Although there are two specimens bearing the type labels at the EIHU, one of them has different collecting

data: "Taiwan S. Issiki". This one cannot be considered a syntype because specimens described by Ohta (1929) were collected by Okun, Sonan, and Miyatake from Musha (= Wushe).

Description: *Male:* Length 5.4-6.1 mm; width 1.8-2.0 mm. Dorsal surface (Fig. 29) dark purplish-bronze, with metallic-green head and scutellum, margins of pronotum and elytra green, antennae yellowish-brown, scape with one metallic-green spot, two apical antennomeres darkened, each elytron with two small yellow spots: anterior one between 4th and 6th striae, posterior one between 3rd and 6th striae. Ventral surface (as in female, Fig. 30) pale yellow, with metallic-green head, proepisternum (excluding internal angles), anterior margin of prosternum, and elytral epipleuron; abdominal ventrite five dark brown. Legs yellowish-brown, with metallic-green tibiae and apical 1/3 of femora; tibia with one brown spot on ventral surface of apical 1/3, tarsi dark brown, claws brown.

Dorsal surface of head randomly and densely punctate; ventral surface with more-prominent punctures. Pronotum 0.77-0.79 times longer than wide, lateral margins with weak crenulations or smooth, narrowed at apex, surface with irregular and dense punctures, abbreviated on subtriangular spots at middle of base. Elytra 2.27-2.38 times as long as wide, subparallel, each elytron with a very small apical tooth, apex moderately rounded, each elytron with 10 striae, surface flat. Thoracic ventrites with random and prominent punctures, reduced medially and basally on metaventrite. Punctures on abdominal ventrites very small. Protibia (Fig. 33B) very slightly curved, internal edge ventrally dilated at apical 1/4, apically dilated. Fifth abdominal ventrite (Fig. 33C) with rounded apical margin, surface with sparse and random fine setae, dense stout setae confined to apical margin; seven or eight pairs of long setae surrounding lateral sides. Eighth abdominal tergite (Fig. 33A) transverse, apical margin weakly emarginate at middle or truncate. Penis (Fig. 33D) abruptly narrowed subapically, apex rounded, mesial margin truncate; dorsal lobes parallel, apices widely rounded, notch between connection of dorsal lobes weak, two pairs of sclerites below notch and base respectively. Parameres (Fig. 33E) elongated and apically narrowed, middle of apical margin with a weak notch, margin with several long setae, ventral surface with sparse long setae confined to apical 1/2 of lateral margins, basal margin truncate. Internal sac (Fig. 33F) with one pair of longitudinal tubelike sclerites apically

conjoined, another pair of slender sclerites near base of tubelike sclerites, apex acute, apex of basal sclerite with dense teeth, basolateral apophyses moderate.

Female (Fig. 30): Length 6.1-6.5 mm; width 2.1-2.2 mm. Differing from male by simple and straight protibiae.

Variation: Northern populations have a deep notch associated with the parameres.

Other material examined (271 specimens): 1 ♀, Taiwan: Taipei Co., Shihting, 10 Sept. 1990, leg. C.C. Chiang (NMNS); 16 ♂♂, 1 ♀, Fushan, 29 Mar. 2004, leg. T. Kurihara (RCBAS); 4 ♂♂, same locality as preceding, 25 Mar. 2003, leg. L. Papp and M. Földvan (HNHM); 3 ♂♂, 3 ♀♀, Wulai, 21 Feb. 2004, leg. Y.L. Lin (RCBAS); 1 ♂,

same locality and collector as preceding, 1 May 2004 (RCBAS); 1 ♂, same locality and collector as preceding, 9 Mar. 1997 (RCBAS); 4 ♂♂, 2 ♀♀, same locality as preceding, 27 Feb. 2004, leg. C.F. Lee (RCBAS); 2 ♂♂, 1 ♀, same locality and collector as preceding, 20 Apr. 2004 (RCBAS); 1 ♀, Neitong Forest Recreation Area, 6 km S of Wulai, swept from vegetation, 7 Apr. 2002, leg. Gy. Fabian and O. Merkl (HNHM); 1 ♀, Ilan Co., Chihtuan, 18 Apr. 1990, leg. C.C. Chiang (NMNS); 1 ♀, Taipingshan, 26-28 Mar. 1983, leg. L. Y. Chou (TARI); 3 ♂♂, 4 ♀♀, Fushan Botanical Garden, 28 Mar. 2004, leg. T. Kurihara (RCBAS); 18 ♂♂, 8 ♀♀, same locality and date as preceding, leg. C.F. Lee (DEI, MTD, RMNH, ZMHB); 2 ♂♂, same locality as preceding, 8-11 Apr. 2002,

