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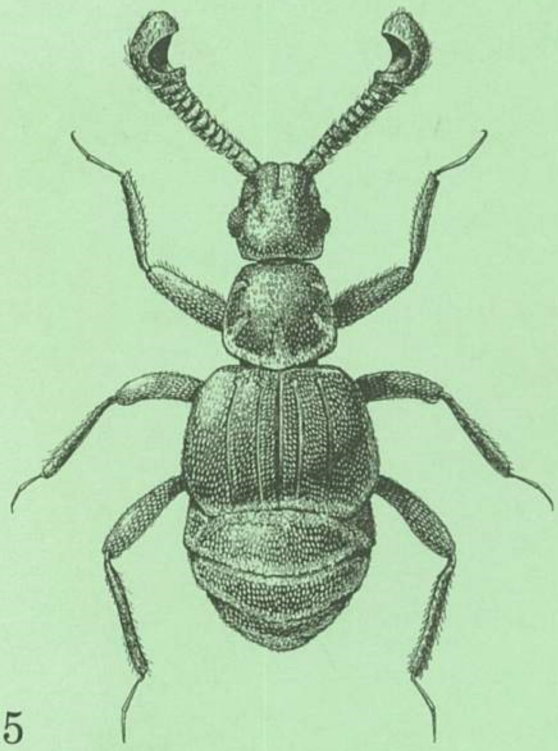

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TOKYO

ELYTRA

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[*del.* Shûhei NOMURA]

Elytra, *Tokyo*, **25** (1): 1–5, May 15, 1997

Calyptopygus kumei (Coleoptera, Curcul a New Species of Baridine Weevi from Japan and Taiwan[1)]

Kazumi YOSHIHARA

Gakunan-chô 1–8–35, Okayama, 700 Japan

and

Katsura MORIMOTO

Entomological Laboratory, Faculty of Agriculture
Kyushu University, Fukuoka, 812–81 Japan

Abstract *Calyptopygus kumei*, a new baridine weevil captu Cyperaceae is described from Japan and Taiwan as a second specie tographs of habitus and illustrations of taxonomically important chara genitalia are provided.

The genus *Calyptopygus* was erected by MARSHALL (1948 SHALL from Northeast Burma in the subfamily Baridinae. The *kumei* sp. nov. is a second species of this genus, and feeds on a on Okinawa Is., Southwest Japan.

The weevils examined were kindly offered to us by Messr and I. MATOBA. Mr. H. KOJIMA also took photographs of the sp To these entomologists we wish to express our hearty thanks for

YOSHIHARA also wishes to express his sincere gratitude YANO of the Laboratory of Insect Management, Yamaguchi U kind guidance this study was carried out.

Calyptopygus kumei sp. nov.

(Figs. 1–12)

Length: 3.1–3.8 mm. Width: 1.2–1.5 mm.

Elytra, Tokyo, **25** (1): 1–5, May 15, 1997

Calyptopygus kumei (Coleoptera, Curculionidae), a New Species of Baridine Weevil from Japan and Taiwan[1)]

Kazumi YOSHIHARA

Gakunan-chô 1–8–35, Okayama, 700 Japan

and

Katsura MORIMOTO

Entomological Laboratory, Faculty of Agriculture,
Kyushu University, Fukuoka, 812–81 Japan

Abstract *Calyptopygus kumei*, a new baridine weevil captured on a grass of the Cyperaceae is described from Japan and Taiwan as a second species of the genus. Photographs of habitus and illustrations of taxonomically important characters including male genitalia are provided.

The genus *Calyptopygus* was erected by MARSHALL (1948) for *C. ellipticus* MARSHALL from Northeast Burma in the subfamily Baridinae. The present new weevil, *C. kumei* sp. nov. is a second species of this genus, and feeds on a grass of the Cyperaceae on Okinawa Is., Southwest Japan.

The weevils examined were kindly offered to us by Messrs. K. KUME, H. KOJIMA and I. MATOBA. Mr. H. KOJIMA also took photographs of the specimens for this study. To these entomologists we wish to express our hearty thanks for their cooperation.

YOSHIHARA also wishes to express his sincere gratitude to Emeritus Prof. K. YANO of the Laboratory of Insect Management, Yamaguchi University, under whose kind guidance this study was carried out.

Calyptopygus kumei sp. nov.

(Figs. 1–12)

Length: 3.1–3.8 mm. Width: 1.2–1.5 mm.

Male. Shiny black; antennae, tarsi and claws dark reddish brown.

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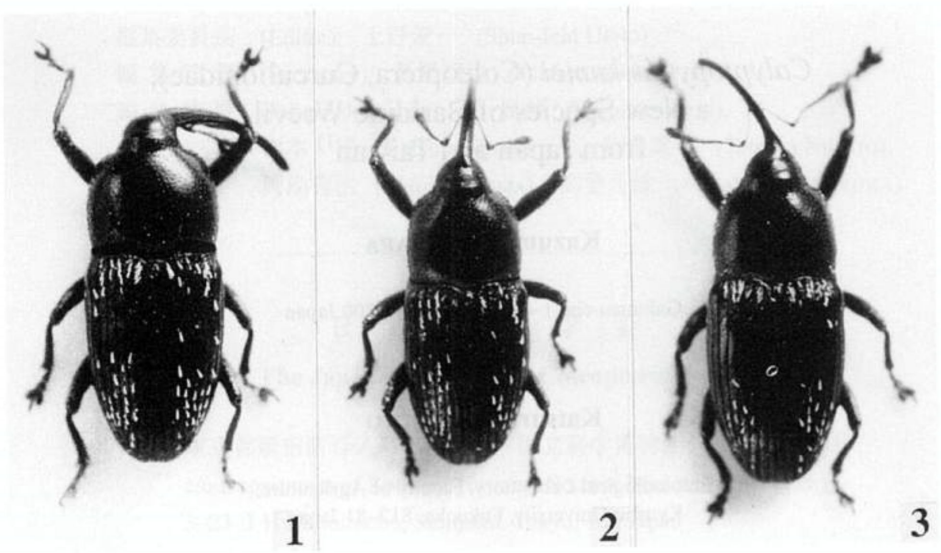
1) Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 4, No. 92).



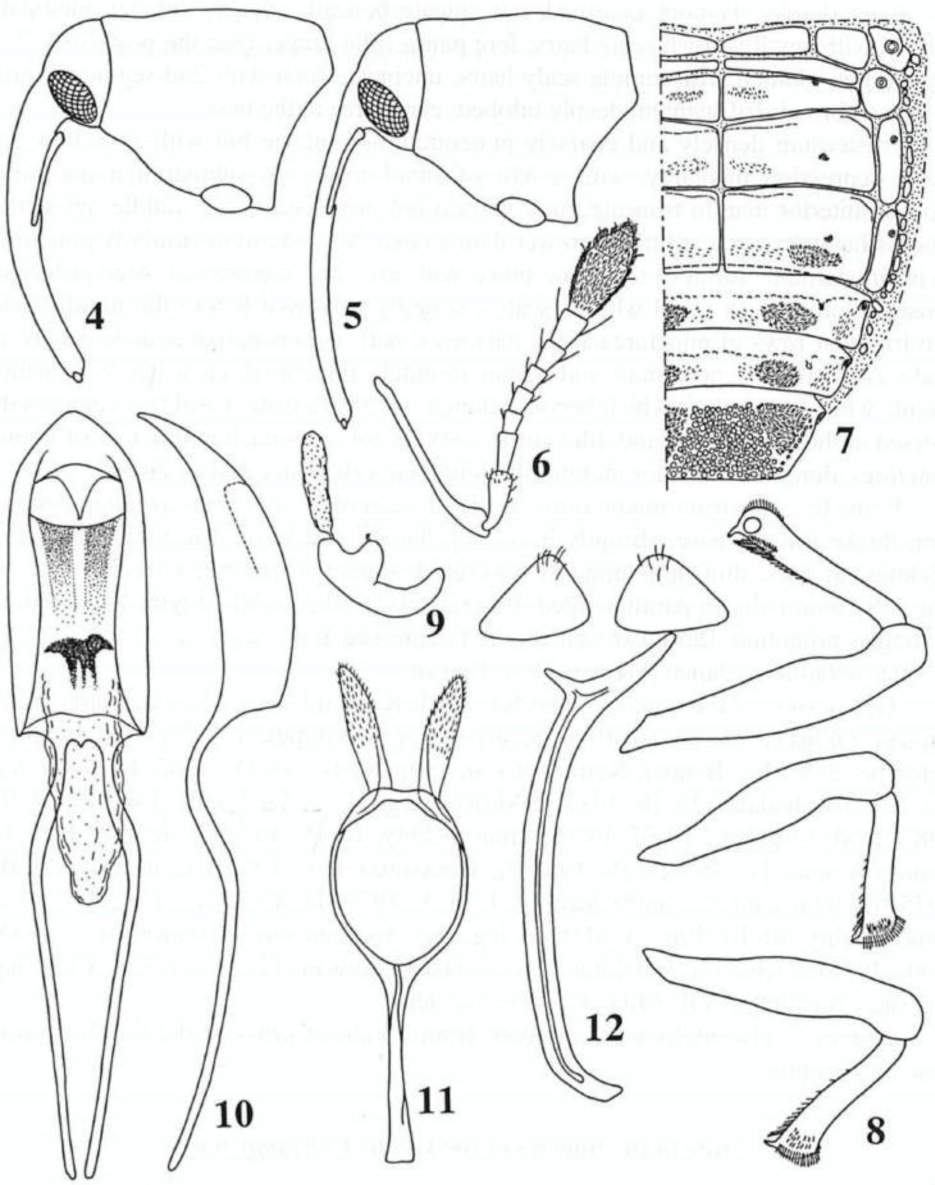
Figs. 1–3. *Calyptopygus kumei* sp. nov.; 1, male; 2, ditto, smaller specimen; 3, female.

Head minutely punctured, forehead between eyes as broad as the base of rostrum. Rostrum separated from head only by a shallow indistinct impression, cylindrical, 1.4 times as long as pronotum, evenly and weakly curved, subequal in thickness in basal 1/3, then gradually tapering dorso-ventrad toward the apex, coarsely punctured, the punctures longitudinally confluent forming irregular sulci on dorsal and lateral surfaces. Antennae inserted slightly behind the middle of rostrum; scape abruptly clavate at apex; funicle with 1st segment about 1.5 times as long as the 2nd, 2nd segment 2.5 times as long as broad and twice as long as the 3rd, 3rd to 5th subequal in length, each slightly longer than broad, 6th and 7th each a little longer than 5th; club oval, evenly pubescent, nearly as long as 5th to 7th segments of funicle combined, basal segment more than half the total length.

Pronotum a little wider than long (9 : 8), widest at 1/4 from the base, the sides evenly rounded from base to near apex, then rather abruptly constricted, forming tubulate anterior margin (in smaller males, the sides of pronotum are more weakly rounded, making its shape somewhat similar to that of female); anterior margin truncate, half as wide as basal margin which is shallowly bisinuate; disc with minute punctures, interstices between them much broader than the diameter, median impunctate line indistinct.

Scutellum trapezoidal, nearly as long as broad.

Elytra slightly wider than prothorax, 1.6 times as long as wide and 1.8–1.9 times as long as pronotum, nearly parallel-sided from humeri to apical 1/3, then narrowing posteriorly in a weak curve, subapical calli obsolete, striae narrow, intervals flat, each with a row of minute punctures, basal area of 2nd–7th intervals with one or two rows



Figs. 4–12. *Calyptopygus kumei* sp. nov.—— 4, Head and prothorax, lateral view, male; 5, ditto, female; 6, antenna; 7, tergite; 8, femora and tibiae; 9, spermatheca; 10, aedeagus; 11, tegmen and parameres; 12, spiculum gastrale.

of and apical half of 3rd–7th intervals with a row of sparse whitish scales.

Legs slender. Femora unarmed, not sulcate beneath, weakly swollen medianly, clothed with small whitish scaly hairs; fore pair a little longer than the posteriors. Tibiae straight, clothed with minute scaly hairs, uncinate. Tarsi with 2nd segment nearly as long as broad, 3rd segment deeply bilobed; claws free at the base.

Prosternum densely and coarsely punctured, not sulcate but with a shallow and broad depression medianly, with a pair of small foveae in submarginal transverse groove; anterior margin truncate, hind margin not produced in the middle; prosternal process between coxae a little narrower than a coxa. Mesosternum similarly punctured as in prosternum, forming the same plane with pro- and metasterna. Metepisternum densely clothed with small whitish scales, strongly narrowed before the middle, with two irregular rows of punctures at the narrowest part; metepisternal sutures evenly arcuate externally. Metasternum and venter minutely punctured, each puncture with a minute whitish scaly hair which becomes longer on 5th ventrite, basal two ventrites depressed at the middle, 3rd and 4th ventrites except for sides each with a row of minute punctures along the posterior margin. Pygidium entirely concealed by elytra.

Female. Rostrum much more slender than in male, 1.6 times as long as pronotum, thickest at the base, abruptly becoming thinner just beyond it, then subequal in thickness to apex, shiny and minutely punctured. Antennae inserted at basal 1/3 of rostrum. Pronotum almost parallel-sided from the base to the middle. Elytra 1.9–2.0 times as long as pronotum. Basal two ventrites not depressed at the middle.

Distribution. Japan (Okinawa Is.), Taiwan.

Type series. Holotype: ♂ (Type No. 3003, Kyushu Univ.), Mt. Takôyama, Yomitan-son, Okinawa Is., 23–III–1986, K. KUME leg. Paratypes: 1 ♂, 7 ♀♀, same data as holotype; 2 ♂♂, 1 ♀, Benoki, Kunigami-son, Okinawa Is., 14–IV–1985, K. KUME leg.; 1 ♀, Mt. Yonahadake, 28–III–1987, I. MATOBA leg.; 4 ♂♂, 5 ♀♀, same locality, 29–III–1987, I. MATOBA leg.; 13 ♂♂, 13 ♀♀, same locality, 16–IV–1991, H. KOJIMA leg.; 1 ♂, Yona, Okinawa Is., 25~28–IV–1965, S. HIRASHIMA leg.; 1 ♀, same locality, 24–III–1975, K. ISHII leg.; 1 ♂, same locality, 1~3–V–1976, H. TAKIZAWA leg.; 4 ♂♂, 4 ♀♀, same locality, 30–III–1987, I. MATOBA leg.; 1 ♂, Yomitan-son, Okinawa Pref., 18–IV–1986, T. GOTÔ leg.; 1 ♀, Fenchihu, Chia-yi Hsien, Taiwan, 12–IV–1965, S. UÉNO leg.; 1 ♂, same locality, 8–VII–1965, Y. KUROSAWA leg.

Biology. The adults were captured from a kind of grass of the family Cyperaceae by sweeping.

Key to the Species of the Genus *Calyptopygus*

1(2) Antennae inserted slightly beyond the middle of rostrum in both sexes. Antennae with 4th to 7th segments of funicle transverse. Elytra bare. Fore tibiae each with a small triangular tooth on the lower edge a little beyond the middle in male. Northeast Burma. . . . . *C. ellipticus* MARSHALL

2(1) Antennae inserted slightly behind the middle of rostrum in male, basal 1/3 of

rostrum in female. Antennae with 4th to 7th segments of funicle each longer than broad. Elytra scaled in the basal area in apical half. Fore tibiae not armed with teeth in both sexes. Japan (Okinawa Is.), Taiwan. . . . . *C. kumei* sp. nov.

要　約

吉原一美・森本　桂：日本および台湾産ヒメゾウムシ亜科の1新種．—— 沖縄本島および台湾で，カヤツリグサ科植物から採集されたヒメゾウムシ亜科甲虫を，*Calyptopygus* 属の第2の種，*C. kumei* として記載した．この属には従来，北東ビルマ産の1種 *C. ellipticus* MARSHALL のみが知られており，日本からは今回初めて記録される．本新種は触角中間節の第4～7節が縦長であること，上翅の基部と先半分にまばらに白色鱗片を装うこと，雌雄とも前脛節に歯状突起を持たないこと，などによって既知種 *C. ellipticus* と区別できる．

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MARSHALL, G. A. K., 1948. Entomological results from the Swedish Expedition 1934 to Burma and British India. Coleoptera, Curculionidae. *Novit. zool.*, **42**: 397–473.

MORIMOTO, K., & K. YOSHIHARA, 1996. On the genera of the Oriental Baridinae (Coleoptera, Curculionidae). *Esakia*, *Fukuoka*, (36): 1–59.

Elytra, *Tokyo*, **25** (1): 5–6, May 15, 1997

Occurrence of *Anthinobaris shirozui* (Coleoptera, Curculionidae) in the Ryukyu Islands, Southwest Japan

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and

Katsura MORIMOTO

Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, 812–81 Japan

Anthinobaris shirozui (MORIMOTO) was originally described on the basis of 10 specimens collected by Dr. T. SHIRÔZU in Central Taiwan. No additional record of the species has been

published thereafter. In the course of YOSHIHARA's revisional study on the Japanese Baridinae, we found that this species is distributed also in the Ryukyu Islands, Southwest Japan. It is new to the Japanese fauna, and the collecting data will be shown below.

Most of the specimens examined are in the collection of the Entomological Laboratory, Kyushu University; the remainings were offered to the senior author by Messrs. M. KANEDA, H. KOJIMA and Y. NOTSU, to whom we wish to express deep gratitude for their kindness.

Anthinobaris shirozui (MORIMOTO, 1965)

Baris shirozui MORIMOTO, 1965, Spec. Bull. lep. Soc. Japan, (1): 45, fig. 6 (Keitô, C. Taiwan).
Anthinobaris shirozui: MORIMOTO & YOSHIHARA, 1996, Esakia, Fukuoka, (36): 32.

Specimens examined. [Okinawa Is.] 3 ♂♂, Yona, 17–VII–1965, Y. HORI leg. [Miyako-jima Is.] 5 ♂♂, 4 ♀♀, Hirara City, 10–V–1984, M. KANEDA leg.; 6 ♂♂, 1 ♀, Miyako-jima Is., 29–VI–1965, Y. HAYASHI leg.; 3 ♀♀, same locality and collector, 30–VI–1965. [Ishigaki-jima Is.] 2 ♂♂, 2 ♀♀, Hirano, 17–V–1990, H. KOJIMA leg.; 2 ♀♀, Mt. Omotodake, 13–VI–1974, T. MIKAGE leg.; 2 ♂♂, 2 ♀♀, same locality, 14–VI–1975, S. KIMOTO leg.; 8 ♂♂, same locality, 16–VI–1977, H. IRIE leg.; 2 ♀♀, same locality and collector, 19–VI–1977; 2 ♀♀, same locality, 23~26–V–1990, K. MORIMOTO leg. [Iriomote-jima Is.] 1 ♂, Tedoudake, 24–V–1975, Y. NOTSU leg.; 5 ♂♂, 2 ♀♀, Shirahama, 18~19–V–1975, Y. NOTSU leg.; 1 ♂, 2 ♀♀, Ôtomi, 12–IV–1969, H. MAKIHARA leg.; 1 ♂, same locality and collector, 25–IV–1969; 4 ♂♂, 3 ♀♀, same locality and collector, 27–IV–1969; 1 ♀, Hoshidate, 8–VIII–1962, M. SATÔ & Y. ARITA leg.; 2 ♂♂, 1 ♀, Ôhara, 7–V–1973, I. FUJIYAMA leg.; 1 ♂, Mt. Goza, 16–IV–1969, H. MAKIHARA leg. [Yonaguni-jima Is.] 4 ♂♂, 2 ♀♀, Tabarugawa, 11–V–1963, Y. ARITA leg.; 2 ♂♂, 1 ♀, Tendabana, 13–V–1963, Y. ARITA leg. [Hateruma-jima Is.] 1 ♂, Hateruma-jima Is., 22~24–VI–1977, H. IRIE leg.