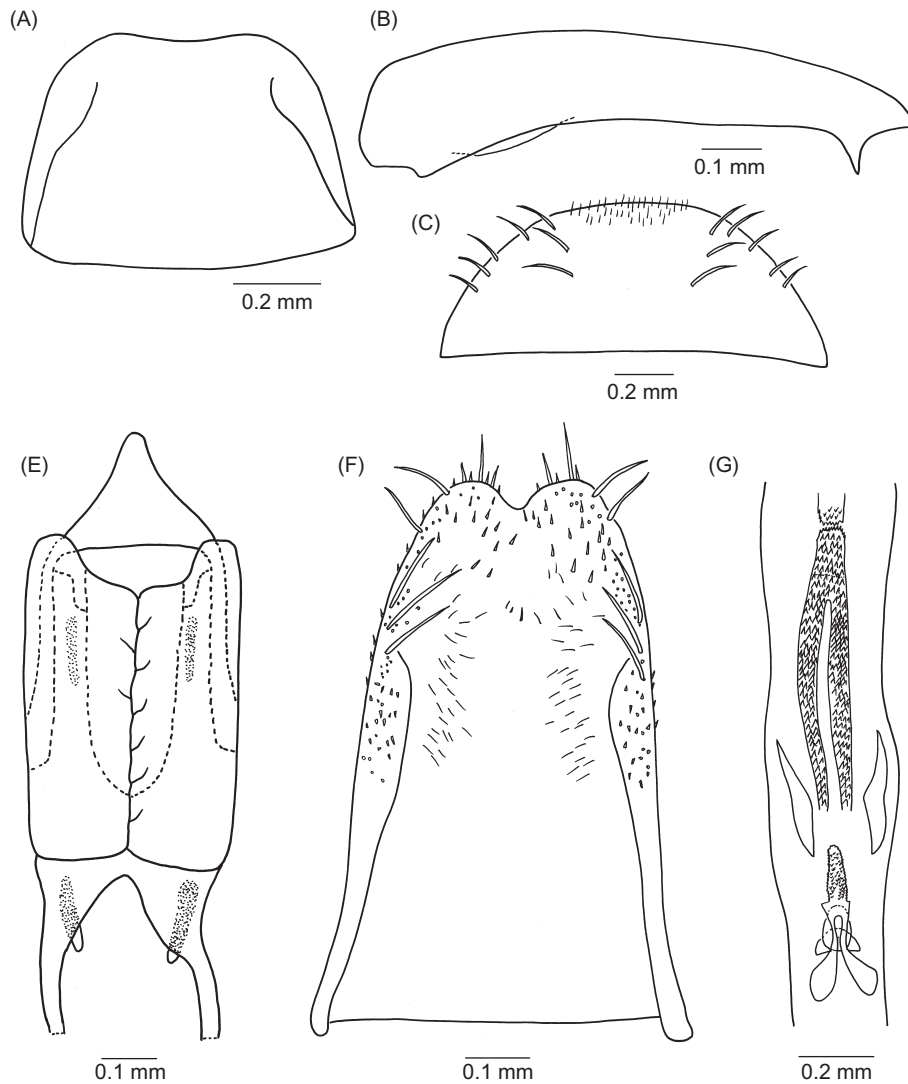


Fig. 33. *Neohelota taiwana*. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac.

leg. O. Merkl (HNHM); 1 ♀, Taoyuan Co., Piyawai, 7 Apr. 1972, leg. B.S. Chang (NMNS); 9 ♂♂, 1 ♀, Junghua, 7 Apr. 1971 (NMNS); 2 ♂♂, same locality and collector as preceding, 11 Mar. 1972 (NMNS); 1 ♂, 1 ♀, Hsileng (= Suleng), 26 Apr. 1982, leg. N. Ohbayashi (EUMJ); 1 ♂, 1 ♀, same locality as preceding, 24 Apr. 1983, leg. B.S. Chang (NMNS); 1 ♂, Palin (=Paling)-Chihtuan, 17 Apr. 1978, leg. N. Yashiro (EUMJ); 2 ♂♂, Pa Lin (= Paling), elev. 1000 m, 22 Apr. 1993, leg. Lo (NMW); 1 ♀, same locality as preceding, 29 May 1977, leg. B.S. Chang (NMNS); 2 ♂♂, 2 ♀♀, same locality as preceding, 31 Mar. 1998, leg. M. Satô (RCBAS); 3 ♂♂, Mingchih, 3 Apr. 2004, leg. C.F. Lee (RCBAS); 2 ♂♂, Hsinchu Co., Leedonshan (= Lidungshan), 22 May 2005 leg. Y.L. Lin (RCBAS); 2 ♂♂, 1 ♀, Miaoli Co., Shihpi, 7 Apr. 1982, leg. B.S. Chang (NMNS); 2 ♀♀, Taichung Co., Techí, 30 Apr. 1982 (EUMJ); 1 ♀, Anmashan, 8 Apr. 2002, leg. Gy. Fábíán (HNHM); 2 ♂♂, Nantou Co., Nan Shan Hsi (= Nanshanchi), 28 Mar. 1992, leg. C. L. Li (NMW); 6 ♂♂, 4 ♀♀, same locality and collector as preceding, 11 May 1993 (NMW); 3 ♂♂, same locality as preceding, 21 Apr. 1978, leg. K. Murakami (EUMJ); 1 ♀, Yushih, 4 July 1986, leg. K. Baba (RCBAS); 2 ♂♂, Meifeng, 2-4 June 1980, leg. L.Y. Chou and C.C. Chen (TARI); 1 ♂, 2 ♀♀, same locality as preceding, 26 Aug. 1980, leg. K.S. Lin and C.H. Wang (TARI); 1 ♂, 1 ♀, same locality as preceding, 5-9 Oct. 1980, leg. C.C. Chen and C.C. Chien (TARI); 1 ♀, same locality as preceding, 28-29 Aug. 1981, leg. L.Y. Chou and S.C. Lin (TARI); 3 ♂♂, Sun Kang (= Sungkang), elev. 1600 m, 17 Apr. 1991, leg. Lo (NMW); 3 ♂♂, same locality and collector as preceding, 28 June 1991 (NMW); 1 ♂, same locality as preceding, 9 May 1978, leg. N. Yashiro (EUMJ); 1 ♂, same locality and collector as preceding, 8 May 1978 (EUMJ); 2 ♂♂, 1 ♀, same locality as preceding, 31 May 1965, leg. B.S. Chang (NMNS); 1 ♂, Tsuifeng, 1-3 Aug. 1981, leg. T. Lin and W.S. Tang (TARI); 1 ♂, 1 ♀, Mong Gwu, 14 km East of Puli, elev. 850 m, swept from vegetation, 20 Apr. 2002, leg. D. A. Anstine, Gy. Fábíán and O. Merkl (HNHM); 1 ♂, Jihyuetan near Puli, 23 Apr. 1978, leg. K. Murakami (EUMJ); 1 ♂, Wushe near Puli, 26 Apr. 1978, leg. K. Murakami (EUMJ); 1 ♂, same locality as preceding, July 1926, leg. Y. Miwa (TARI); 2 ♂♂, same locality as preceding, 1965, leg. Smpule (EUMJ); 1 ♂, Puli (Hori), May-July 1959 (EUMJ); 1 ♂, same locality as preceding, 1953 (BPBM); 1 ♂, same locality as preceding, July 1954, native collector (BPBM); 1 ♂, Lushan spa, 2 May 1982, leg.

N. Ohbayashi (EUMJ); 1 ♂, same locality as preceding, 10 May 1978, leg. N. Yashiro (EUMJ); 1 ♂, Lienhuachih, 6-8 Mar. 2000, leg. C.S. Lin and W.T. Yang (NMNS); 1 ♀, Chiayi Co., Fenchihu (= Fengchifu), 22 June 1968, leg. M. Tomokuni (EUMJ); 1 ♂, 1 ♀, Kaohsiung Co, Fujieda (= Tengchih), 10 June 1977, leg. K. Ushijima (EUMJ); 1 ♂, same locality as preceding, 14 May 2003, leg. H.S. Lin (RCBAS); 6 ♂, 5 ♀♀, Sha Ping (= Shanping), 10 Apr. 1986, leg. K. Baba (RCBAS); 16 ♂♂, 8 ♀♀, Liu Kui (= Liukuei), 28 Mar. 1986, leg. K. Baba (RCBAS); 1 ♂, 1 ♀, same locality and collector as preceding, 15 June 1986 (RCBAS); 2 ♂♂, 4 ♀♀, Nan Feng Shan (= Nanfengshan), 18 Apr. 1986, leg. K. Baba (RCBAS); 1 ♂, same locality and collector as preceding, 1 Oct. 1986 (RCBAS); 1 ♂, 1 ♀, Shyk Shan (= Shihshan), 25 Apr. 1986, leg. K. Baba (RCBAS); 3 ♂♂, Thu Yun Shan (= Chuyunshan), 17 June 1986, leg. K. Baba (RCBAS); 1 ♀, same locality and collector as preceding, 23 Aug. 1986 (RCBAS); 2 ♂♂, Meishan-Tienchi, 29 June 1986, leg. K. Baba (RCBAS); 2 ♂♂, 1 ♀, Tienchi, 29 June 1986, leg. K. Baba (RCBAS); 4 ♂♂, Shi Nan Shan (= Shihnanshan), 4 May 1986, leg. K. Baba (RCBAS); 26 ♂♂, 6 ♀♀, Pingtung Co., Dahanshan, 17 Feb. 2005, leg. Y.L. Lin (RCBAS); 1 ♂, same locality and collector as preceding, 17 Mar. 2005 (RCBAS); 8 ♂♂, 2 ♀♀, same locality and collector as preceding, 21 Apr. 2005 (MSNG); 1 ♂, same locality and collector as preceding, 26 June 2005 (RCBAS); 7 ♂♂, 2 ♀♀, same locality and collector as preceding, 28 July 2005 (RCBAS); 1 ♂, Payuchih, 19 May 2005, leg. Y.L. Lin (MSNG); 1 ♂, Hualien Co., Mizuho (= Juisui), 21 Apr. 1932 leg. L. and M. Gressitt (BPBM); 1 ♂, Taitung Co., Liyuan, 4 Oct. 1986, leg. K. Baba (RCBAS); 1 ♀, Formosa (= TAIWAN), leg. S. Sauter (ZMHB).