Distribution. Japan (Ryukyus: Okinawa Is., Miyako-jima Is., Ishigaki-jima Is., Iriomote-jima Is., Yonaguni-jima Is., Hateruma-jima Is.) (new records); Taiwan.

Biological note. Mr. KOJIMA captured adults of this species from the flowers of the Rosaceae on Ishigaki-jima Is. (KOJIMA, pers. comm.). However, its larval host plant is unknown.

Remarks. *Anthinobaris kiboshi* (NAKANE) also occurs in the Ryukyu Islands and can be collected on flowers. The present species is similar to *A. kiboshi*, but the scaly patterns on the elytra are characteristic (cf. MORIMOTO, 1965, p. 44, fig. 6).

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——— & K. YOSHIHARA, 1996. On the genera of the Oriental Baridinae (Coleoptera, Curculionidae). *Esakia, Fukuoka*, (36): 1–59.

Elytra, Tokyo, **25** (1): 7–11, May 15, 1997

The Anthribid Beetles of the Genus *Xenocerus* (Coleoptera, Anthribidae) from Thailand[1)]

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Abstract Six species of the anthribid genus *Xenocerus*, *X. saperdoides* GYLLENHAL, *X. birmanicus* JORDAN, *X. lineatus* JORDAN, *X. khasianus dives* JORDAN, *X. timius* JORDAN and *X. salamandrinus* JORDAN, are recorded from Thailand. Four of them, *saperdoides*, *birmanicus*, *lineatus*, *khasianus dives*, are newly recorded from there.

The genus *Xenocerus* is the largest group in the Anthribidae, comprising about one hundred species known up to the present, which are distributed in the Oriental Region and the northern part of the Australian Region.

These numerous species are divided into several natural groups mainly discriminated by difference in structure of the male antennae. It is, however, not always easy to place a species in a proper group, if it is known only from females (cf. JORDAN, 1894, 1945).

In Thailand, two species, *X. timius* JORDAN and *X. salamandrinus* JORDAN, have been recorded up to the present (cf. JORDAN, 1945; SENOH, 1995).

I recently had an opportunity to examine a series of Thai specimens of the *Xenocerus*. They are classified into seven species including *X. timius*, *X. salamandrinus* and one unidentifiable species which is very close to *X. khasianus*, the last one of which, collected at Surat Thani, the peninsular part of Thailand, is known only from a single female specimen. I would like to describe it when further specimens including males are collected.

Before going further, I wish to express my sincere gratitude to Professor Y. WATANABE of the Laboratory of Entomology, Tokyo University of Agriculture, Professor K. MORIMOTO of the Entomological Laboratory, Kyushu University, and Dr. S.-I. UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for their constant guidance and encouragement. I am much indebted to Dr. W. SUZUKI, and Messrs. T. SHIMOMURA, M. NISHIMURA and M. HASEGAWA for their kindness in providing me with valuable specimens, and to Dr. A. LEWVANICH, Mrs. S. CHUNRAM, Dr. V. ROJANAVONGSE and Dr. M. TITAYAVAN in Thailand for loan of the specimens used in this study.

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1) This study is supported in part by the Study Leave System for Teachers of Chuo University High Schools.

Xenocerus saperdoides GYLLENHAL, 1833

Xenocerus saperdoides GYLLENHAL, 1833, in SCHÖNHERR, Gen. Spec. Curc., **1**: 118 (Java). —— LABRAM & IMHOFF, 1842, Gen. Curc., **1**: 36. —— GEMMINGER & HAROLD, 1872, Cat. Coleopt., (9): 2740 (Java). —— BOVIE, 1906, Annls. Soc. ent. Belg., **49**: 285 (Java). —— JORDAN, 1913, Novit. zool., **20**: 268 (Java); 1928, ibid., **34**: 101 (1 ♀, Selangor; 1 ♀, Kedah). —— WOLFFRUM, 1929, Coleopt. Cat., (102): 70 (Java, Selangor).

Xenocerus simplex JORDAN, 1894, Novit. zool., **1**: 637 (N. Borneo); 1923, Fn. ent. Indochine, Saigon, **6**: 101 (1 ♂, Cochinchine).

Xenocerus saperdoides simplex: JORDAN, 1913, Novit. zool., **20**: 268 (1 ♂, Borneo; 1 ♂, 1 ♀, Sumatra; 1 ♂, Nias). —— WOLFRUM, 1929, Coleopt. Cat., (102): 70 (Borneo, Sumatra, Malay Halbinsel).

Specimens examined. 1 ♂, Ban Lamo, Trang, S. Thailand, 15~19–VI–1981, T. SENOH leg.; 1 ♀, Nam Tok Pliw, Thung Song, Nakhon Si Thammarat, S. Thailand, 13~15–VIII–1993, T. SENOH leg.; 1 ♀, Doi Suthep, Chiang Mai, N. Thailand, 7–VI–1980, T. SENOH leg.; 1 ♂, ditto, 29–VI–1983, T. SENOH leg.; 1 ♂, 4 ♀♀, ditto, 23~24–VI–1993, T. SENOH leg.; 1 ♀, Chiang Dao, Chiang Mai, N. Thailand, 18–V–1980, T. SENOH leg.; 1 ♀, Sam Ngaw, Tak, N. Thailand, 29–VI–1959, Chua leg.

Distribution. Thailand (new record), West Malaysia, Sumatra, Nias, Java, Borneo.

Notes. This species varies geographically in markings of the elytra. The specimens from Trang and Nakhon Si Thammarat, the peninsular part of Thailand, agree exactly with topotypical, or Javan ones. The population of the northern part of Thailand, however, differs from topotypical ones in the following characteristics: basal yellowish circular patch of each elytron not extending to post-median transverse band.

Xenocerus birmanicus JORDAN, 1903

Xenocerus birmanicus JORDAN, 1903, Novit. zool., **10**: 429 (3 ♀♀, Burma); 1923, Fn. ent. Indochine, Saigon, **6**: 100 (2 ♂♂, 4 ♀♀, Laos). —— BOVIE, 1906, Annls. Soc. ent. Belg., **49**: 283 (Birmanie). —— WOLFRUM, 1929, Coleopt. Cat., (102): 68 (Birma, Laos).

Specimens examined. 1 ♂, 2 ♀♀, Nam Tok Mae Kasa, Tak, NW Thailand, 12–VII–1993, T. SENOH leg.; 1 ♂, Nam Tok Phacharoen, Tak, NW Thailand, 18–VII–1993, T. SENOH leg.

Distribution. Burma, Thailand (new record), Laos.

Xenocerus lineatus JORDAN, 1894

(Fig. 1)

Xenocerus lineatus JORDAN, 1894, Novit. zool., **1**: 647 (1 ♂, Assam). —— BOVIE, 1906, Annls. Soc. ent. Belg., **49**: 284 (Assam). —— WOLFURM, 1929, Coleopt. Cat., (102): 69 (Assam).

Specimens examined. 2 ♂♂, Doi Suthep, Chiang Mai, N. Thailand, 23–VI–1993, T. SENOH leg.; 1 ♀, ditto, 17–VI–1989; 1 ♂, ditto, 18–VIII–1992, M. HASEGAWA leg.; 1 ♀, Mt. Doi Pui (1,400–1,500 m alt.), Chiang Mai, N. Thailand, 15–V–1982, T. SHI-

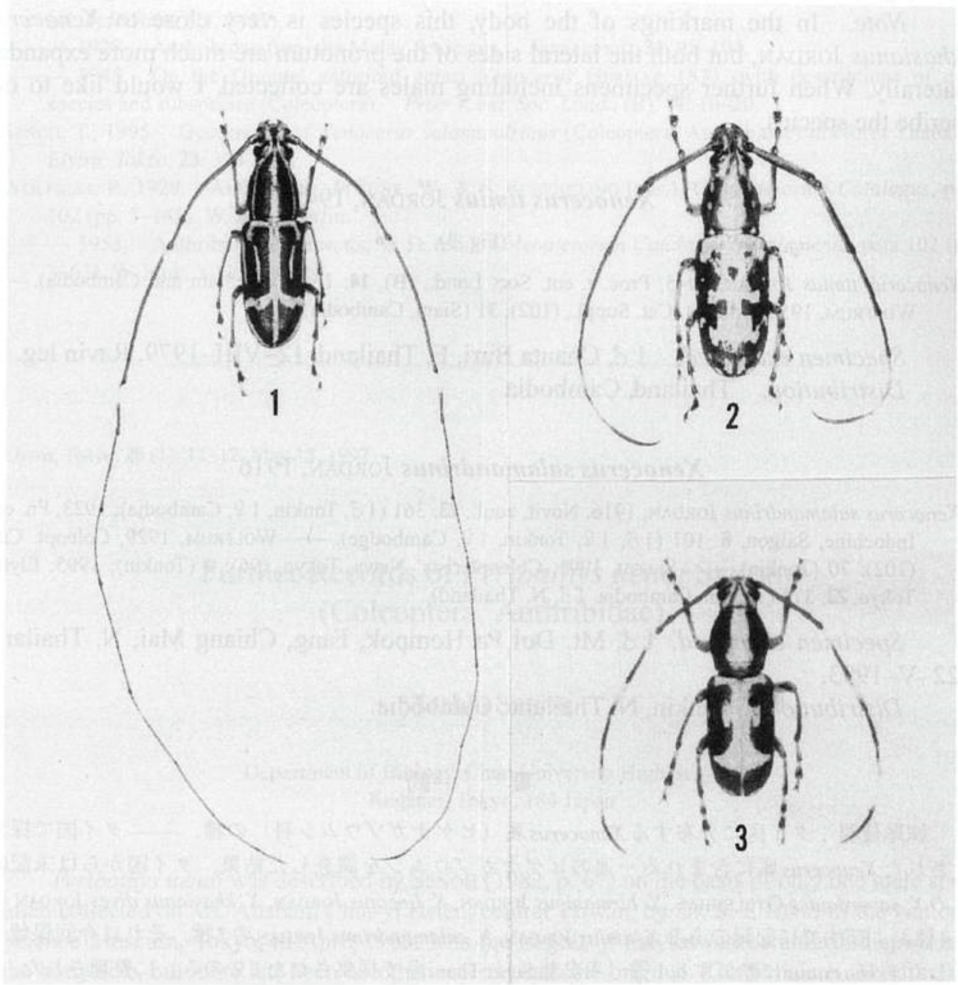
MOMURA leg.; 1 ♂, Chiang Mai, N. Thailand, I–1942, Puan leg.; 1 ♀, near Chiang Mai University, Chiang Mai, N. Thailand, 12–VIII–1990, Pitak leg.; 1 ♀, Pua, Nan, N. Thailand, VIII–1990.

Distribution. Assam, N. Thailand (new record).

Xenocerus khasianus dives JORDAN, 1923

(Fig. 2)

Xenocerus khasianus dives JORDAN, 1923, Fn. ent. Indochine, Saigon, **6**: 100 (1 ♀, Annam). —— WOLFRUM, 1929, Coleopt. Cat., (102): 69 (Annam).



Figs. 1–3. —— 1, *Xenocerus lineatus* JORDAN, ♂; 2, *X. khasianus dives* JORDAN, ♂; 3, *X. timius* JORDAN, ♂.

Specimens examined. 1 ♀, Doi Suthep, Chiang Mai, N. Thailand, 7–VI–1980, T. SENOH leg.; 1 ♂, ditto, 1–VIII–1979, W. SUZUKI leg.; 1 ♀, ditto, VIII–1988; 1 ♂, Mt. Doi Pui (1,400–1,500 m alt.), Chiang Mai, 15–V–1982, T. SHIMOMURA leg.; 1 ♂, ditto, 19–VI–1983, T. SHIMOMURA leg.

Distribution. Annam, N. Thailand (new record).

Note. The nominotypical subspecies is recorded from Assam (type area), Ceylon and Tonkin.

Xenocerus sp.

Specimen examined. 1 ♀, Surat Thani, S. Thailand, 16–III–1983, Sangaroon leg.

Note. In the markings of the body, this species is very close to *Xenocerus khasianus* JORDAN, but both the lateral sides of the pronotum are much more expanded laterally. When further specimens including males are collected, I would like to describe the species.

Xenocerus timius JORDAN, 1945

(Fig. 3)

Xenocerus timius JORDAN, 1945, Proc. r. ent. Soc. Lond., (B), **14**: 16 (2 ♀♀, Siam and Cambodia). —— WOLFRUM, 1953, Coleopt. Cat. Suppl., (102): 31 (Siam, Cambodia).

Specimen examined. 1 ♂, Chanta Buri, E. Thailand, 12–VIII–1979, Ravin leg.

Distribution. Thailand, Cambodia.

Xenocerus salamandrinus JORDAN, 1916

Xenocerus salamandrinus JORDAN, 1916, Novit. zool., **23**: 361 (1 ♂, Tonkin, 1 ♀, Cambodja); 1923, Fn. ent. Indochine, Saigon, **6**: 101 (1 ♂, 1 ♀, Tonkin, 1 ♀, Cambodge). —— WOLFRUM, 1929, Coleopt. Cat., (102): 70 (Tonkin) .—— SENOH, 1991, Coleopterists' News, Tokyo, (96): 4 (Tonkin); 1995, Elytra, Tokyo, **23**: 313 (Tonkin, Cambodja, 1 ♂, N. Thailand).

Specimen examined. 1 ♂, Mt. Doi Pa Hompok, Fang, Chiang Mai, N. Thailand, 22–V–1993.

Distribution. Tonkin, N. Thailand, Cambodia.

要　　約

妹尾俊男：タイ国に分布する*Xenocerus*属（ヒゲナガゾウムシ科）の種．—— タイ国で採集された*Xenocerus*属に含まれる一連のヒゲナガゾウムシを調査した結果，タイ国からは未記録の*X. saperdoides* GYLLENHAL, *X. birmanicus* JORDAN, *X. lineatus* JORDAN, *X. khasianus dives* JORDAN の4種およびすでに記録のある*X. timius* JORDAN, *X. salamandrinus* JORDANの2種，それに今回保留にした*X. khasianus*に酷似する1種（半島部Surat Thani県で採集された1♀のみ）に整理された．

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Elytra, Tokyo, **25** (1): 11–12, May 15, 1997

Further Records of *Peribathys uenoi* SENOH (Coleoptera, Anthribidae)

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Peribathys uenoi was described by SENOH (1982, p. 67) on the basis of only one male specimen collected on Mt. Alishan, Chia-yi Hsien, central Taiwan, by Dr. S.-I. UÉNO of the National Science Museum, Tokyo, in April 1965. It is the largest of the Taiwanese anthribid species in the body size, but there has been no other records than the original. The female is therefore unknown up to the present.

Recently, through the courtesy of Messrs. S. TSUYUKI and H. SAKAINO of Kanagawa Prefecture, I had an opportunity to examine 3 ♂♂, 1 ♀ of *Peribathys uenoi*, collected from Taiwan by native collectors. The collecting data of the specimens examined are as follows:

2 ♂♂, Aowanta, Nantou Hsien, Taiwan, 10–IX–1994, Chin-Chi LO leg.; 1 ♀, Paling~Ssuling, Taoyuan Hsien, Taiwan, 17–VII–1990, S.-T. CHENG leg.; 1 ♂, Shan-ping, Maolin Hsiang, Kaohsiung Hsien, Taiwan, 1985, CHENG leg.

Peribathys uenoi SENOH, 1982

Peribathys uenoi SENOH, 1982, Trans. Shikoku ent. Soc., Matsuyama, **16** (1/2): 67; 1983, Sayabane, Tokyo, (9): 21; 1984, Trans. Shikoku ent. Soc., Matsuyama, **16** (4): 35. —— SENOH & YOSHIHARA, 1985, Chô Chô, Fukuoka, **8** (8): 25.

Length: 21–32 mm (from apical margin of rostrum to apex of pygidium).

Female. Antennae short, extending barely beyond the basal margin of elytra, 8th and basal half of 9th segment covered with white hairs, proportions in length from 1st to 11th segments about 9 : 11 : 9: 24 : 20 : 17 : 16 : 13 : 19 : 13 : 18. Rostrum with a deep V-shaped fovea at the base of underside. Pygidium semicircular, inclined backwards, all margins reflex, disc strongly swollen, covered with granules in apical third. Legs shorter than those of male; anterior femur nearly as long as the median which is shorter than the posterior; anterior tibia nearly as long as the median which is a little longer than the posterior; anterior tarsus nearly as long as the posterior which is a little shorter than the median.

I wish to thank Messrs. S. TSUYUKI and H. SAKAINO of Kanagawa Prefecture for their kindness in submitting the invaluable specimens to me for taxonomic study, and to Dr. S.-I. UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for kindly reading the original manuscript of the present short paper.

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Elytra, *Tokyo*, **25** (1): 13–22, May 15, 1997

New Species of the Alticinae (Coleoptera, Chrysomelidae) from Nepal and Adjacent Regions

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Abstract Sixteen new species of the subfamily Alticinae are described from Nepal, India, Thailand and Vietnam: *Hespera flaviventris*, *Luperomorpha hirsuta*, *Aphthona furthi*, *A. brancuccii*, *Sphaeroderma minutissima*, *Asiorestia wittmeri*, *A. irrorata*, *Pseudodera laeta*, *Xuthea coerulea*, *X. pallida* and *Chaetocnema excavata* spp. n. from Nepal, *Sphaeroderma doeberli* sp. n. from Nepal, India and Thailand, *Sphaeroderma pseudapicale* sp. n. from Nepal and Vietnam, *Sphaeroderma bambusae* sp. n. from Vietnam, *Pseudodera nigripennis* sp. n. from Thailand, and *Podagricomela metallica* sp. n. from India.

In the publication proposed, I am going to describe 16 new species of the Alticinae, mostly from Nepal, based on materials of the Naturhistorisches Museum, Basel, Staatliches Museum für Naturkunde, Stuttgart and my collection. I am grateful to Dr. M. BRANCUCCI (Basel) and Dr. W. SCHAWALLER (Stuttgart) for the opportunity to study materials under their care.