Diagnosis: See diagnosis of *N. similis*.

Distribution: Taiwan. This is one of the most common species in Taiwan. It is widespread from low to high elevations (0-3000 m).

***Helota thoracica* Ritsema, 1895**

(Figs. 34-38)

Helota thoracica Ritsema 1895: 49; Ritsema 1905: 217 (list); Ritsema 1911b: 51 (Taiwan); Ritsema 1915: 127 (specimens in Leiden Museum); Miwa 1931: 60 (list); Kôno 1939: 157 (list); Wegrzynowicz 2000: 404 (list); Kirejtshuk 2000: 27..

Helota feae (sic!) ab. *mushana* Ohta 1929a: 109; Miwa 1931: 59 (list). (synonymized by Kôno, 1939)

Type series: Holotype ♀ (automatically fixed by monotypy): "Siào-Lòu Chasseurs indigenes 1894 / *Helota thoracica* ♀ type Rits / Ritsema vidit 1896 / Muséum Paris ex Coll. R Oberthür 1952 / TYPE (red) / *H. thoracica* type Rits (ovipositor mounted on the card) / *thoracica* Rits. Chine" (MNHN).

Synonym: We examined the ♀ holotype of *Helota faei mushana* (automatically fixed by monotypy): "Formosa Musha, 1919 V.18 - VI.15 T. Okuni, J. Sonan, K. Miy., M. Yosh. / *Helota feae* (sic!) ab. *mushana* Ohta Type (red) / *Helota thoracica* Ritsema ♀ det. H. Kôno" (EIHU).

Description: *Male:* Length 12.3-14.6 mm; width 4.8-5.8 mm. Dorsal surface (Fig. 34) blackish-bronze; with yellowish-brown antennae, gradually darkened toward antennomere nine, then gradually more pale toward apical antennomere, sides of pronotum reddish-brown, each elytron with two small yellow spots between 3rd and 8th striae. Ventral surface (Fig. 35) reddish-brown, with bronze head; anterior margin of prosternum, outer margins of proepisternum, and thoracic margins surrounding coxae black, mesepisternum and mesepimeron darkened. Legs reddish-brown, with black trochanters, apices of coxae, apices and bases of femora and tibiae black, tarsi blackish-brown with basal 2/3 of 5th tarsomere and base of claws paler.

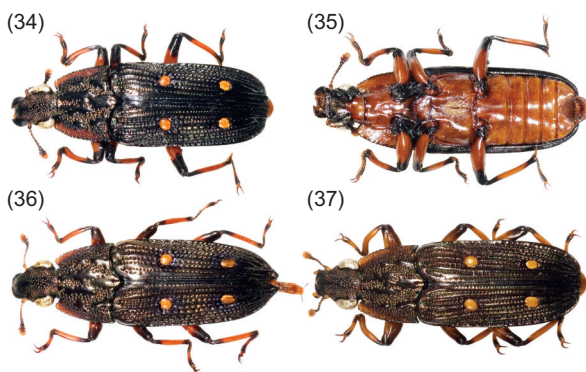
Dorsal surface of head randomly and densely punctate, ventral surface with more-prominent punctures. Pronotum 0.77-0.82 times longer than wide, lateral margins with moderate crenulations, narrowed at apex, surface rugose, with raised patches and regular, prominent punctures. Elytra 1.91-1.94 times longer than wide, parallel, each elytron with a very small sutural tooth, apex widely rounded, each elytron with 10 striae, surface with

three longitudinal carinae, carinae between 2nd and 3rd striae only visible near apices of elytra, apices reaching margins; second one between sixth and seventh striae, third one between eighth and ninth striae, second and third carinae apically reduced. Thoracic ventrites without punctures except for sides of metaventrite, a pair of setal clusters along median longitudinal sulcus of metaventrite. Punctures on abdominal ventrites very small. Protibia (Fig. 38B) slightly curved, internal margin ventrally and apically depressed. Fifth abdominal ventrite (Fig. 38C) depressed at apical 1/3 of apical margin, medially convex, dense stout setae confined to semicircle area along apical 1/3 of apical margin; three pairs of long setae surrounding lateral sides. Eighth abdominal tergite (Fig. 38A) elongate, apical margin weakly pointed at middle. Penis (Fig. 38D) abruptly narrowed near apex, apex truncate, mesial margin arcuate, sides parallel, widened at middle, dorsal lobes widest near apices, gradually narrowed toward base, apices widely rounded, notch between connection of dorsal lobes moderate. Parameres (Fig. 38E) elongate and apically narrowed, middle of apical margin with a weak notch, with several long setae along margin behind apex, ventral surface with dense short setae, basal margin truncate. Internal sac (Fig. 38F) with one longitudinally sclerite at base, one longitudinal cluster of teeth on anterior margin, one pair of lateral expansions at near anterior margin; posterior covered by a Y-shaped sclerite, a number teeth on lateral expansions, one pair of twisted sclerites at basal 1/4, a ringlike sclerite with lateral expansions at base.

Female (Fig. 36): Length 13.4-14.7 mm; width 5.3-5.8 mm. Differing from males by lacking triangular teeth and notch on protibiae, narrower elytral apices, without cluster of hairs on metaventrite.

Variation: The protibiae in males are more curved on Chinese specimens. (Fig. 36).

Other material examined (50 specimens): 1 ♂, China: Jiangxi Prov., Jinggang Shan, Ciping, env. 2-14 June 1994 (NMW); 1 ♂, Taiwan: Taoyuan Co., Pa Lin (= Paling), elev. 1000 m, 22 Apr. 1993, leg. Lo (NMW); 1 ♀, Nantou Co., Nanshanchi, 4 June 1970, leg. Y. Kiyoyama (EUMJ); 1 ♂, same locality and collector as preceding, 3 May 1971 (EUMJ); 2 ♂♂, 2 ♀♀, Puli (= Puli), May-July 1959, bought from J. Ohkura (EUMJ); 1 ♂, same locality as preceding, 23-24 Aug. 1947 (BPBM); 2 ♀♀, same locality as preceding, 1953 (BPBM); 4 ♂♂, 1 ♀, same locality as preceding, June 1954, native collector (BPBM); 5 ♂♂, 2 ♀♀, same locality and collector, July



Figs. 34-37. Habitus illustrations of *Helota thoracica*. (34) Male, dorsal view; (35) ditto, ventral view; (36) female, dorsal view; (37) male from China, dorsal view.

1954 (BPBM); 1 ♂, 1 ♀, Musha (= Wushe), May-June 1960 (EUMJ); 1 ♂, Jenai (= Wushe), 19 June 1968, leg. M Tomokuni (EUMJ); 2 ♀♀, same locality as preceding, 8 July 1994, leg. W.T. Yang (NMNS); 3 ♂♂, 6 ♀♀, Ki-Tou (= Shitou), 13 Oct. 1957, leg. K. S. Lin (TARI); 2 ♂♂, same locality as preceding, 12 Sept. 2001, leg. C.F. Lee (RCBAS); 1 ♂, Meiyuan, 31 May 1965 (NMNS); 2 ♀♀, Kaohsiung Co., Hoozan (= Fengshan), leg. Sauter, / *Feae Rits* (NMW); 1 ♀, same locality and collector as preceding, 21 Aug. 1973; 1 ♂, 1 ♀,

Too Nah (= Tona), 23 July 1986, leg. K. Baba (DEI); 1 ♂, Shih Nan Shan (Chinanshan), 29 Apr. 1986, leg. K. Baba (MTD); 1 ♀, Tengchih, 10 Aug. 2004, leg. H.S. Lin (ZMHB); 1 ♂, Chuyunshan, 30 May 1986, leg. K. Baba (ZMHB); 1 ♂, Hualien Co., Karenko, 20 July- 4 Aug. 1919, leg. T. Okuni, J. Sonan, K. Miy., M. Yosh (TARI); 1 ♂, Formosa (= Taiwan), leg. S. Sauter (ZMHB).