The following abbreviations are used for the deposit places of types: NHMB – Naturhistorisches Museum, Basel; SMNS – Staatliches Museum für Naturkunde, Stuttgart; IPEEM – Institute for Problems of Ecology and Evolution, Moscow; LM – author's collection.

Hespera flaviventris sp. n.

Holotype (female): Nepal, Dhawalagiri, Mustang Distr., Kali-Khola, Gasa-Kalopani, 2,000–2,500 m, 20–VI–1986, C. HOLZSCHUH, NHMB. Paratype: 1 female, same locality, LM.

Near *H. cavaleriei* CHEN, 1934, but differs distinctly in fulvous venter and entirely black legs and elytra.

Black; head, prothorax and venter except for last segment reddish fulvous, 2–3 basal segments of antennae and bases of femora more or less reddish. Clypeus smooth and shining, vertex microsculptured, punctate and sparsely pubescent. Antennae about half of body length, proportions of segments as 10–5–6–10–12–11–11–11–12–11–14. Prothorax 1.8 times as wide as long, with maximal width near base, lateral margin straight, anterior angles broadly rounded, posterior angles obtuse, surface shagreened

and impunctate, with pubescence moderately dense. Elytra densely shagreened, impunctate, with white pubescence directed backwards. Length 3.7–3.8 mm.

Luperomorpha hirsuta sp. n.

(Fig. 1)

Holotype (male): Nepal, Langtang National Park, Syabra, 2,000 m, 10–VI–1990, S. BILY, NHMB. Paratypes: 2 males, 1 female, same locality and date as the holotype, NHMB, LM; 1 female, Langtang National Park, Ghora Tabela, 3,000 m, 3–V–1988, S. BILY, NHMB.

Near *L. birmanica* JACOBY, 1892, but upperside shining, prothorax dark, elytra entirely covered with erect hairs, and aedeagus different.

Dark pitchy to black, basal segments of antennae, apices of femora, tibiae, tarsi and often anterior part of head fulvous, elytra with moderately broad flavous longitudinal bands, narrowed behind middle and widened again in posterior part; apex remaining black; sometimes this stripe interrupted in middle or strongly reduced and distinct only near base.

Head smooth except for a few punctures near eyes, frontal tubercles sharp and obliquely placed. Antennae almost as long as body, proportions of segments as 12–6–6–8–10–9–9–9–10–10–11. Prothorax 1.1 times as wide as long, with sides arcuate and maximal width before middle, surface convex and shining, without any trace of microsculpture, distinctly punctate, punctures unequal. Elytra about 1.5–1.6 times as long as wide, shining, more strongly punctate than on prothorax, with white erect hairs throughout surface. Segment 1 of fore tarsi practically not widened in male. Aedeagus (Fig. 1) truncate at apex, with longitudinal groove in apical third of underside. Length 3.0–3.5 mm.

Aphthona furthi sp. n.

Holotype (male): Nepal, Bagmati, Sindhupalchok, Sangjwal, 2,500 m, 6~7–VI–1989, M. BRANCUCCI, NHMB. Paratype: 1 male, same locality as the holotype, LM.

Near *A. nepalensis* L. MEDVEDEV, 1984, differs in smaller size, darkened legs and antennae, as well as evenly convex prothorax. From *A. dohertii* JACOBY, 1894, it differs in coloration of upperside and legs and larger size.

Black with metallic blue lustre, very shining, basal segments of antennae and legs except for hind femora dark brown or pitchy. Body narrow, widened behind middle. Head impunctate, interantennal ridge narrow, frontal tubercles triangular and very sharp. Antennal segments 2–4 subequal, 5th segment a little longer than 4th. Prothorax 1.15 times as wide as long, widest near anterior angles and narrowest near base, with lateral margins almost straight and anterior angles oblique and angulate; surface impunctate. Elytra ovate, without humeral tubercle and basal convexity, truncate at apex, with outer part vertical. Wings absent. Segment 1 of fore tarsi slightly widened in

male. Length 1.7–1.8 mm.

The species is dedicated to the well known specialist of the Alticinae Dr. D. FURTH.

Aphthona brancuccii sp. n.

Holotype (female): Nepal, Dhawalagiri, Myagdi Distr., Kali-G. Khola, Tatopani, 1,100–1,400 m, 14~17–VI–1986, M. BRANCUCCI, NHMB.

Differs from practically all Indian species in having dull, densely microsculptured and finely punctate elytra. In *A. strigosa* BALY, 1874, microsculpture denser, punctures entirely absent and coloration different.

Upperside dark violaceous blue, underside practically black, basal segment of antennae, fore and mid legs and basal part of hind tibiae fulvous. Vertex distinctly punctate, interantennal ridge narrow and acute, frontal tubercles triangular and sharply delimited. Antennal segments 2–4 subequal, 5th segment distinctly longer than 4th. Prothorax 1.5 times as wide as long, with maximal width before middle, lateral margins feebly arcuate, anterior angles oblique and feebly angulate, surface very finely punctate, with traces of microsculpture, without distinct basal depression. Elytra with well-developed humeral tubercle, without basal convexity, densely microsculptured and finely punctate; punctures indistinct among microsculpture. Length 2.3 mm.

Sphaeroderma minutissima sp. n.

Holotype: Nepal, Sankhua Sabha Distr., between Pahakhola and Karmarang, 1,500–1,800 m, cultivated land, bushes, 4–VI–1988, J. MARTENS, W. SCHAWALLER, SMNS.

Very near to *S. gressitti* SCHERER, 1969, but differs in having almost smooth prothorax, strongly punctured elytra and especially very small size.

Head and upperside dark blue, underside black, antennae and legs flavous, apical segments a little darker, but not black. Body ovate. Head smooth, frons twice as broad as diameter of eye, frontal tubercles small and transverse. Antennae long, about 3/5 of body length, segment 3 a little shorter than 4, segments 4–10 subequal, 7–11 slightly thickened. Prothorax 1.7 times as wide as long, lateral margins arcuate, anterior angles rounded and not produced, surface with very sparse punctures, mostly in basal part. Elytra with strong confused punctures and one more or less distinct row near side margin. Length 1.4 mm.

Sphaeroderma doeberli sp. n.

(Fig. 2)

Holotype (male): Nepal, Ilam Distr., between Mai Pokhari, Mai Majuwa and Gitang Khola, 1,800–2,100 m, cultivated land, 26–VIII–1983, J. MARTENS, W.

SCHAWALLER, SMNS.

Paratypes: 1 male, Shiri-Khola-Rimbick, 1,950–2,350 m, Darjeeling, West Bengal, 21–V–1975, W. WITTMER, LM; 1 female, Chiang Dao, 1,000 m, Thailand, 17~24–V–1991, V. KUBAN, NHMB; 1 male, Soppong-Pai, 1,800 m, NW Thailand, 1~6–V–1991, PACHOLATKO, LM.

Near *S. atrithorax* CHEN, 1934 and *S. orientalis* JACOBY, 1887; differs in having red fulvous antennae and legs.

Red fulvous, head and prothorax black, antennae not darkened to apex. Body ovate. Head impunctate, frons about 1.5 times as broad as diameter of eye, frontal tubercles large, transverse and obliquely placed. Antennae about 3/5 of body length, segment 3 a little shorter than 2 or 4, segments 4–10 subequal. Prothorax 1.6 times as wide as long, sides very feebly arcuate, anterior angles thickened, broadly rounded and not produced; surface finely punctate, more densely on basal half. Elytra rather densely punctate, punctures arranged in 4–5 more or less regular rows near side margins and almost regularly punctate near base, but quite confused in middle and near suture; apices narrowly rounded. Segment 1 of fore tarsi feebly thickened in male. Aedeagus (Fig. 2) narrow, cylindrical. Length 2.5–3.1 mm.

This species is dedicated to a specialist of the Alticinae, Mr. M. DOEBERL.

Sphaeroderma pseudapicale sp. n.

(Fig. 3)

Holotype (male): Vietnam, Gia-Lai – Contum Prov., Buon-Loi, 40 km N Ankhe, 2–VI–1983, on Bambusa, L. MEDVEDEV, IPEEM. Paratypes: 30 exs., same locality, VI~VII–1981~1983, on Bambusa, L. MEDVEDEV, LM; 2 exs., 90 km N Saigon, 3–VI–1980, N. VORONOVA, LM; [Nepal]: 1 ex., Karkineta-Nagdanga, 1,600 m, Dhawalagiri, Parbat Distr., 9–VII–1986, C. HOLZSCHUH, NHMB.

Near *S. apicale* BALY, 1874, but prothorax not darkened at base.

Fulvous red, elytra black with red apex, sometimes with very feeble metallic sheen, antennae entirely fulvous, metasternum usually dark brown or black. Body short ovate. Head impunctate, frons narrow, about as wide as diameter of eye, more or less parallel-sided, frontal tubercles ovate and obliquely placed. Antennae reaching posthumeral area, with segment 3 shorter than 2 or 4, segment 5 a little longer than 4, segments 7–11 slightly thickened. Prothorax with sides almost straight and anterior angles rounded, not produced anteriorly; surface finely punctate and shining. Elytra with dense confused punctures, forming 1–2 more or less distinct rows laterally. Segment 1 of fore tarsi slightly widened in male. Aedeagus (Fig. 3) with simple triangular apex. Length 2.0–2.4 mm.

Sphaeroderma bambusae sp. n.

(Fig. 4)

Holotype (male): Vietnam, Prov. Gia-Lai – Contum, Pleicu, 700 m, 22–XI–1979, on Bambusa, L. MEDVEDEV, IPEEM. Paratype: 1 female, same locality, LM.

Fulvous red, elytra black with fulvous apex, antennae fulvous, metasternum black or at least darkened. This species is fully identical with the preceding species and differs only in broader vertex and form of aedeagus.

Vertex about 1.4–1.5 times as wide as transverse diameter of eye, distinctly widened posteriorly. Aedeagus with well developed apical protuberance, thick in lateral view (Fig. 4). Length 2.1–2.2 mm.

Species of the *S. apicale* group (elytra black with fulvous apex) can be differentiated as follows:

1 (2) Prothorax black at base. Vertex about 1.8 times as wide as transverse diameter of eye, not parallel-sided. Aedeagus with simple triangular apex, thick in lateral view (Fig. 5). Japan, China, northern Vietnam. . . . . *S. apicale* BALY

2 (1) Prothorax entirely fulvous. Vertex narrow.

3 (4) Vertex as wide as diameter of eye, parallel-sided. Aedeagus with simple triangular apex, thin in lateral view (Fig. 3). Southern Vietnam, Nepal. . . . . *S. pseudapicale* sp. n.

4 (3) Vertex about 1.4 times as wide as diameter of eye, widened posteriorly. Aedeagus with distinct apical process, thick in lateral view (Fig. 4). Southern Vietnam. . . . . *S. bambusae* sp. n.

Podagricomela metallica sp. n.

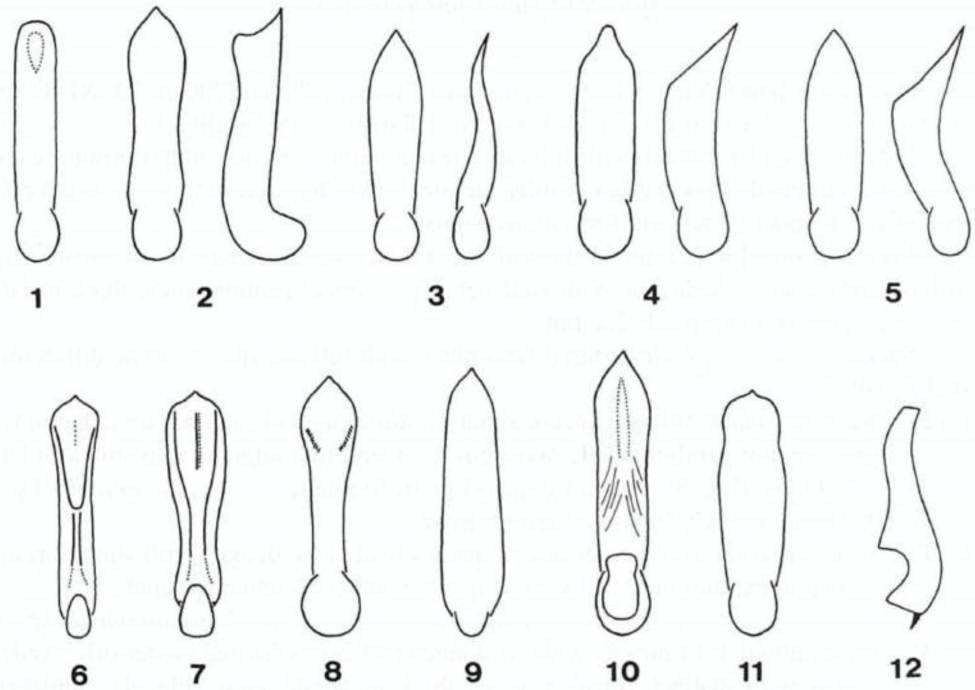
Holotype: West Bengal, Darjeeling, IPEEM.

Near to *P. apicipennis* JACOBY, 1905, but body much more convex and entirely metallic. Upperside dark blue, underside black, basal segments of antennae fulvous. Body short ovate, almost round and strongly convex. Frons and clypeus very finely punctate, divided from more distinctly punctate vertex with a transverse groove. Proportions of antennal segments as 14–5–6–7–9–10–10 (following segments absent). Prothorax 2.2 times as broad as long, strongly protruding posteriorly, with protruding anterior angles and feebly arcuate side margins; surface with fine and moderately dense punctures. Elytra 1.1 times as long as wide, very convex, with well-developed humeral tubercle and regular rows of strong punctures; interspaces flat, broad and finely punctate. Length 4.3 mm, width 3.0 mm, height 2.2 mm.

Asiorestia wittmeri sp. n.

(Fig. 6)

Holotype (male): Nepal, Godavari, 26–V–1976, W. WITTMER, NHMB. Paratype:



Figs. 1–11. Aedeagus, ventral and lateral views. —— 1, *Luperomorpha hirsuta*; 2, *Sphaeroderma doeberli*; 3, *S. pseudapicale*; 4, *S. bambusae*; 5, *S. apicale*; 6, *Asiorestia wittmeri*; 7, *A. naini*; 8, *Pseudodera laeta*; 9, *P. nigripennis*; 10, *Xuthea coerulea*; 11, *X. pallida*. —— 12, *Chaetocnema excavata*, hind tibia.

1 female, same locality and date as the holotype, LM.

Near *A. naini* SCHERER, 1969, but smaller, with fulvous legs and stronger punctures of elytral rows. A specimen from Darjeeling, which I accept as a male of *A. naini*, differs also in a structure of aedeagus, though both the species have aedeagi of the same type (Figs. 6, 7).

Entirely fulvous; in male hind femora slightly darkened, in female apical part of antennae and hind femora distinctly darkened, but not black. Body narrow and elongate. Head impunctate, clypeus and interantennal space with sharp ridge, frontal tubercles rounded triangular. Proportions of antennal segments as 10–4–5–6–9–7–9–9–9–9–13. Prothorax 1.5 times as wide as long, lateral margins feebly arcuate, anterior angles thickened and angulate, transverse basal groove shallow, longitudinal grooves about 1/4 of length of disc, surface very finely punctate, more distinctly in basal groove. Elytra with quite regular rows of punctures and more or less convex smooth interspaces, posthumeral interspace more elevated, almost costate in female. Segment 1 of fore and mid tarsi strongly widened in male. Aedeagus very narrow, with complicate structure of underside (Fig. 6). Length 3.7–3.9 mm.

Asiorestia irrorata sp. n.

Holotype (female): Nepal, Janakpur, Dolakha Koshi, 850–1,100 m, 24~29–V–1989, M. BRANCUCCI, NHMB.

Differs from all the species of India and Nepal in confused punctures of elytra.

Fulvous with antennal segments 5–11 and tarsi black, hind femora indistinctly darkened at apex. Body broad and feebly convex. Head practically impunctate, interantennal space flat, frontal tubercles flat, poorly delimited behind and indistinct. Proportions of antennal segments as 12–6–10–11–15–14–14–14–14–14–18. Prothorax 1.5 times as broad as long with sides evenly arcuate and maximal width in basal third, surface feebly convex, with shallow basal groove, extremely finely and sparsely punctate; longitudinal basal grooves occupying about quarter of prothoracic length. Elytra 1.5 times as long as wide, with moderately strong confused punctures and only with traces of irregular rows in basal half. Length 5.0 mm.

Pseudodera laeta sp. n.

(Fig. 8)

Holotype (male): East Nepal, Arun Valley, Chichila, 1,950 m, 31–V–1983, M. BRANCUCCI, NHMB.

Very near to *P. bifasciata* JACOBY, 1889, but differs in structure of basal groove of prothorax and entirely fulvous elytra.

Red fulvous, elytra pale flavous; antennae except segment 1, apical part of tibiae and tarsi dark, pitchy brown to black. Body elongate, slightly widened anteriorly. Frontal tubercles subquadrate with elongate anterior processes, divided behind with rugose impression and from each other with a deeply impressed line. Vertex smooth and shining. Antennae about 4/5 of body length, proportions of segments as 19–6–17–17–17–16–16–16–16–15–16, segments 3–6 thickened apically. Prothorax 1.35 times as wide as long, with anterior and posterior margins feebly concave, lateral margins feebly arcuate, not emarginate before base; basal transverse groove arcuate, very deep in middle and shallow laterally, basal longitudinal grooves deep and long; surface impunctate and shining. Elytra dull, with single sutural row and 4 pairs of double rows, interspaces flat and impunctate. Tibiae angulately widened at apex. Segment 1 of all tarsi feebly widened in male. Aedeagus: Fig. 8. Length 9.0 mm.

Pseudodera nigripennis sp. n.

(Fig. 9)

Holotype (male): NW Thailand, Mae Hong Son, Ban Huai Po, 1,600–2,000 m, 17~23–V–1991, J. HORAK, IPEEM.

Near *P. inornata* CHEN, 1933, but body much larger, elytra and underside black, elytral rows distinctly geminate. From the nearest species, *P. bifasciata* JACOBY, 1889,

differs in entirely black elytra, antennae and underside.

Black; head, prothorax, antennal segment 1 beneath and apex of scutellum red. Clypeus short, strongly transverse, with a few setigerous punctures. Frontal tubercles with very long processes intruding in broad interantennal space and divided behind from vertex with very deep impression; vertex microsculptured and impunctate. Antennae reaching middle of elytra, proportions of antennal segments as 22–8–18–18–17–17–16–15–14–13–16. Prothorax 1.6 times as wide as long, with sides strongly arcuate and maximal width in middle, basal groove deep and narrow, slightly arcuate and delimited at sides with short longitudinal groove; surface convex, with slight longitudinal impression behind middle, with fine and comparatively sparse punctures. Elytra with sutural row and 4 pairs of geminate rows, interspaces flat, outer interspaces with a few strong punctures. Segment 1 of all tarsi distinctly widened in male. Aedeagus: Fig. 9. Length 10.5 mm.

Xuthea (*Xuthea*) *coerulea* sp. n.

(Fig. 10)

Holotype (male): Nepal, Janakpur, Hanumante, W-Jiri, 2,500–3,100 m, 17~26–VI–1987, C. RAI, NHMB.

Very near to *X. nepalensis* SCHERER, 1969, differs in having blue upperside, dark legs, details of prothoracic structure and strong rugosity on underside of aedeagus.

Violaceous blue, labrum and antennae except for basal segment dark brown, legs pitchy black with tarsi paler. Head impunctate, with deep and sharp ocular grooves. Antennae quite identical with those of *X. nepalensis*. Prothorax with side margins slightly excavated before base and hind angles much more acute, as compared with *X. nepalensis*; space between basal groove and base moderately convex (very convex in *X. nepalensis*), surface practically impunctate. Elytra without postbasal impression, with regular rows of punctures. Segment 1 of anterior tarsi feebly widened in male. Aedeagus (Fig. 10) on underside with elevated basal triangle prolonged anteriorly in a longitudinal central impression, with oblique rough rugosity on each side in middle portion. Length 5.3 mm.

Xuthea (*Paraxuthea*) *pallida* sp. n.

(Fig. 11)

Holotype (male): Nepal, Godavari, 1,500–1,700 m, 21–V–1977, W. WITTMER & M. BRANCUCCI, NHMB. Paratype: 1 female, Godavari, 1,500 m, 19–V–1989, M. BRANCUCCI, LM.

Body flavous with elytra, antennae and legs paler, 3 apical antennal segments dark pitchy; in female anterior part of head darkened. Glabrous above except for scattered pubescence on head near inner margins of eyes. Body elongate ovate about 1.7 times as long as broad (except head). Head much narrower than prothorax, clypeus triangu-

lar, impunctate and not ridged longitudinally; interantennal space moderately broad and flat, frontal tubercles triangular. Vertex convex, smooth and impunctate. Proportions of antennal segments as 14–7–10–11–13–13–13–11–11–10–13. Prothorax twice as wide as long, widest at middle, with anterior angles obtuse and not protruding laterad, lateral margins rounded, posterior angles rectangular, basal margin bisinuate with broad prescutellar lobe. Scutellum triangular and impunctate. Elytra about 1.2 times as long as wide, humerus distinct, basal convexity undeveloped, disc with 9 complete rows of punctures and a scutellar row not exceeding basal third; interspaces of rows flat or slightly convex. Fore and mid tarsi with segment 1 strongly widened. Aedeagus: Fig. 11. Length 4.7 mm.

Very near to *X. sinuata* GRESSITT et KIMOTO, 1953, but differs as follows:

1 (2) Elytra with feeble but distinct basal convexity, delimited behind with transverse impression. Legs black with bases of femora more or less fulvous. Length 5.8–6 mm. ..... *X. sinuata* GRESSITT et KIMOTO

2 (1) Elytra without basal convexity and transverse impression. Legs entirely flavous. Length 4.7 mm. ..... *X.* (*P.*) *pallida* sp. n.

Chaetocnema* (*Tlanoma*) *excavata sp. n.

(Fig. 12)

Holotype (female): Nepal, Lamobagar Gola, Arun Valley, 1,400 m, 28~31–V–1990, C. HOLZSCHUH, NHMB. Paratype: 1 female, same locality, LM.

Because of unusual structure of hind tibiae, this species might be compared only with *C. tristis* ALLARD, 1889, but the latter species has red vertex with deep excavation on each side near eye.

Dark aeneous; basal segments of antennae, tibiae and tarsi fulvous. Clypeus finely punctate on sides, smooth in middle. Interantennal space broad, with much flattened ridge, delimited behind with transverse groove, ocular grooves straight, vertex very finely shagreened, extremely finely and sparsely punctate, with a small groove on each side near eye, bearing a few strong punctures. Proportions of antennal segments as 9–4–6–5–6–6–7–6–6–6–8. Prothorax 1.8 times as wide as long, with maximal width before base, lateral margins straight, anterior angles slightly thickened, surface shining and distinctly punctate. Elytra with regular rows of punctures, including a short scutellar row, interspaces very finely shagreened, flat on dorsum and convex on sides. Excavation of hind tibia very deep, semicircular, with large acute tooth (Fig. 12). Length 2.5–3.0 mm.

要　　約

L. N. MEDVEDEV：ネパールおよびその周辺地域のノミハムシ亜科の新種. —— ネパールおよびその周辺地域のノミハムシ亜科を検討し，ネパールから *Aphthona furthi*, *A. brancuccii*, *Asiorestia irrorata*, *A. wittmeri*, *Chaetocnema excavata*, *Hespera flaviventris*, *Luperomorpha hirsuta*, *Pseudo-*

dera laeta, Sphaeroderma minutissima, Xuthea coerulea, X. pallida spp. n., ネパールおよびベトナムから *Sphaeroderma pseudapicale* sp. n., ネパール, インドおよびタイから *Sphaeroderma doeberli* sp. n., インドから *Podagricomela metallica* sp. n., タイから *Pseudodera nigripennis* sp. n., ベトナムから *Sphaeroderma bambusae* sp. n. の計16種を記載した.

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Elytra, Tokyo, **25** (1): 22, May 15, 1997

A Host Record of *Molorchus ikedai* (Coleoptera, Cerambycidae)

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Larval host plant of *Molorchus ikedai* TAKAKUWA has not yet been known. Recently, I was able to examine specimens of this cerambycid emerged out from dead branches of *Abies veitchii* LINDL. The hosts were newly dead branches about 5 cm in diameter, which were obtained at Houou Mountain hut. The collecting data are as follows: 17 ♂♂, 18 ♀♀, Mt. Jizôgatake, Nirasaki City, Yamanashi Pref., central Honshu of Japan. The host branches were collected on 3–V–1993 by Y. KANEKO, and the adults emerged out from the hosts in Tokyo on 17~21–VI–1994.

I wish to express my sincere thanks to Messrs. Koichi HOSODA of Yamanashi and Yoshinori KANEKO of Tokyo.

Reference

NIISATO, T., 1992. Cerambycinae. *In*: OHBAYASHI, N., M. SATÔ & K. KOJIMA (eds.), *An Illustrated Guide to Identification of Longicorn Beetles of Japan*, 117–146, 467–534. Tokai Univ. Press, Tokyo. (In Japanese with English title.)

Elytra, *Tokyo*, **25** (1): 23–24, May 15, 1997

Additional Record of *Acanthocinus hutacharerae* MAKIHARA (Coleoptera, Cerambycidae, Lamiinae), with Description of the Male Genitalia

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Acanthocinus hutacharerae is the single Thai member of *Acanthocinus*, described by MAKIHARA (1986) on the basis of a single teneral male specimen, which was collected from under barks of *Pinus keciya* ROYLE et GORDON. After that, it has never been recorded again up to the present. Through the courtesy of Mr. Y. KUSAKABE, I had an opportunity to examine four male specimens of the same species in fully mature condition, all collected by Dr. M. KAMIMURA on Mt. Doi Sam in northern Thailand. Here I am going to record the species again with a description of the male genitalia.

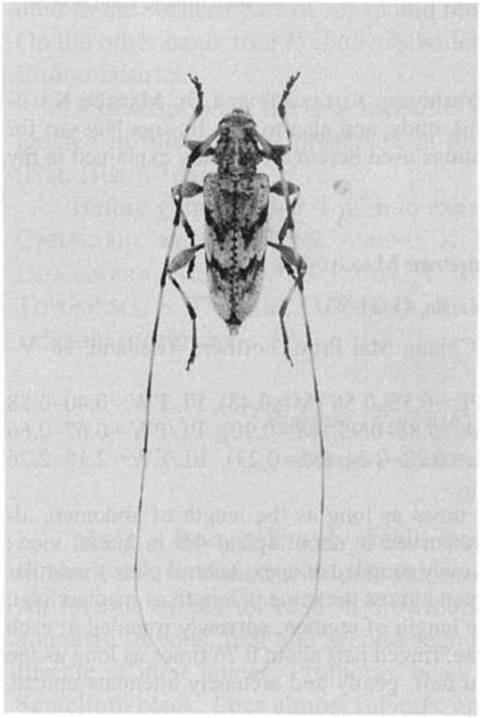

Fig. 1. *Acanthocinus hutacharerae* MAKIHARA, male, from Mt. Doi Sam.

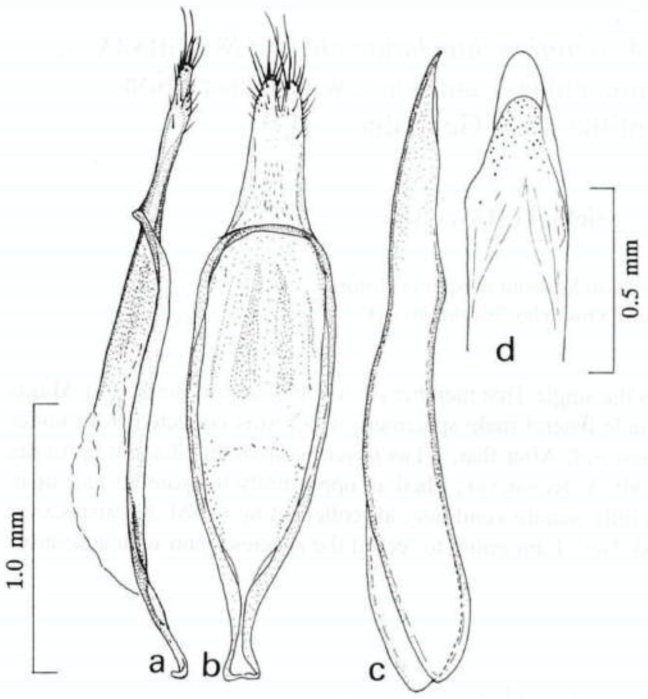

Fig. 2. *Acanthocinus hutacharerae* MAKIHARA; a, tegmen in lateral view; b, ditto in dorsal view; c, median lobe in lateral view; d, apical part of median lobe in ventral view.

I wish to express my deep gratitude to Mr. Yoshiyasu KUSAKABE and Dr. Manabu KAMIMURA who provided me with the specimens for this study, and also to Mr. Tatsuya NIISATO for his help in preparing the manuscript. The abbreviations used herein are already explained in my previous paper (HASEGAWA, 1996, p. 83).

Aanthocinus hutacharerae MAKIHARA

Acanthocinus hutacharerae MAKIHARA, 1986, Ent. Rev. Japan, **41**: 31–33.

Specimens examined. 4 ♂♂, Mt. Doi Sam, Chiang Mai Prov., northern Thailand, 16–V–1991, M. KAMIMURA leg.

The ratios of body parts are as follows: OL/PL=0.38–0.56 (M=0.48), FL/FW=0.40–0.58 (M=0.49), IEL/GL=1.60–1.80 (M=1.71), PL/PA=0.88–0.95 (M=0.90), PL/PW=0.62–0.66 (M=0.64), PB/PA=1.04–1.16 (M=1.09), PL/EL=0.22–0.24 (M=0.23), EL/EW=2.15–2.26 (M=2.22), EL/TL=0.71 (M=0.71).

Male genitalia. Median lobe about 0.42 times as long as the length of abdomen, almost straight, gently thinned toward apex, weakly curved in about apical 4/9 in lateral view; dorsal plate scarcely longer than ventral plate, narrowly rounded at apex; ventral plate triangular near apex, narrowly rounded at the extremity. Tegmen almost the same in length as median lobe; lateral lobes short, about 0.24 times as long as the length of tegmen, narrowly rounded at each extremity, which is densely provided with long setae; ringed part about 0.76 times as long as the length of tegmen, subparallel-sided in about basal half, gently and arcuately attenuate apicad, converging at apical 1/10, and then slightly dilated.

Elytra, Tokyo, **25** (1): 25–29, May 15, 1997

Notes on the Lepturine Genus *Pidonia* (Coleoptera, Cerambycidae) from East Asia

VI. A New *Pidonia* from the Western Part of Japan

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Abstract A new species of *Pidonia* related to *P. chairo* is described from the western part of Chûgoku District, Shikoku and Kyushu under the name of *P. falcata*.

Recently, I had an opportunity to examine the holotype of *Pidonia chairo* TAMANUKI (KUBOKI, 1996). This species was originally described from the Ohmine Mountains in Nara Prefecture, Japan and I was able to examine some topotypical specimens collected on these mountains together with many specimens from other parts of Japan. After a close examination of these materials, it was concluded that the species distributed in the western part of Japan and hitherto regarded as *P. chairo* was a new species. On the other hand, true *P. chairo* is widely distributed in the Kii Peninsula and north of Chûbu District.

A description of the new species is given in the following lines. The holotype designated in this study is preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

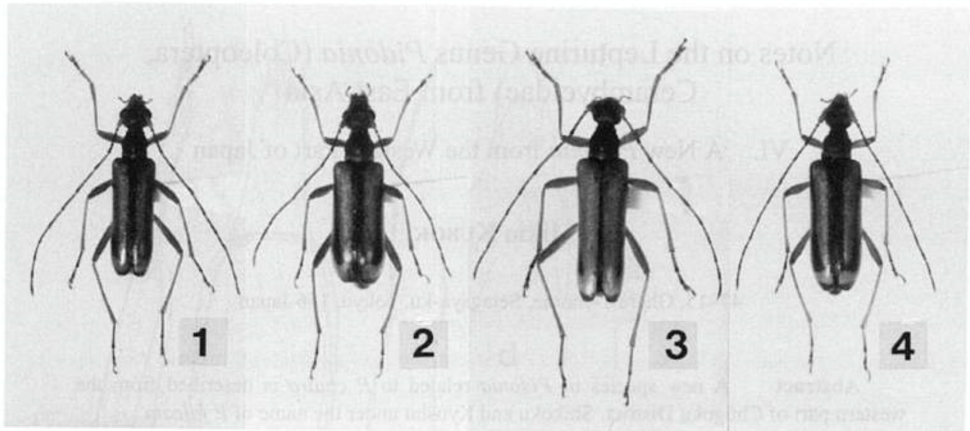
Before going further, I wish to express my hearty thanks to Drs. S. NAOMI and N. OHBAYASHI, and Messrs. S. AMANO, K. ANNO, F. HIROKAWA, H. IRIE, T. IWAHASHI, T. OGASAWARA, M. ONO, K. TSUDA, T. SAMESHIMA, R. SHIMAMOTO, H. TAKESHITA, R. TOYOSHIMA, S. TSUYUKI, O. YAMAJI, R. YANO and A. WATANABE for their kind offer of valuable specimens.

Pidonia* (*Pidonia*) *falcata KUBOKI, sp. nov.

[Japanese name: Saigoku-hime-hanakamikiri]

(Figs. 1–9)

Male. Body relatively small, elongate, slightly tapered apicad; colour fulvous to black and furnished with pale fulvous pubescence. Head black; mouthparts yellowish fulvous except for reddish brown apex of each mandible; temples reddish yellow; antennae fulvous, first and second segments fulvous, third and following segments infuscate at their apices. Prothorax black except for yellowish fulvous apex and base. Scutellum black. Legs almost fulvous; apex of each tarsus infuscate; claws dark brown.



Figs. 1–4. *Pidonia* (*Pidonia*) *falcata* KUBOKI, sp. nov., from Meotoike, Tokushima Prefecture (1, 2) and from Mt. Daisen-zan, Ôita Prefecture (3, 4). —— 1, 3, ♂; 2, 4, ♀.

Elytra yellowish fulvous with black markings. Elytral markings:— Sutural marking narrowly present, sometimes almost disappearing; basal marking entirely absent; latero-basal marking small, latero-median marking very small, sometimes entirely absent; latero-apical marking distinctly present, sometimes linearly developed towards base; apical band broadly present. Ventral surface:— Head, thoraces and abdomen fulvous; first and second sternites dark brown; meso- and metasterna darkened.

Head across the middle of eyes 1.16 times as long as basal width of prothorax; terminal segment of maxillary palpus broadened apically with straight outer margin; temples moderately produced, convergent and abruptly constricted at neck; frons subvertical and transverse, covered with coarse punctures, bearing a fine but distinct median longitudinal furrow extending backwards to vertex; vertex convex above, coarsely punctate and sparsely clothed with fine pubescence. Eyes relatively prominent, moderately faceted and strongly emarginate at middle of internal margins. Antennae relatively long and slender; apical two segments surpassing elytral apices; comparative length of each segment as follows:— 5>1+2=6>3>4.

Prothorax 1.17 times as long as basal width, dully angulate-prominent laterad just before the middle, deeply constricted both anteriad and posteriad; breadth across prominent portions slightly narrower than basal width; disc of pronotum convex above, finely and closely punctate, sparsely clothed with fine pubescence. Scutellum small and triangular, slightly longer than broad, bearing thin pubescence on the surface. Elytra 2.70 times as long as basal width, gradually narrowed posteriad and separately subtruncate at apices; surface sparsely and deeply punctate, sparsely clothed with subappressed pubescence; interspace between punctures narrower than diameter of each puncture. Legs relatively slender, clothed with short pubescence; femora clavate; hind femora not reaching elytral apices; tibiae linear, straight; tarsi densely clothed with

short pubescence on under surface.

Abdomen elongate and gradually narrowed towards apex; apex of last tergite subtruncate and shallowly emarginate at middle, both lateral angles obtuse (Fig. 5); apex of last sternite triangularly emarginate at middle, both lateral angles somewhat angular (Fig. 6).

Genitalia:— Median lobe falcate in lateral view, relatively slender, strongly curved ventrad and obtusely pointed at apex (Figs. 8–9); lateral lobes slightly shorter than median lobe, each apex produced and sparsely furnished with relatively short terminal hairs (Fig. 7); endophallus long and furnished with a pair of falcate sclerites; diverticulum relatively short and lanceolate.

Length: 9.0–6.9 mm, breadth: 2.3–1.7 mm.

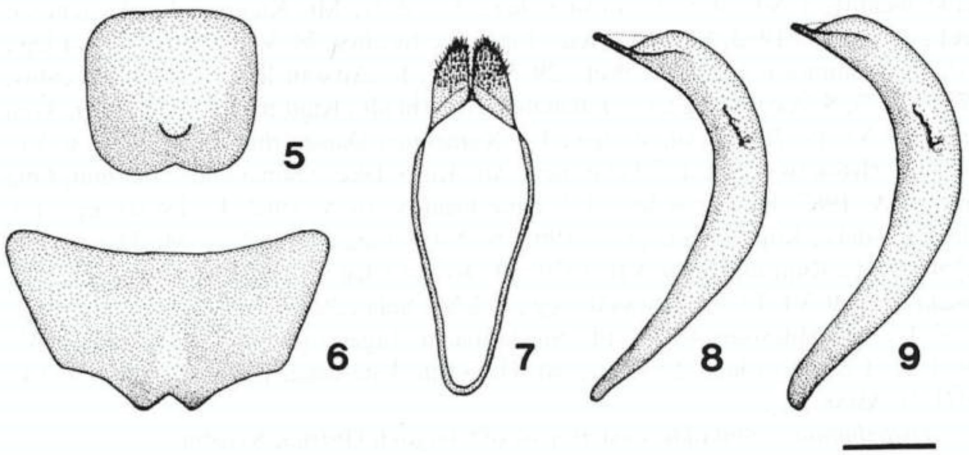
Female. Form more robust. Elytral markings:— Sutural marking distinctly present; basal marking entirely lacking; lateral three markings fused with one another, forming a longitudinal submarginal vitta; sometimes submarginal vitta united with sutural marking at apical part; apical band broadly present. Ventral surface:— Abdomen almost fulvous; first to fourth sternites darkened laterad.