Diagnosis: This is the largest species in Taiwan, and it is characterized by a rugose pronotum and longitudinal carinae on the elytra.

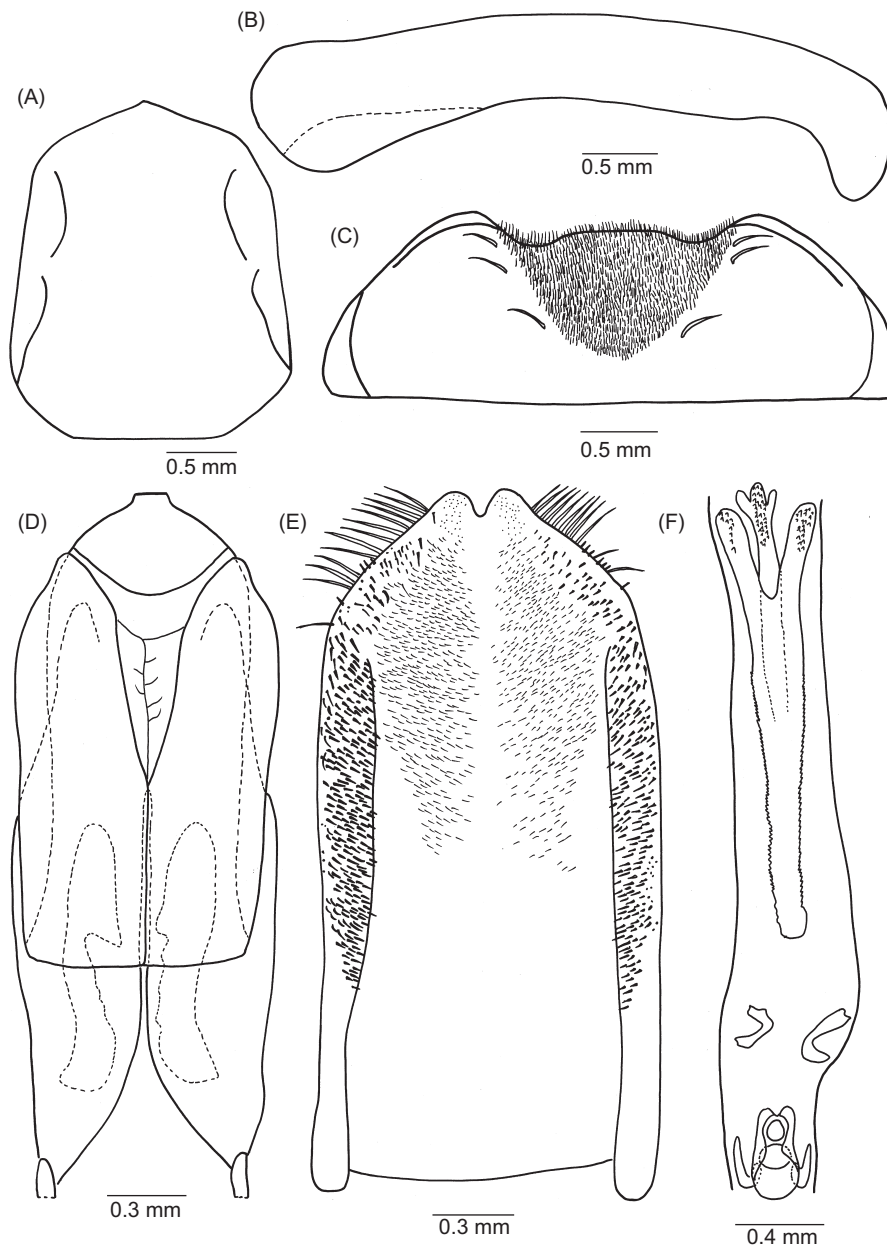


Fig. 38. *Helota thoracica*. (A) Eighth abdominal tergite, ventral view; (B) protibia, dorsal view; (C) fifth abdominal ventrite, dorsal view; (D) penis, dorsal view; (E) parameres, ventral view; (F) internal sac

Distribution: China (Tibet, Sichuan, Jiangxi - new record), Vietnam, and Taiwan. It is widespread at low and middle elevation (0-1500 m) in Taiwan.

Species removed from the Taiwanese fauna

The following species are considered to be “Shiraki specimens” (Kurosawa 1980a b 1981, Chu and Hsiao 1981) based on several facts: the collecting dates are not clearly indicated, they are not described originally from Taiwan, and no other conspecific specimens have been found so far. Therefore, these species are officially removed from the Taiwanese fauna.