Head 1.06 times as long as basal width of prothorax. Antennae relatively short, barely reaching elytral apices, sometimes not; comparative length of each segment as follows:— 5>1+2>6≧3>4.

Prothorax 1.04 times as long as basal width. Elytra 2.52 times as long as basal width, almost parallel-sided and separately subtruncate at apices.

Apex of last tergite subtruncate, shallowly emarginate at middle; apex of last sternite round.

Genitalia:— Spermatheca lightly sclerotized, relatively swollen, widest before the



Figs. 5–9. *Pidonia* (*Pidonia*) *falcata* KUBOKI, sp. nov. ♂. —— 5, Last tergite; 6, last sternite; 7, lateral lobes of male genitalia, ventral view; 8, 9, median lobes of the same, lateral view. —— 5–7, 9, Meotoike, Tokushima Prefecture; 8, Mt. Daisen-zan, Ôita Prefecture. Scale: 0.3 mm.

base, gradually narrowed apicad, strongly curved at apical part and truncate at basal part without transverse crease; spermathecal gland located at lateral wall; vagina gradually enlarged basad; valvifer narrowed apicad; apical segment of coxite rather large, lightly sclerotized at the inner part, obtusely pointed at the apex and furnished with sensory pubescence; stylus abaxially united to the lateral face of coxite, sclerotized except for apex, broad, slightly enlarged apicad, with long and sparse hairs in the terminal area.

Length: 9.3–7.2 mm, breadth: 2.6–2.0 mm.

Type series. Holotype: ♂, Meotoike, 1,440 m alt., Ichiu-son, Mima-gun, Tokushima Pref., 14–VII–1996, M. KUBOKI leg. Paratypes: [Shikoku] 2 ♂♂, 2 ♀♀, Odamiyama, Oda-chô, Kamiukena-gun, Ehime Pref., 31–V–1972, K. ANNO leg.; 1 ♂, Mt. Ishizuchi, 19–VII–1967, K. IWAO & K. HATTA leg.; 1 ♂, same locality, 12–VII–1973, R. SHIMAMOTO leg.; 2 ♂♂, Tsuchigoya, near Mt. Ishizuchi, 9–VII–1972, K. M. leg.; 1 ♂, Komenono, Matsuyama-shi, Ehime Pref., 23–VII–1965, N. OHBAYASHI leg.; 1 ♂, Ochiai Pass., 1,450 m alt., Higashiiyayama-son, Miyoshi-gun, Tokushima Pref., 2–VII–1976, O. YAMAJI leg.; 2 ♂♂, same locality, 2–VII–1977, O. YAMAJI leg.; 1 ♀, same locality, 7–VII–1979, O. YAMAJI leg.; 8 ♂♂, 2 ♀♀, same data as for the holotype; 6 ♂♂, Mt. Tsurugi, 1,750 m alt., Koyadaira-son, Mima-gun, 13～14–VII–1996, M. KUBOKI leg.; [Honshu] 3 ♂♂, 2 ♀♀, Mt. Misaka, Nakatsuya, Yoshiwa-mura, Saeki-gun, Hiroshima Pref., 7–VI–1981, R. YANO leg.; [Kyushu] 3 ♂♂, Hetsuka, near Mt. Inaodake, Uchinoura-chô, Kimotsuki-gun, Kagoshima Pref., 24–IV–1994, T. SAMESHIMA leg.; 1 ♀, Mt. Kurinodake, Kurino-chô, Aira-gun, Kagoshima Pref., 8–V–1977, K. TSUDA leg.; 1 ♂, Kikuchi, Kikuchi-shi, Kumamoto Pref., 25–IV–1971, S. NAOMI leg.; 1 ♂, same locality, 9–VI–1984, M. ONO leg.; 3 ♂♂, 2 ♀♀, Shiiya Pass, near Mt. Kunimidake, Yabe-machi, Kamimashiki-gun, Kumamoto Pref., 15–VI–1980, H. IRIE leg.;1 ♂, 1 ♀, same locality, 1–VI–1975, F. SHIMIZU leg.; 1 ♂, 2 ♀♀, Mt. Kunimidake, Kumamoto Pref., 20～21–V–1973, S. NAOMI leg.; 1 ♂, same locality, 24–V–1974, S. NAOMI leg.; 2 ♂♂, Mt. Shiraiwa, Miyazaki Pref., 29–V–1977, K. ADACHI leg.; 1 ♂, same locality, 27–V–1979, S. AMANO leg.; 1 ♂, Fukakusa, 1,100 m alt., Kujû-machi, Naoiri-gun, Ôita Pref., 17–VI–1977, T. IWAHASHI leg.; 1 ♀, Kurazome, Daisen-rindô, Ôita Pref., 6–VI–1992, F. HIROKAWA leg.; 1 ♂, Oike, near Mt. Kuro-dake, Shônai-chô, Ôita-gun, Ôita Pref., 9–V–1982, K. TSUDA leg.; 1 ♂, same locality, 16–V–1982, K. TSUDA leg.; 1 ♂, Mt. Kuro-dake, Kujû-machi, 28–V–1993, S. AMANO leg.; 4 ♂♂, 2 ♀♀, Mt. Daisen-zan, 1,750 m alt., Kujû-machi, 9–VII–1979, M. KUBOKI leg.; 1 ♂, Mt. Unzen-dake, Nagasaki Pref., 9–VI–1975, D. IWASAKI leg.; 1 ♂, Mt. Sobo, 29–VII–1947, S. AMANO leg.; 4 ♂♂, 1 ♀, Mt. Hiko-san, 800 m alt., Soeda-machi, Tagawa-gun, Fukuoka Pref., 5–V–1973, H. TAKESHITA leg.; 2 ♂♂, 1 ♀, Mt. Hiko-san, Kita-dake, Fukuoka Pref., 21–VI–1971, S. AMANO leg.

Distribution. Shikoku, western part of Chûgoku District, Kyushu.

Flight period. April to July.

Remarks. This new species resembles *P. himehana* S. SAITO but may be readily distinguished from it by the slender and sharply curved median lobe of male genitalia,

by the linearly developed submarginal vitta of elytra in female and by the triangularly emarginated last sternite with angular lateral angles in male.

This new species is allied to *P. chairo* occurring on Mt. Misen, Nara Prefecture, Kinki District and to *P. himehana* in Nikkawa-rindô, near Mt. Daibosatsu, Yamanashi Prefecture, Chûbu District. These three species form a species-group in the subgenus *Pidonia*, which is mainly characterized by the following combination of morphological features: body small and slender; prothorax black except for fulvous apex and base; spermatheca truncate at basal part without transverse crease.

I examined a total of 12 specimens belonging to the *chairo* group of the genus *Pidonia* from Mt. Misaka, Hiroshima Prefecture, and considered that they were classified into two good species, that is, *P.* sp. (allied to *P. himehana*) and *P. falcata* sp. nov.

要　約

窪木幹夫:東アジア産ヒメハナカミキリ属の知見．VI．西日本から発見された*Pidonia*属の1新種．—— 西日本から採集された*Pidonia*属の新種，*P. falcata*サイゴクヒメハナカミキリを記載した．本種は，従来*P. chairo*ヤノヒメハナカミキリと混同されてきたが，雄交尾器の中葉片がより強く鎌形に湾曲すること，雌の上翅の3つの側紋が連結すること，雄の末端節腹板の側縁角が角張り，中央が三角形に切れ込むことなどで区別できる．中国地方西部，四国，九州に分布する*P. falcata*は，紀伊半島高所，中部地方以北に分布する*P. chairo*，山梨県大菩薩一帯に分布する*P. himehana*とともに，*Pidonia*属の中で1つの種群を構成する．広島県佐伯郡の三坂山には，ヤノヒメハナカミキリ種群の2種が生息する．それらは*P. himehana*に近縁な未記載種と今回記載した*P. falcata*である．

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TAMANUKI, K., 1942. Family Cerambycidae, 2, Lepturinae. *Fauna Nipponica*, **10** (8–15): i+1–8+1–259. Sanseido, Tokyo. (In Japanese.)

Elytra, Tokyo, **25** (1): 30, May 15, 1997

Vertical Distribution of *Pidonia binigrosignata* HAYASHI, 1974 (Coleoptera, Cerambycidae) in Taiwan

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Pidonia (*Mumon*) *binigrosignata* HAYASHI, 1974, is distributed in the southern part of the Chung-yang Mountain Range, Taiwan. Vertically it occupies an area of the lower montane evergreen broadleaved forest (Fig. 1). Its collecting data are as follows:

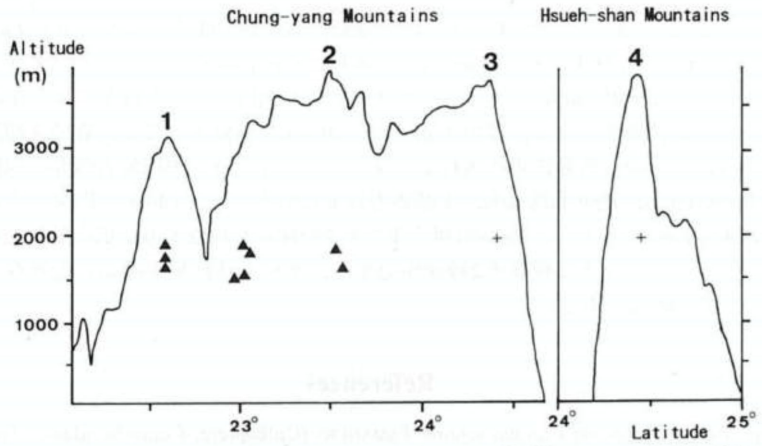

Fig. 1. Vertical distribution of *Pidonia binigrosignata* HAYASHI in Taiwan. —— 1, Mt. Peitawu Shan; 2, Mt. Yu Shan; 3, Mt. Nanhuta Shan; 4, Mt. Hsueh Shan. Cross mark indicates the location of Siyuan-yakou, on the borders between the Chungyang Mountains and the Hsuehshan Mountains.

1 ♂, Fenchihu, 1,815 m alt., Chiayi Hsien, 1–V–1994, M. KUBOKI leg.; 1 ♀, same locality, 1–V–1995, M. KUBOKI leg.

1 ♂, Shimenku, 1,615 m alt., Chiayi Hsien, 30–IV–1996, M. KUBOKI leg.

6 ♂♂, Mt. Fengkang Shan, 1,500 m alt., Kaohsiung Hsien, 30–IV–1985, W. CHEN leg.

3 ♂♂, 2 ♀♀, Mt. Hsinan Shan, 1,800 m alt., Kaohsiung Hsien, 2–V–1995, M. KUBOKI leg.

2 ♂♂, 2 ♀♀, Mt. Shi Shan, 1,550–1,900 m alt., Kaohsiung Hsien, 27–IV–1985, W. CHEN leg.

3 ♂♂, 2 ♀♀, Mt. Peitawu Shan, 1,650–1,900 m alt., Pingtung Hsien, 1–V–1993, M. KUBOKI leg.

I am indebted to Mr. Y. KIYOYAMA for his kind advice on the present study.

Elytra, Tokyo, **25** (1): 31–38, May 15, 1997

Description of the Larva of *Enoploderes bicolor* OHBAYASHI (Coleoptera, Cerambycidae)

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Abstract The larva of *Enoploderes bicolor* OHBAYASHI is described, illustrated, and compared with that of *Enoploderes sanguineus* FALDERMANN. Larvae of the two species are very similar to each other and different only in minor morphological characters.

The lepturine genus *Enoploderes* FALDERMANN comprises three species: *E. sanguineus* FALDERMANN from Western Palearctic, *E. bicolor* OHBAYASHI from Japan and *E. vitticollis* (LE CONTE) from North America. Although the two generic names, *Pyrotrichus* LE CONTE and *Pyrenoploderes* HAYASHI, were once applied to *vitticollis* and *bicolor*, respectively, KUSAMA and HAYASHI (1971) considered them as junior synonyms of *Enoploderes*.

The larval morphology has so far been described only for *E. sanguineus* (DANILEVSKY & MIROSHNIKOV, 1981; CHEREPANOV, 1985; SVÁCHA & DANILEVSKY, 1989). The host plants of *E. sanguineus* have been widely known to include such various tree genera as *Populus*, *Salix*, *Fagus*, *Acer*, *Alnus* and *Abies*. North American *E. vitticollis* is reported to feed on *Acer*, *Alnus*, *Populus* and *Umbellularia*, though its larva has not yet been found (HARDY, 1944; LINSLEY & CHEMSAK, 1972). Bionomics of the Japanese species, *E. bicolor*, have been gradually made clear in the last twenty years (ITO, 1976; OKUDA, 1984), and are similar to those of the two other foreign species. All the three species of the genus *Enoploderes* are obviously polyphagous on various broadleaved trees, and *E. sanguineus* and *E. bicolor* have been reported also from conifers (*Abies* in the former, *Cryptomeria* in the latter).

In this paper, larval morphology of *E. bicolor* is described and compared with that of *E. sanguineus*. Morphological terminology used herein is based upon that by SVÁCHA and DANILEVSKY (1989). Indications of cranial ratio are based upon 8 specimens measured.

I wish to express my sincere thanks to Dr. Petr SVÁCHA of the Institute of Entomology, Ceské Budejovice, Czech Republic, for comparing the larvae of *E. bicolor* with those of *E. sanguineus* and drawing Figs. 7, 16 and 17, and to Messrs. Tatsuya NIISATO of Tokyo, Masatoshi TAKAKUWA and Haruki KARUBE of Kanagawa Prefectural Museum of Natural History, Tomio KINOSHITA of Kanagawa, Ituro KAWASHIMA of

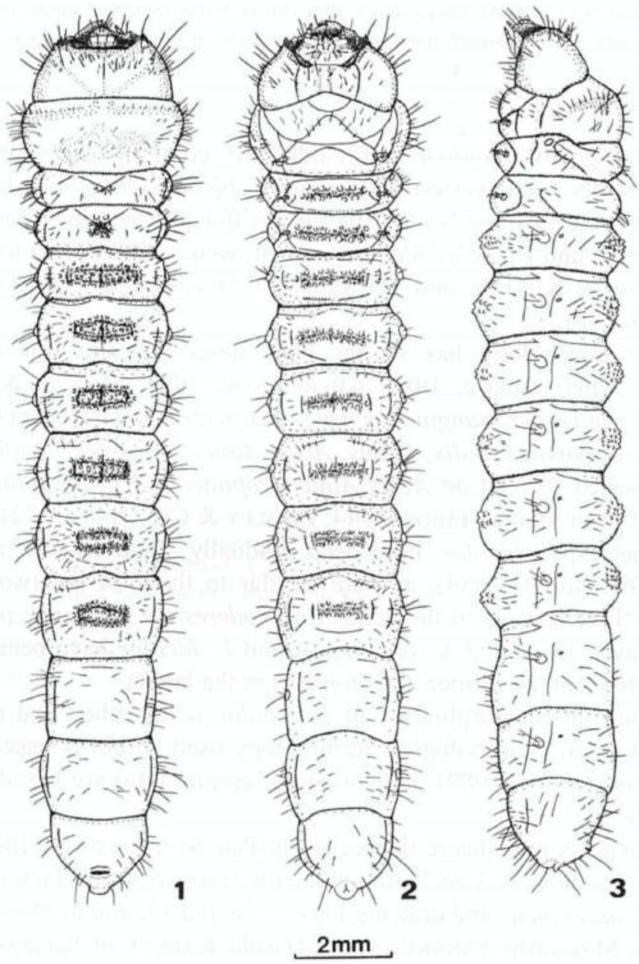
Tokyo University of Agriculture, and Miss Chidori SURUSUMI of Tokyo, for their kind help in collecting materials and providing me with useful information.

Enoploderes bicolor OHBAYASHI

(Figs. 1–15, 17)

Description. Larva. Body (Figs. 1–3) white, elongate, not flattened, covered with ferrugineous setae. Largest available larva 20 mm in length.

Head (Figs. 4–5) moderately retracted into prothorax, exposing more than half the length, slightly narrower than prothorax. Cranium widest just behind middle, trans-



Figs. 1–3. Larval body of *Enoploderes bicolor*; 1, dorsal view; 2, ventral view; 3, lateral view.

verse (width/length 1.5–1.7), depressed (width/height 2.0–2.3), light yellow except for strongly pigmented mouth-frame, not microgranulate. Epicranium smooth, provided with several setae, both epicranial halves touching at one point on posterior portion, forming about 90° angle.

Frontal lines almost vestigial, reaching anterior margin of cranium; transfrontal line indistinct; frons smooth, transverse (width/length ratio about 1.7–1.9), feebly concave behind; postfrons provided with several short setae, praefrons with more numerous short setae intermixed with several longer ones; epistomal margin sclerotized, with pigmentation particularly broad behind mandibular articulations; three pairs of main epistomal setae close to fronto-clypeal border, occasionally accompanied by several shorter ones; medial frontal line distinct, reaching epistomal margin.