Most of Shiraki specimens are deposited in the Taiwan Agricultural Research Institute (TARI). Only a few families have been examined so far, such as the Eucnemidae and Elateridae (Suzuki 2002), so more may occur in other families.

Helota oberthueri Ritsema, 1889

(Figs. 39, 42)

Helota Oberthüri Ritsema 1889: 100; Ritsema 1891: 224 (key); Ritsema 1894: 97 (Assam); Ritsema 1911a: 106 (list); Ritsema 1915: 128 (specimens in the Leiden museum); Kôno 1939: 157 (after Miwa); Wegrzynowicz 2000: 401 (list).

Helota oberthuri (sic!): Miwa 1931: 60 (Taiwan); Kirejtshuk 2000: 27.

Specimens examined: 1 ex.: “Rônô Formosa VII.1922, Col. T. Shiraki / *Helota oberthuri* Ritsema / *Helota oberthuri* Ritsema DET. Y. MIWA” .

Distribution: India, China, and Bhutan.

Metahelotella semifulva (Ritsema, 1881)

(Figs. 40, 43)

Helota semifulva Ritsema 1881: 80; Ritsema 1889: 111 (list); Ritsema 1891: 228 (key); Ritsema 1909: 182 (key); Ritsema 1911a: 106 (list); Ritsema 1915: 136 (specimens



Figs. 39-44. Habitus illustrations and labels associated with helotid species belonging to the “Shiraki specimens”. (39) Habitus of *Helota oberthueri*; (40) habitus of *Metahelotella semifulva*; (41) habitus of *H. sinensis*; (42) labels of *H. oberthueri*; (43) labels of *M. semifulva*; (44) labels of *H. sinensis*.

in the Leiden museum); Miwa 1931: 60 (Taiwan); Kôno 1939: 160 (after Miwa); Wegrzynowicz 2000: 403 (list).
Metahelotella semifulva: Kirejtshuk 2000: 30.

Specimens examined: 1 ex.: “Koshun Formosa VII.1923, Col. T. Shiraki / *Helota semifulva* Ritsema / *Helota semifulva* Ritsema DET. Y. MIWA” (TARI).

Distribution: Indonesia (Java).

***Helota sinensis* Oliff, 1883**
 (Figs. 41, 44)

Helota sinensis Oliff 1883: 54; Ritsema 1889: 111 (list); Ritsema 1891: 226 (key); Ritsema 1911a: 106 (list); Ritsema 1915: 131 (Leiden museum), Miwa 1931: 60 (Taiwan); Kôno 1939: 158 (after Miwa); Wegrzynowicz 2000: 403 (list); Kirejtshuk 2000: 27.

Specimens examined: 1 ex.: “Horisha Formosa III. 1929, Col. T. Shiraki / *Helota sinensis* Oliff DET. Y. MIWA / *Helota sinensis* Oliff det. H.

Kôno”.

Distribution: China.

Key to helotid species from Taiwan

1. Body longer than 12.0 mm (Fig. 45I); pronotum rugose with raised patches *Helota thoracica* Ritsema
- 1a. Body smaller than 12.0 mm (Figs. 54A-H); pronotum finely and evenly punctate, without raised patches 2
2. Tibiae metallic-green, yellowish-brown along apical 1/3 ... 3
- 2a. Tibiae entirely metallic-green 6
3. Antero lateral angles of pronotum paler (yellowish-brown); proepisternum and prosternum yellowish-brown 4
- 3a. Pronotum concolorous; proepisternum metallic-green, prosternum yellowish-brown 5
4. Body longer (9.3-10.3 mm); elytra more slender (2.30-2.36x longer than wide) *Neohelota helleri* (Ritsema)
- 4a. Body smaller (5.5-6.5 mm); elytra wider (1.78-1.92x longer than wide) *N. sonani* (Ohta)
5. Crenulations on lateral margins of pronotum moderate; male protibiae with one prominent notch on internal margin (Fig. 25B) *N. similis* sp. nov.
- 5a. Crenulations on lateral margins of pronotum weak or reduced; male protibiae without notches on internal mar-