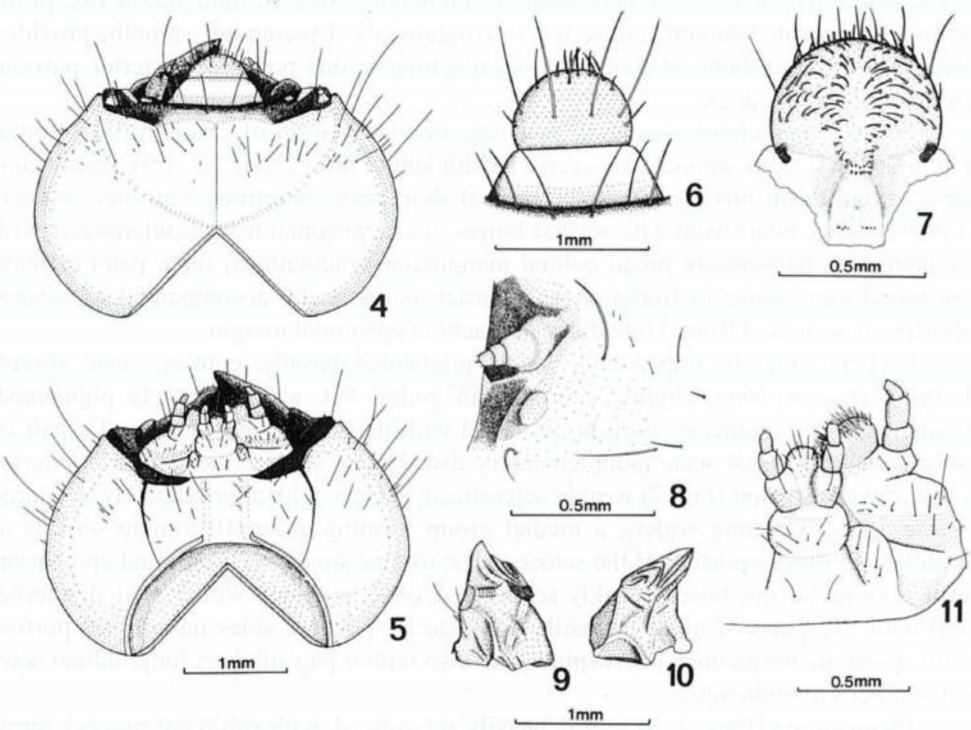
Clypeus (Fig. 6) trapezoidal, feebly pigmented basally, convex; setae absent. Labrum (Fig. 6) long, slightly shorter than width, flat, almost entirely pigmented, though less so on anterior portion, provided with dense marginal setae and a pair of longer isolated discal setae (supplementary discal setae sometimes present). Anterior epipharyngeal region (Fig. 7) weakly sclerotized; surface with approximately two large setose areas extending widely, a medial group forming about 10 minute sensilla at middle of posterior portion of the setose areas; tormae small, oblique. Hind epipharyngeal portion narrow, raised, weakly sclerotized, often provided with a medial sclerite, and with five pairs of minute sensilla on posterior portion; sides on anterior portion with sparse inconspicuous microspines and also with a pair of short longitudinal sclerotized belts at midlength.

Pleurostoma (Figs. 4, 8) raised, heavily sclerotized, with subfossal process forming a small tubercle. Gena (Fig. 8) smooth, weakly pigmented, with a pair of large convex main stemmata (Fig. 8), other stemmata usually indistinct, though sometimes provided with two small pigment spots of dorsal stemmata.

Ventral sclerite forming a combined plate of gula and hypostoma (Fig. 5), which is moderately long (width/medial gular length 2.5–2.9), widest just before the middle, not darker than epicranium, almost flat and smooth, and provided with more than 10 setae on each side; gular line slightly raised; anterior margin almost straight, infuscate except for medial area, and distinctly separated from labio-maxillary base; hypostomal lines narrow, gently curved, reaching postoccipital lines, usually subparallel on posterior sides; metatentorial pits distinct, with medial extremities abruptly curved forwards; medial gular line indiscernible.

Antennae (Fig. 8) two-segmented, remarkably directed ventrad; basal membrane slightly pigmented; antennal ring a little raised, widely connecting membrane; segments slightly pigmented, exposed part of segment 1 distinctly wider than long, segment 2 almost as long as wide, main sensillum conical.

Mandibles (Figs. 9–10) with strong keels running from dorsal angle; border zone indistinctly striate; apex prolonged and sharp, with three distinct inner keels reaching apex; apical part with outer surface distinctly microsculptured; basal part almost smooth, somewhat gibbous laterally, with several setae.



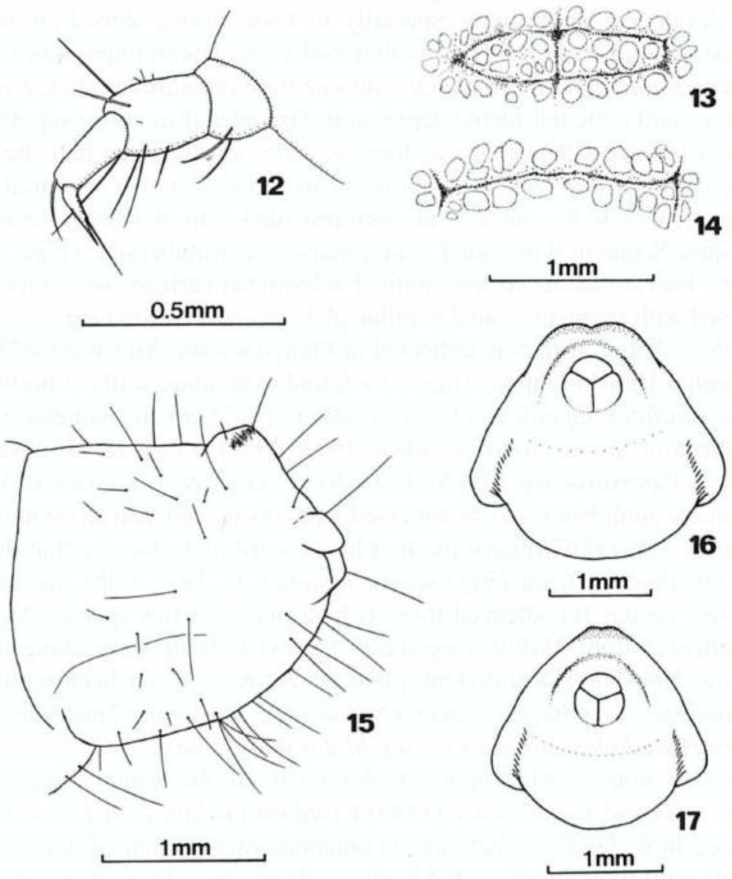
Figs. 4–11. Larval character of *E. bicolor*. —— 4–5. Head: 4, dorsal view; 5, ventral view. —— 6, Clypeus and labrum; 7, epipharynx; 8, left pleurostoma, antenna and genal portion. —— 9–10. Left mandible: 9, dorsolateral view; 10, medial view. —— 11, Labium and left maxilla in ventral view.

Labiomaxillary complex (Fig. 11) not flattened. Basal parts well separated from each other, especially in later instars; submentum tending to fuse with mentum, with a pair of setae; connecting lobe weakly sclerotized, provided with several setae; cardo large, occasionally with a pair of short setae at outer sides. Distal maxilla short, robust; stipes feebly pigmented in basal half; maxillary palpiger short, pigmented basally, provided with some setae; maxillary palpus pigmented; both palpiger and segment 1 without latero-dorsal process, segment 1 about as long as wide, segment 2 longer and slenderer than segment 1, segment 3 slenderest; mala extremely broad (inserted above labium when maxillae are closed), pigmented, medial and apical surface covered with dense setae. Mentum provided with a pair of long setae and some shorter ones. Labial palpigers each provided with a pair of long setae, pigmentation tending to fuse; basal apodeme of praelabium unpigmented; ligula small, sparsely with stout setae, base of ligula not reaching a part between bases of labial palpi, located more dorsally than labial palpus.

Prothorax (Figs. 1–2) tapered towards base; protergal band pale yellow, without

anterior notches, interrupted medially, pigmentation still paler on posterior alar lobes; pronotum roughly irregularly rugose, without lateral furrows, provided with 2 to 5 short discal setae on each side; epipleuron and venter almost unpigmented; latero- and medio-praesterna with many setae; anterior praesternal lobe and sternellar fold without setae, though the former is sometimes provided with 1 or 2 minute setae; coxosternum with several setae; microscopic spines restricted, inconspicuous microspines occasionally present on coxosternum.

Meso- and metathoraces (Figs. 1–2) covered with granules both dorsally and ventrally, of which the dorsal ones are smaller especially on mesonotum, and the ventral ones are along the sides of transsternal line, the ventral granules similar to those of ab-



Figs. 12–17. Larval character of *Enoploderes*. —— 12, Right fore leg of *E. bicolor*; 13–14, ambulatory ampulla (abdominal segment 2) of *E. bicolor*: 13, dorsal view; 14, ventral view; 15, abdominal segments 9 to 10 of *E. bicolor* in lateral and slightly posterior view. —— 16–17. Abdominal end of *Enoploderes* in posterior and slightly ventral view (showing the shape of caudal protuberance, setae omitted): 16, *E. sanguineus*; 17, *E. bicolor*.

domen; alar lobes protuberant; basisternum undivided; coxae poorly defined anteriorly; mesothoracic spiracle (Fig. 3) a little less than twice as long as wide, ferrugineous, with more than 20 small marginal chambers; metathoracic spiracles almost indiscernible; praescutum, scutum and venter covered to some extent with inconspicuous microscopic spines.

Legs (Fig. 12) well developed, slender; hind legs distinctly shorter than half the length of their basal distance; trochanter well developed, provided with several setae; femur and tibiotarsus unpigmented, the former almost as long as the latter, more densely setose; praetarsus shorter than femur, seta arising slightly before the middle.

Ambulatory ampullae of abdomen (Figs. 13–14) present on both dorsal and ventral sides of segments 1 to 6, strongly granulate with microscopic spines restricted and very poorly developed, discernible especially in later instars; dorsal ampullae each with two transverse impressions, a pair both dorsally, and lateral impressions and a medial feeble depression; ventral ones each with one transverse impression, a pair of lateral impressions and a medial feeble depression. Spiracles (Fig. 3) on segments 1 to 8 ferrugineous, a little less than twice as long as wide, smaller than half the length of mesothoracic spiracle, provided with about 10 marginal chambers. Pleural tubercles (Fig. 3) on segments 1 to 8 convex, oval, each provided with two strong setae and several shorter ones. Segment 9 provided with a transverse protuberance (Figs. 15, 17) on dorsal surface, bearing about 20 longitudinal sclerotized carinae. Anal tube (Fig. 15) somewhat fused with segment 9; anal papillae glabrous; anus tri-radiate.

Materials. About 40 larvae collected at Okuyugawara, Yugawara of Kanagawa Prefecture, central Honshu, Japan. They were found from inner walls of hollows of living trunks of *Mallotus japonicus* (THUNB.), about 15–25 cm in diameter. Collecting data and collectors are as follows: 14–II–1993, M. TAKEDA & H. KARUBE leg.; 17–XI–1993, T. KINOSHITA leg.; 29–V–1994, M. TAKEDA & T. KINOSHITA leg. In the spring time, many adult beetles were collected from inside and near these hollows.

Host plants. ITO (1976) gave the first host record of *E. bicolor* that dead adults specimens were dug out from *Cryptomeria japonica* D. DON. Subsequently, OKUDA (1984) reported various broadleaved trees as host plants of this species. Many adults have been collected from *Mallotus japonicus* (THUNB), particularly along the Pacific coast of central Honshu. The following plant genera have so far been reported as its hosts: *Cryptomeria* (Taxodiaceae), *Acer* (Aceraceae), *Stewartia* (Theaceae), *Mallotus* (Euphorbiaceae), *Rhdodendron* (Ericaceae), *Malus* (Rosaceae).

Comparative notes. All important characters of the genus *Enoploderes* described by SVÁCHA and DANILEVSKY (1989) based on the larvae of *E. sanguineus* are also recognized in *E. bicolor*. They are: 1) antennae two-segmented, lacking segment 3; 2) mandible with three inner medial keels reaching apex; 3) mala extremely broad; 4) submentum tending to fuse with mentum; 5) base of ligula not reaching a part between bases of labial palpi, located more dorsally than labial palpus; 6) both dorsal and ventral abdominal ambulatory ampullae present on segments 1 to 6 only; 7) abdominal tergum 9 provided with slightly sclerotized transverse protuberance; 8) anal tube al-

most fused with abdominal segment 9. The combination of the above characters will readily distinguish the genus from other known lepturine larvae.

The larvae of *E. bicolor* and *E. sanguineus* are closely related to each other, but they can be distinguished by the following key:

1 (2) Caudal protuberance broader, rather distinctly bilobed, weakly sclerotized and microsculptured, with rather vestigial longitudinal striation (Fig. 16); Caucasus, Transcaucasia, North Iran, ?Asia Minor, Balkan Peninsula . . . . . *E. sanguineus.*

2 (1) Caudal protuberance narrower, gently bilobed, usually more heavily sclerotized, with rather distinct longitudinal striation (Figs. 15, 17); Japan . . . . . *E. bicolor.*

Some additional, less pronounced and less reliable differences are as follows: ventral cranial sclerite longer in *E. bicolor* (2.5–2.9) than in *E. sanguineus* (about 3–3.1); hypostomal lines subparallel in *E. bicolor*, slightly divergent posteriad in *E. sanguineus* (this character is usually variable); anterior praesternal lobe provided with distinct setae in *E. sanguineus*.

要　約

武田雅志：ヒラヤマコブハナカミキリの幼虫の記載．—— SVÁCHA & DANILEVSKY (1988)が，ユーラシア大陸西部に分布する同属の*Enoploderes sanguineus* FALDERMANNに基づいて示した，ヒラヤマコブハナカミキリ属*Enoploderes*の幼虫の特徴である，1）触角が2節，2）大顎の内側中央に先端に達する3本の溝がある，3）葉節がとくに幅広い，4）下唇節が下唇基節と融合する傾向がある，5）舌の基部は下唇肢の基部の間に届かず，背面寄りに位置している，6）腹節の歩行隆起が背面，腹面とも第1~6節にある，7）第9腹節背面に横長の隆起がある，8）肛門管が第9腹節とやや融合する，などを，日本のヒラヤマコブハナカミキリも同様にそなえていた．ヒラヤマコブハナカミキリと*E. sanguineus*は，第9腹節背面の横長の隆起がヒラヤマコブハナカミキリの方で小さく，節片化がより進み，*E. sanguineus*にはみられない縦のすじ状となっていることで区別できる．

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Elytra, Tokyo, **25** (1): 38, May 15, 1997

A Host Record of *Oligoenoplus rosti* (Coleoptera, Cerambycidae)

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Kalopanax pictus NAKAI is the only known larval host plant of *Oligoenoplus rosti* (PIC). Recently, I have found out that *Quercus mongolica* FISCHER is an additional larval host plant of this cerambycid species. The collecting data are as follows:

Hinoemata-mura, Minamiaizu-gun, Fukushima Prefecture, central Honshu of Japan, 1 ex., 3–V–1993, 2 exs., 18–VI–1995, M. TAKEDA leg.

In the former case, I obtained an adult beetle in the pupal cell made in the bark of a newly fallen trunk more than 50 cm in diameter, with tunnel and frass made by larva. It is certain that this beetle fed on *Quercus mongolica* for its immature stage. In the latter case, I obtained two adult beetles gathering on the living trunk more than 50 cm in diameter. It is most probable that the beetles gathered for mating or laying eggs. Consequently, it is certain that *Oligoenoplus rosti* feeds on the bark of living trunk of *Quercus mongolica*.

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Elytra, Tokyo, **25** (1): 39–44, May 15, 1997

A New Genus and Species of the Subfamily Prioninae (Coleoptera, Cerambycidae) from Vietnam

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Abstract A new prionid genus *Vietetropis* is proposed for the reception of a unique species, *V. viridis* sp. nov. from northern Vietnam. It resembles *Megopis*, but readily distinguished by the dorso-ventrally divided eyes.

In 1992, a beautifully coloured prionid specimen was brought about from the mountainous area of northern Vietnam. Only a glance was enough for recognizing that it belonged to a new species, which, I thought, was a member of the genus *Megopis*. After a close examination, however, I have come to the conclusion that it is not only a new species but represents a new genus. Besides, it may not be included in the tribe Megopini GILMOUR, in spite of its superficial resemblance to the genus *Megopis* SERVILLE. I am going to describe this remarkable species under the name of *Vietetropis viridis* gen. et sp. nov., and to make a comment on the relationship between this genus and the genus *Megopis*.

Before proceeding further, I would like to express my sincere gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for kindly revising the original manuscript. I am grateful to Mr. Masashi KIMURA for drawing the illustration accompanying this paper.

Vietetropis gen. nov.

Male. Body metallic green, partly black, elongated cylindrical. Head robust; frons vertical with a pair of strong carinae, each of which is connected with each antennal tubercle. Mandibles short and thick. Upper eye lobes completely separated from lower eye lobes, so as to form four eyes. Antennae 1.1 times as long as body, of 12 segments; scape robust, arcuate and denticulate internally; 3rd segment arcuate, more than twice as long as scape, with a strong vertical apical spine. Metasternal episternum broad, parallel-sided and rectangularly truncated posteriad.

Female. Generally similar to, but obviously broader than male. Body metallic indigo, partly metallic green, darker than in male. Antennae 0.5–0.6 times as long as body; 3rd segment strongly broadened dorso-ventrally, without apical spine; 12th segment narrower and shorter than any of the others.

Type species: *Vietetropis viridis* sp. nov.

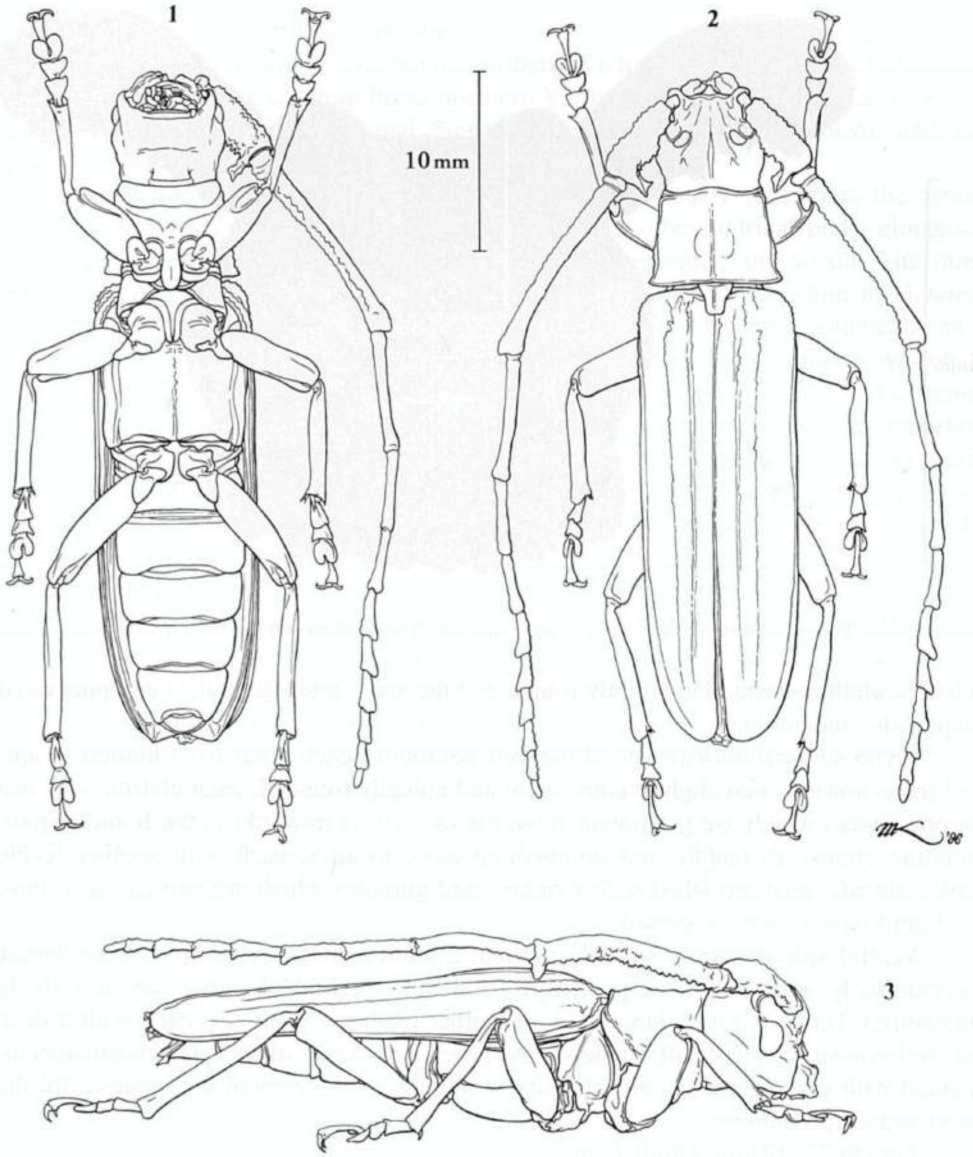
Vietetropis viridis sp. nov.