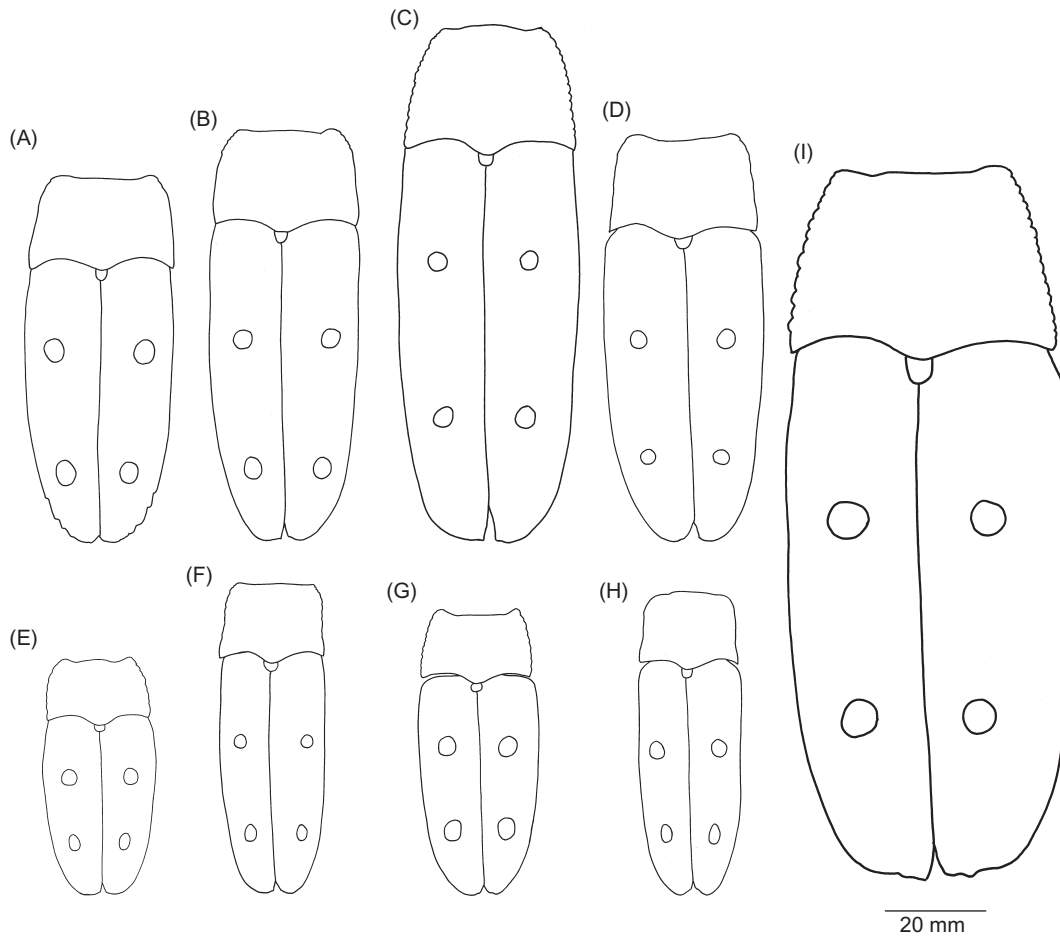


Fig. 45. Relative lengths of helotid species at the same scale. (A) *Neohelota babai* sp. nov.; (B) *N. chunlini* sp. nov.; (C) *N. helleri*; (D) *N. lini* sp. nov.; (E) *N. montana*; (F); *N. similis* sp. nov.; (G) *N. sonani*; (H) *N. taiwana*; (I) *Helota thoracica*.

- gin (Fig. 33B) *N. taiwana* (Ohta)
6. Pronotum concolorous; prosternum and proepisternum metallic-green; body smaller (Fig. 45E)
..... *N. montana* (Ohta)
- 6a. Antero-lateral angles of pronotum paler (yellowish-brown); prosternum and proepisternum yellowish-brown; body larger (Figs. 45A, B, D) 7
7. Apical margins of elytra smooth *N. lini* sp. nov.
- 7a. Apical margins of elytra serrate 8
8. Elytral apices remotely serrate *N. chunlini* sp. nov.
- 8a. Elytral apices densely serrate *N. babai* sp. nov.

Acknowledgments: We thank Yu-Long Lin and Chun-Lin Li (Taipei), Kuo-Sheng Hsu (Pingtung), Sheng-Jhih Lyu (Kaoshiung), Mei-Ling Chan (NMNS), Shen-Shan Lu (TFRI), Masahiro Ôhara (EIHU), Hsien-Tzung Shih (TARI), Otto Merkl (HNHM), Bern Jäger (ZMHB), Fred van Assen (RMNH), and Olaf Jäger (MTD) for loans of type specimens and unidentified materials. We also thank Ming-Luen Jeng who examined types at the Paris Museum (MNHN). Finally, we thank Chen-Tsung Chiu for taking beautiful photographs of these beetles. Financial support of the Academia Sinica for the distinguish postdoctoral fellowship ward is gratefully acknowledged.

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