(Figs.1–4, pl. 1)

Male. Body generally green, partly black, blue or brown; elytra green on costae, suture and near ante-basal part with a strong golden lustre, intervals mat green; frons, vertex, gena, gula and scutellum metallic green partly accompanied with a blue lustre, pronotum deep green, moderately mat and with lustrous basal line; head, pronotum and scutellum with shiny median line; eyes black; outside of mandibles and scapes black with a green tint; femora, tibiae, and 2nd to 6th antennal segments glossy black with faint blue tint; apical halves of 5th and 6th antennal segments as well as 7th and more apical ones mat black, thorax except for pro- and mesocoxae metallic green; coxae and abdominal sternites glossy black with faint blue tint. Dorsal side almost glabrous. Ventral side generally covered with thin but distinct white pubescence. Frons, pronotal disc and legs feebly and sparsely furnished with minute grey pubescence.

Head cylindrical, almost of the same size as pronotum, about 0.8 times as long as wide, widest near apical one-fifth, and then conically narrowed posteriad, finely punctured and partly granulated; frons vertical, convex at middle with a pair of ridges at the sides coming down from antennal tubercles, with a tubercle at middle just above clypeus; vertex level, with strong antennal tubercles and two small tubercles on occiput on each side of median line slightly posterior to eyes; each gula with a short conical, obtusely pointed protuberance anterior to eye. Mandibles short, almost as long as 7th antennal segment, about as long as thick, irregularly more thickened towards base, finely punctured outside, each with two small dents inside, which are roundly arcuate and obtusely bifid at the apices. Palpi minute, about as long as 12th antennal segment; labial palpus with flattened apical segment; eyes faceted; upper eye lobes completely separated from lower eye lobes, the interval of the two lobes being marked by shiny patches; the lower lobe about 5 times as large as the upper one. Antennae about 1.1 times as long as body; relative length of each segment as follows:— 5.0: 1.0: 10.1: 6.0: 3.6: 3.1: 2.4: 2.2: 2.2: 2.0: 1.9: 1.2; scape robust, slightly arcuate, ruggedly granulate and punctured outside, denticulate inside; 2nd short, narrower than scape and wider than 3rd; 3rd long, arcuate dorso-ventrally, strongly asperate with irregular granules and punctures and more distinctly so on the underside, with a conspicuous vertical spine on the underside near the apex, 4th to 6th slightly arcuate, widened, and angulate at each apex, 7th to 11th serrate and shagreened, 12th oval and slender.

Pronotum subcylindrical, finely punctured, about 0.8 times as long as wide, narrowest at the apex, slightly widened towards the middle then parallel-sided to base; a pair of projections at the lateral end of basal margin; each lateral margin of thorax complete, starting from the basal projection, straightly running downwards to coxal cavity, then directed upwards, and ending in the middle of apical margin in lateral



Figs. 1–3. *Vietetropis viridis* gen. et sp. nov., from northern Vietnam, drawn from the holotype ♂; 1, ventral view; 2, dorsal view; 3, lateral view.



Fig. 4. Head of *Vietetropis viridis* gen. et sp. nov., drawn from the holotype ♂.

view; scutellum triangular, slightly rounded at the apex, finely granulate and punctured expect on median line.

Elytra semicylindrical; lateral margins parallel to each other from humeri to apical three-fourths, then slightly convergent and apically rounded; each elytron with two strong costae which are prominent forwards as well as upwards at the humeral part, running almost all length, and diminishing close to apex, each with another feeble costa outside; disc furnished with wrinkles and granules which are stronger near base and gradually weaken posteriad.

Ventral side generally smooth, without granules. Metasternal episternum broad, rectangularly truncated both posteriorly and anteriorly. Abdominal sternites finely punctured. Femora stout, glabrous, with neither teeth nor granules, each with a deep ventral groove in apical half, tibiae slender, each with a pair of carinae beneath accompanied with small granules; apical spurs small; 1st tarsal segment the longest, 3rd the next and deeply bilobed.

Length 37–40 mm; width 9 mm.

Female. Similar to male. Body colour more bluish, with abdominal sternites orange yellow. Antennae shorter, about 0.6 times as long as body, with 3rd segment much broadened dorso-ventrally, 6th to 11th dilated, 12th very small. Pronotum about 0.6 times as long as wide. Elytra broader, gradually widened posteriad from humeri to the middle, then almost parallel-sided, widest at apical two-fifths and rounded at anal ends; costae less prominent than in male.

Length 26–39 mm; width 6–9 mm.

Distribution. Northern Vietnam.

Type series. Holotype ♂, Sapa, northern Vietnam, 25–V–1992, M. ITO leg. Paratypes: 1 ♂, 4 ♀♀, Cao Bang Prov., northern Vietnam, 1～18–V–1996. The holotype will be deposited in the National Science Museum (Nat. Hist.), Tokyo, and the paratypes in KOMIYA's collection.

Discussion. The genus *Vietetropis* gen. nov. obviously resembles the genus *Megopis* SERVILLE in general appearance. They share subcylindrical body, elongated 3rd antennal segment, deeply bilobed apical tarsal segments, and so on. The most prominent difference between the two is in the conformation of eyes, four in *Vietetropis* and two in *Megopis*. However, this may not be so important phylogenetically as it appears, since some species of the genus *Megopis* have fairly emarginate eye lobes, and since each eye lobe can be divided when this tendency is developed to an extreme. *Vietetropis* has posteriorly truncated metasternal episterna; this can be more important because it has been regarded as one of the important non-megopine (non-aegosomine) tribal characteristics. *Vietetropis* has complete 12th antennal segments; 12-segmented antennae are often found in some tribes of the subfamily Prioninae, for example, the tribes Prionini, Acanathophorini, Anacolini, etc., but not in the tribe Megopini. The male genital organ of *Vietetropis* consists of depressed and elongated median lobe and robust lateral lobes. Most prionine genera with the 12th antennal segments have short thick median lobe and robust lateral lobes, with the exception of some genera of the tribe Anacolini. On the other hand, the genus *Megopis* has depressed and elongated median lobe and slender or small lateral lobes. In my present opinion, this new genus had better be included in the tribe Anacolini LAMEERE for the peculiarities of its metasternal episterna, 12-segmented antennae and male genitalia, notwithstanding its superficial resemblance to the genus *Megopis*. However, such arrangement raises further problem in including genera with extremely elongated 3rd antennal segment, which has been regarded as a non-anacoline tribal feature, in the tribe Anacolini. Further investigations are needed for drawing a final conclusion.

要　　約

小宮次郎：ベトナム産ノコギリカミキリ亜科の新属新種．—— ベトナム北部山岳地帯から，美しい金属光沢をもつウスバカミキリに似た種が新たに発見された．検討の結果，多くの特徴がウスバカミキリ属*Megopis*に似ているが，後胸前側板が後方に狭まらないことなどの重要な特徴が異なり，新属に所属すると考えられる．さらに，この特徴を重視すれば，ウスバカミキリ族Megopiniにも所属しないことになる．この種を新属新種*Vietetropis viridis*として記載するとともに，この新属を暫定的にコバネカミキリ族Anacoliniに含めておくことを提案する．この新属は，複眼が上下に完全に分かれた四ツ目であることや，12節の触角と細長い円筒形の体などの特徴を合わせてもつことにより，ノコギリカミキリ亜科の他のいかなる属からも容易に区別できる．

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Explanation of Plate 1

Figs. 1–4. *Vietetropis viridis* gen. et sp. nov., from northern Vietnam; 1, ♂ (paratype) in dorsal view; 2, ♀ (paratype) in dorsal view; 3, ♀ (paratype) in ventral view; 4, ♂ (paratype) in lateral view.



1



2



3



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Elytra, Tokyo, **25** (1): 45–65, May 15, 1997

Study of Asian Strongyliini (Coleoptera, Tenebrionidae)

III. New *Strongylium* Species from Southern India, Preserved in the Collections of the Muséum National d'Histoire Naturelle, Paris and the Natural History Museum, London

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Abstract This is the third part of a study of the Asian Strongyliini. Sixteen new species of the genus *Strongylium* from southern India are described as follows: *S. agumbeghatense* sp. nov., *S. kadamparaiense* sp. nov., *S. poonmudiense* sp. nov., *S. chembraense* sp. nov., *S. nathani* sp. nov., *S. mysorense* sp. nov., *S. nilgiriense* sp. nov., *S. mercaraense* sp. nov., *S. anamalaense* sp. nov., *S. malabarense* sp. nov., *S. shimogaense* sp. nov., *S. cinchonaense* sp. nov., *S. keralaense* sp. nov., *S. pallavum* sp. nov., *S. elongatissimum* sp. nov. and *S. ferreri* sp. nov.

This paper is the third part of my study of the Asian Strongyliini and contains descriptions of sixteen new species of the genus *Strongylium* from southern India. The specimens examined for this study became available through the courtesy of the curators of the Muséum National d'Histoire Naturelle, Paris, and the Natural History Museum, London, in the early spring of 1996. I have spent a year for studying a great number of unnamed materials from various areas. I am going to describe new species first from southern India, because only a small number of species of this genus have hitherto been known from there.

I wish to express my heartfelt thanks to Dr. Claude GIRARD and Mlle. Jeanne CHARBONNEL, Muséum National d'Histoire Naturelle, Paris, and Messrs. Martin J. D. BRENDELL and Malcolm KERLEY, the Natural History Museum, London, for their invaluable aid extended to me in the course of the present study. Thanks are also due to Messrs. Kaoru SAKAI and Seiji MORITA in Tokyo for taking photographs inserted in this paper. Finally, I wish to express my deepest appreciation to Dr. Shun-Ichi UÉNO, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance of my taxonomic studies.

Depositories of the holotypes to be designated are given in the text.

Strongylium agumbeghatense sp. nov.

(Fig. 1)

Darkly castaneous, basal margin of pronotum and elytra more or less lighter in colour, each surface with feeble greenish tinge and almost glabrous. Rather elongate, gently convex.

Head subdecagonal, feebly convex, weakly micro-shagreened, closely, irregularly punctate; clypeus transverse, widely bent downwards in front, fronto-clypeal border widely arcuate and finely sulcate; genae weakly depressed at postero-internal portions before eyes, with outer margins moderately raised and obtusely angulate; frons rather short and wide, mildly inclined forwards; eyes medium-sized, somewhat reniform, rounded laterad, rather obliquely inlaid into head, diatone slightly wider than the width of an eye diameter; vertex with a shallow impunctate impression medially. Antennae somewhat claviform, reaching basal 1/5 of elytra, ratio of the length of each segment from basal to apical: 0.5, 0.2, 1.0, 0.9, 0.65, 0.6, 0.53, 0.45, 0.36, 0.34, 0.6.

Pronotum trapezoidal, 1.33 times as wide as long, widest at basal 1/3; apex almost straight and rimmed, the rim feebly thickened in middle; base feebly sinuous on each side, finely bordered, and rimmed; sides steeply declined to lateral margins, which are feebly produced laterad, indistinctly denticulate at basal 1/3, and finely carinulate, the carinulae barely visible from above; front angles rounded, hind angles slightly acute; disc gently convex, very weakly, longitudinally depressed in medial portion, with a pair of rounded impressions at basal 1/3, surface of pronotum feebly micro-shagreened, rather closely, irregularly scattered with punctures. Scutellum somewhat linguiform, feebly convex, scattered with microscopic punctures.

Elytra 2.4 times as long as wide, 4.8 times the length and 1.46 times the width of pronotum, feebly widened posteriad, widest at apical 3/8; dorsum rather strongly convex, gently undulate, depressed at basal 2/7 and apical 4/9, highest at basal 2/5; disc weakly micro-shagreened, irregularly punctato-striate, the punctures in lateral portions becoming larger, often fused with one another, and forming longitudinal foveae; intervals gently convex, often transversely ridged and connected with one another, feebly micro-shagreened, and sparsely scattered with microscopic punctures.

Ratios of the lengths of pro-, meso- and metatarsomeres: 0.24, 0.18, 0.2, 0.2, 1.2; 1.65, 0.85, 0.75, 0.4, 1.5; 1.7, 0.7, 0.5, 1.5.

Body length: 11–12 mm.

Holotype: ♀, Devala, Nilgiri Hills, southern India, V–1961, P. S. NATHAN leg. (MNHNP). Paratype: 1 ex., Agumbe Ghat, Shimoga Dist., Mysore State, southern India, V–1974, no collector's name.

Notes. This new species somewhat resembles *Strongylium gratum* MÄKLIN, 1864, from the Sunda Islands, but can easily be distinguished from the latter by the smaller eyes, the head and pronotum not rugoso-punctate but closely punctate, and the elytra less coarsely punctato-striate, with apices not projected posteriad.

Strongylium kadamparaiense sp. nov.

(Fig. 2)

A remarkable species with no close relative previously known. Iron-greyish with feeble dark greenish tinge, vertex, disc of pronotum, scutellum and elytra with brassy lustre, fore body above feebly sericeously shining, elytra gently shining, ventral surface rather alutaceous; each surface almost glabrous. Elongate, rather strongly convex.

Head subdecagonal, feebly micro-shagreened, closely punctate; clypeus flattened in basal portion, noticeably projected and rather strongly bent downwards in front, fronto-clypeal border widely arcuate and finely sulcate; genae rather noticeably impressed before eyes, with outer margins strongly raised and rounded; frons finely T-shaped, rather steeply inclined forwards; eyes large, noticeably rounded laterad, obliquely, broadly inlaid into head, diatone about 1/20 times the width of an eye diameter; vertex with a somewhat rhombical impression medially. Antennae somewhat filiform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.77, 0.2, 1.3, 1.23, 1.0, 0.87, 0.75, 0.67, 0.53, 0.44, 0.52.

Pronotum short barrel-shaped, 1.2 times as wide as long, widest at the middle; apex feebly emarginate and rimmed, the rim remarkably thickened in middle; base feebly sinuous on each side, clearly bordered and ridged; sides somewhat straightly declined to lateral margins, which are gently arcuate and finely carinulate, the carinulae visible from above; front angles rounded, hind angles subrectangular; disc gently convex, longitudinally impressed in the middle, with two pairs of impressions, one slightly before basal 1/3, the other close to base; surface of pronotum feebly micro-shagreened, frequently, irregularly scattered with punctures. Scutellum somewhat linguiform, feebly convex in middle, though longitudinally depressed in postero-medial portion, frequently scattered with microscopic punctures in lateral portions.

Elytra 2.63 times as long as wide, 4.52 times the length and 1.44 times the width of pronotum, feebly constricted at basal 1/3, widest slightly behind the middle; dorsum strongly convex, slightly undulate, depressed at basal 1/5, basal 1/3 and slightly behind the middle, and also irregularly depressed in posterior portion, highest at basal 1/4, area around scutellar strioles weakly, longitudinally depressed; disc slightly micro-shagreened and sparsely micro-aciculate, grooved with rows of punctures, the grooves often interrupted by low transverse ridges, the punctures deep and somewhat elongate, those in lateral portions becoming larger, often fused with one another, and forming longitudinal foveae; intervals gently convex, often transversely raised and connected with one another, 7th interval distinctly ridged in apical 1/4.

Male legs rather noticeably slender; mesotibiae weakly curved ventrad in apical 1/3; metatibiae gently curved dorsad; ratios of the lengths of pro-, meso- and metatarsomeres: 0.47, 0.3, 0.33, 0.27, 1.2; 2.39, 1.18, 0.89, 0.47, 1.57; 2.9, 1.23, 0.76, 1.6.

Male genitalia short fusiform, evenly curved in lateral view, 2.8 mm in length, 0.6 mm in width; fused lateral lobes 1.3 mm in length, with acutely pointed apex.

Body length: ca. 18.5 mm.

Holotype: ♂, Kadamparai, Cinchona, 1,200 m alt., Anamala Hills, southern India, V–1974, P. S. NATHAN leg. (MNHNP).

Strongylium poonmudiense sp. nov.

(Fig. 3)

Piceous, head, pronotum and scutellum darker in colour, terminal segments of antennae pale yellow, apical half of head and elytra gently, somewhat sericeously shining, posterior half of head, pronotum, scutellum and ventral surface rather alutaceous; each surface except for antennae and legs, which are finely haired, almost glabrous. Somewhat elongate, rather strongly convex.

Head subrhombical, feebly micro-shagreened; clypeus frequently scattered with small punctures, depressed in basal portion, gently inclined apicad, fronto-clypeal border widely arcuate, very finely sulcate; genae noticeably, obliquely raised, with widely rounded outer margins; frons finely T-shaped and raised, rather steeply inclined forwards; eyes distinctly large, noticeably convex laterad, broadly, obliquely inlaid into head, diatone about 1/10 times the width of an eye diameter; vertex closely rugoso-punctate, each puncture with a short scale-like hair, with a vague, longitudinal impression medially. Antennae reaching basal 3/10 of elytra, with each segment rather oblong and feebly dilated towards apex, ratio of the length of each segment from basal to apical: 0.6, 0.2, 0.6, 0.6, 0.55, 0.55, 0.55, 0.55, 0.55, 0.5, 0.6.

Pronotum somewhat barrel-shaped, 1.39 times as wide as long, widest at the middle; apex almost straight and rimmed, the rim feebly thickened in middle; base very feebly bisinuous, bordered and ridged, the ridge rather noticeably thickened in middle; sides steeply inclined, finely and clearly carinulate, the carinulae obtusely angulate at the middle, sinuate in basal 1/3, and visible from above; front angles obtuse, hind angles subrectangular; disc moderately convex, noticeably depressed in medio-basal portion, longitudinally impressed in middle, with two pairs of oblique impressions, one at the middle, and the other near base; surface feebly micro-shagreened, closely, coarsely rugoso-punctate, each puncture with a short scale-like hair in lateral portions. Scutellum triangular with rounded sides, obviously elevated, feebly convex, though longitudinally depressed in middle, micro-shagreened, scattered with microscopic punctures.

Elytra 2.28 times as long as wide, 4.28 times the length and 1.3 times the width of pronotum, very slightly constricted at basal 1/3, feebly widened posteriad, widest at apical 2/5; dorsum rather strongly convex, feebly depressed in basal 1/5 around scutellar strioles, highest at basal 1/3; disc punctato-striate, the punctures small and somewhat oblong, 1st and 2nd striae connected with each other and impressed near base, 3rd to 6th striae more or less noticeably impressed near base; intervals distinctly ridged, micro-shagreened, sparsely scattered with microscopic punctures, each with a microscopic bent hair.

Legs rather noticeably haired; ratios of the lengths of pro-, meso- and metatarsomeres: 0.3, 0.18, 0.21, 0.22, 1.2; 1.75, 0.75, 0.65, 0.38, 1.35; 1.8, 0.65, 0.4, 1.22.

Male genitalia short subfusiform, very weakly curved in lateral view, 2.2 mm in length and 0.26 mm in width; fused lateral lobes 1.0 mm in length with nib-shaped apex.

Body length: 8.7 mm.

Holotype: ♂, Poonmudi Range, Trivandrum Dist., Kerala State, southern India, V–1972, R. S. NATHAN leg. (MNHNP).

Notes. This new species is a member of the species-group of *Strongylium fujitai* MASUMOTO, 1981, from Taiwan, but can be distinguished from the other species of the group by the noticeably ridged elytral intervals.

Strongylium chembraense sp. nov.

(Fig. 4)

This new species somewhat resembles the preceding new one, *S. poonmudiense* sp. nov., but can be distinguished from the latter by the following characteristics:

Body larger (12.7 mm) and robuster. Head piceous, pronotum dark castaneous, apical and basal margins of pronotum with reddish tinge, elytra and legs castaneous; head and pronotum feebly shining, elytra gently, somewhat vitreously shining, ventral surface rather alutaceous; each surface except for tarsi and inner faces of tibiae, which are finely haired, almost glabrous.

Head feebly micro-shagreened; clypeus broader, semicircular, more frequently scattered with small punctures, gently inclined apicad, fronto-clypeal border arcuate, more clearly sulcate; genae more noticeably, obliquely raised, with outer margins rather obtusely angulate; frons boldly T-shaped, raised medially, less steeply inclined forwards, gently depressed on each side before eyes; eyes not large, somewhat reniform, convex laterad, obliquely inlaid into head, diatone slightly less than 1/3 times the width of an eye diameter; vertex with a vague longitudinal impression medially, rather closely punctate, the punctures often irregularly fused with one another. Antennae with 5 apical segments lost in the type material, ratio of the length of each segment from basal to apical: 0.6, 0.2, 0.65, 0.77, 0.6, 0.5, —, —, —, —, —.

Pronotum somewhat barrel-shaped, 1.33 times as wide as long, widest at apical 2/5, almost straightly narrowed towards base and roundly so towards apex; apex almost straight and somewhat roughly rimmed, the rim feebly thickened in middle; base very feebly bisinuous, finely bordered, and rimmed; sides steeply inclined, clearly carinulate, the carinulae more obtusely angulate at apical 2/5, and visible from above; front angles rounded, hind angles more obtuse; disc moderately convex, depressed in mediobasal portion, longitudinally impressed in the middle, and with a pair of oblique impressions close to base, less noticeably micro-shagreened, less coarsely punctate, the punctures sometimes fused with one another, each with a less noticeable, short, scale-like hair. Scutellum triangular, neither elevated nor convex though slightly longitudinally depressed in middle, micro-shagreened, more noticeably scattered with microscopic punctures.

Elytra 2.1 times as long as wide, 4.1 times the length and 1.44 times the width of pronotum, gently widened posteriad, widest at apical 2/5; dorsum rather strongly convex, feebly depressed in basal 1/4 around scutellar strioles, highest at basal 2/5; disc punctato-striate, the punctures comparatively large and clearer than those in *S. poonmudiense*, 1st and 2nd striae connected with each other near base and weakly impressed, 3rd to 6th striae impressed near base; intervals not ridged but gently convex, less noticeably micro-shagreened, more frequently scattered with microscopic punctures, each with a microscopic bent hair.

Legs less noticeably haired; ratios of the lengths of pro-, meso- and metatarsomeres: 0.25, 0.16, 0.17, 0.23, 1.2; 1.15, 0.57, 0.38, 0.35, 1.27; 1.28, 0.55, 0.38, 1.28.

Holotype: ♀, Chembra Peak Area, Calicut Dist., Kerala State, southern India, IV–1970, no collector's name (MNHNP).

Strongylium nathani sp. nov.

(Fig. 5)

Blackish brown, mouth parts, genae, 3 basal segments and terminal segments of antennae, anterior portion of pronotum, medial and postero-lateral portions of elytra, legs, etc., fairly distinctly lighter in colour, head and pronotum feebly, sericeously shining, elytra moderately, somewhat vitreously shining, ventral surface rather alutaceous; each surface except for legs, which are finely haired, almost glabrous. Rather elongate, moderately convex.

Head subdecagonal, closely, finely punctate, the punctures becoming finer, closer and forming rugosities in posterior portion; clypeus depressed in basal portion, noticeably convex in middle, gently inclined apicad, fronto-clypeal border almost straight, very finely sulcate; genae noticeably, obliquely raised, with obtuse outer margins; frons finely T-shaped and ridged, gently inclined forwards; eyes large, noticeably convex laterad, broadly inlaid into head, feebly grooved along postero-internal margins, diatone about 1/10 times the width of an eye diameter; vertex with a vague longitudinal impression medially. Antennae feebly thickened to apices, reaching humeri, ratio of the length of each segment from basal to apical: 0.4, 0.2, 0.6, 0.5, 0.4, 0.38, 0.38, 0.4, 0.35, 0.35, 0.6.

Pronotum somewhat trapezoidal, 1.37 times as wide as long, widest at the middle; apex almost straight, finely rimmed; base very feebly bisinuous, bordered and ridged; sides rather steeply inclined, carinulate, the carinulae denticulate at the middle, and visible from above; front angles obtuse, hind angles subrectangular; disc moderately convex, closely, coarsely rugoso-punctate, depressed in medio-basal portion, longitudinally impressed at the middle, with a pair of vague oblique impressions close to base. Scutellum somewhat pentagonal, slightly concave in middle, very feebly micro-shagreened, sparsely scattered with microscopic punctures.

Elytra 2.17 times as long as wide, 3.85 times the length and 1.4 times the width of pronotum, slightly constricted at basal 3/8, feebly widened posteriad, widest at apical

3/8; dorsum rather strongly convex, very feebly depressed longitudinally in middle, highest at basal 1/4; disc grooved with rows of punctures, which are somewhat oblong, each puncture with a small granule at upper edge on each side, 1st and 2nd grooves connected with each other and impressed near base, 3rd to 5th grooves more or less noticeably impressed near base; intervals rather distinctly ridged, anterior portions of 3rd to 6th noticeably so, feebly micro-shagreened, sparsely scattered with microscopic punctures, each with a microscopic bent hair.

Legs without peculiarities; ratios of the lengths of pro-, meso- and metatarsomeres: 0.3, 0.18, 0.2, 0.25, 1.2; 1.15, 0.65, 0.35, 0.35, 1.23; 1.25, 0.4, 0.35, 1.25.

Body length: 9.5–10 mm.

Holotype: ♀, Cinchona, 1,200 m, Anamala Hills, southern India, V–1957, P. S. NATHAN leg. (MNHNP). Paratypes: 7 exs., same data as for the holotype.

Notes. This is an isolated new species recognized at first glance on its dorsal coloration. Each upper edge of elytral punctures is provided with a pair of granules. It is an important character of the members of the species-group of *Strongylium cultellatum* MÄKLIN, 1864.

Strongylium mysorense sp. nov.

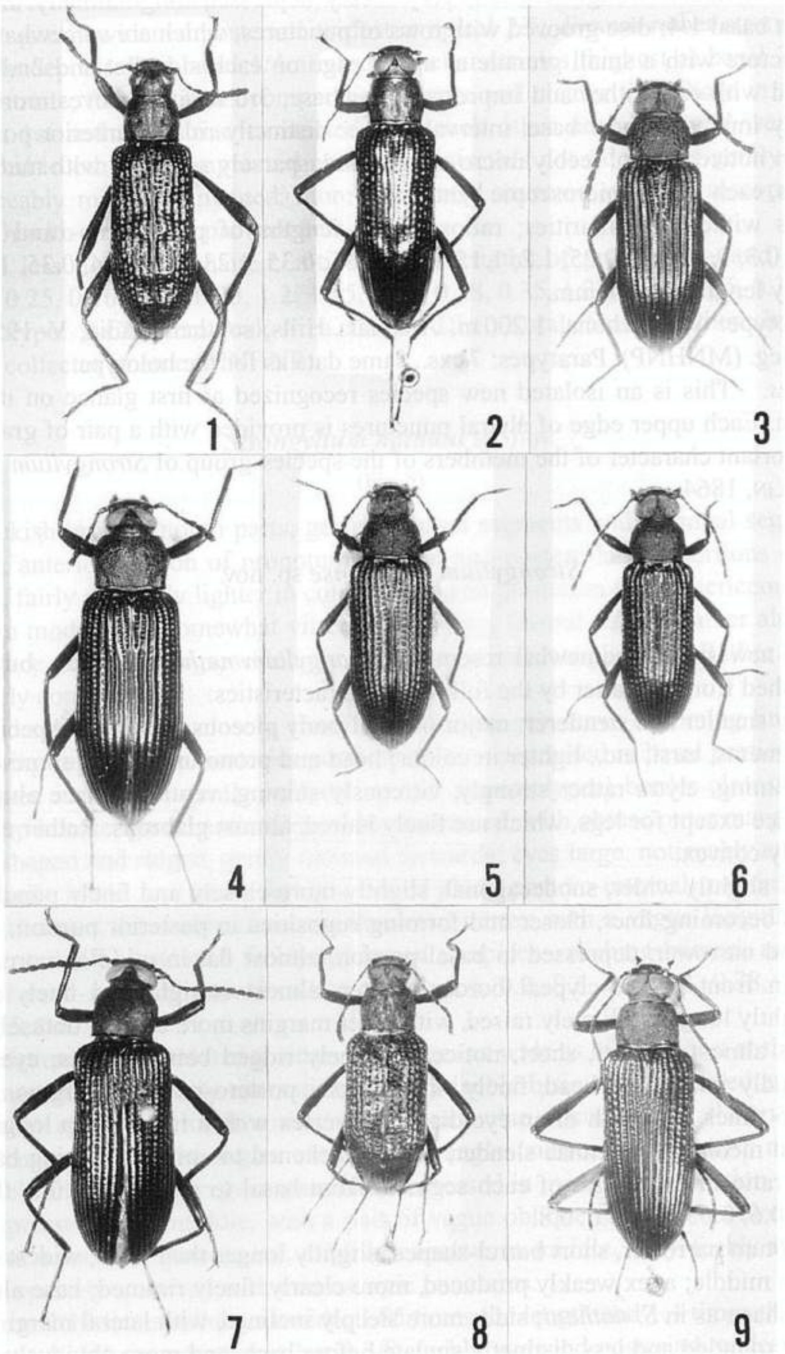
(Fig. 6)

This new species somewhat resembles *Strongylium nathani* sp. nov., but can be distinguished from the latter by the following characteristics:

Body smaller and slenderer; major parts of body piceous, antennae especially terminal segments, tarsi, etc., lighter in colour; head and pronotum feebly, somewhat vitreously shining, elytra rather strongly, vitreously shining, ventral surface alutaceous; each surface except for legs, which are finely haired, almost glabrous. Rather elongate, moderately convex.

Head slightly wider, subdecagonal, slightly more closely and finely punctate, the punctures becoming finer, closer and forming rugosities in posterior portion; clypeus shorter and narrower, depressed in basal portion, almost flat in middle, more steeply inclined in front, fronto-clypeal border shorter, almost straight and finely sulcate; genae slightly longer, obliquely raised, with outer margins more clearly, obtusely angulate; frons almost vertical, short, noticeably, finely ridged between eyes; eyes large, more roundly inlaid into head, finely ridged along postero-internal margins, diatone about 1/15 times the width of an eye diameter; vertex with a rather deep longitudinal impression medially. Antennae slender, feebly thickened to apices, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.6, 0.2, 0.8, 0.7, 0.65, 0.6, 0.6, 0.65, 0.6, 0.6, 0.8.

Pronotum narrower, short barrel-shaped, slightly longer than wide, widest slightly behind the middle; apex weakly produced, more clearly, finely rimmed; base almost of the same shape as in *S. nathani*; sides more steeply inclined, with lateral margins more noticeably rounded and less distinctly sinuate before base, and more obviously carinu-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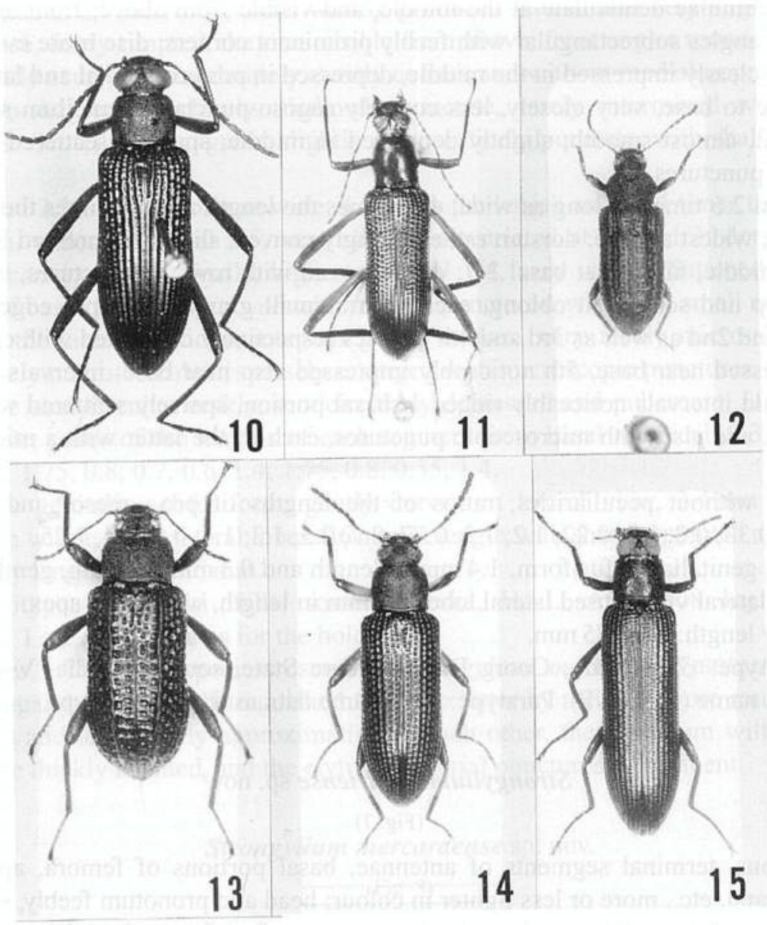



Figs. 1–9 (on p. 52). Habitus of *Strongylium* spp. — 1, *S. agumbeghatense* sp. nov., holotype, ♀; 2, *S. kadamparaiense* sp. nov., holotype, ♂; 3, *S. poonmudiense* sp. nov., holotype, ♀; 4, *S. chembraense* sp. nov., holotype, ♀; 5, *S. nathani* sp. nov., holotype, ♀; 6, *S. mysorense* sp. nov., holotype, ♂; 7, *S. nilgiriense* sp. nov., holotype, ♂; 8, *S. mercaraense* sp. nov., holotype, ♂; 9, *S. anamalaense* sp. nov., holotype, ♂.

Figs. 10–16 (on p. 53). Habitus of *Strongylium* spp. — 10, *S. malabarense* sp. nov., holotype, ♂; 11, *S. shimogaense* sp. nov., holotype, ♂; 12, *S. cinchonaense* sp. nov., holotype, ♂; 13, *S. keralaense* sp. nov., holotype, ♀; 14, *S. pallavum* sp. nov., holotype, ♀; 15, *S. elongatissimum* sp. nov., holotype, ♀; 16, *S. ferreri* sp. nov., holotype, ♀.

late, the carinulae denticulate at the middle, and visible from above; front angles obtuse, hind angles subrectangular with feebly prominent corners; disc more evenly convex, more clearly impressed in the middle, depressed in postero-medial and lateral portions close to base, very closely, less coarsely rugoso-punctate. Scutellum somewhat pentagonal, almost smooth, slightly depressed in middle, sparsely scattered with microscopic punctures.

Elytra 2.6 times as long as wide, 4.24 times the length and 1.2 times the width of pronotum, widest at base; dorsum rather strongly convex, slightly depressed longitudinally in middle, highest at basal 2/7; disc grooved with rows of punctures, which are large, deep and somewhat oblong, each with a small granule at upper edge on each side, 1st and 2nd as well as 3rd and 4th grooves respectively connected with each other and impressed near base, 5th noticeably impressed also near base; intervals polished, convex, odd intervals noticeably ridged in basal portion, sparsely scattered with small punctures, and also with microscopic punctures, each of the latter with a microscopic bent hair.

Legs without peculiarities; ratios of the lengths of pro-, meso- and metatarsomeres: 0.33, 0.2, 0.2, 0.22, 1.2; 1.2, 0.77, 0.7, 0.5, 1.3; 1.4, 0.6, 0.4, 1.25.

Male genitalia subfusiform, 1.4 mm in length and 0.3 mm in width, gently, evenly curved in lateral view; fused lateral lobes 0.6 mm in length, with acute apex.

Body length: ca. 7.75 mm.

Holotype: ♂, Mercara, Coorg Dist., Mysore State, southern India, V–1973, no collector's name (MNHNP). Paratype: 1 ex., same data as for the holotype.

Strongylium nilgiriense sp. nov.

(Fig. 7)

Piceous, terminal segments of antennae, basal portions of femora, apical segments of tarsi, etc., more or less lighter in colour; head and pronotum feebly, somewhat sericeously shining, elytra moderately shining, ventral surface rather alutaceous; each surface almost glabrous. Rather elongate, fairly convex longitudinally.

Head subdecagonal, weakly micro-shagreened, closely and finely punctate; clypeus wide, weakly flattened in basal portion, gently bent downwards in front, subparallel-sided apicad, fronto-clypeal border almost straight widely in middle, very finely sulcate; genae with outer margins noticeably raised and rounded; frons widely T-shaped, rather steeply inclined forwards; eyes rounded laterad, obliquely, roundly inlaid into head, diatone about 1/7 times the width of an eye diameter; vertex with a longitudinal impression medially. Antennae reaching basal 1/6 of elytra, 8 apical segments except for terminal one dilated towards each apex, distinctly so in inner side, terminal segment ovate, ratio of the length of each segment from basal to apical: 0.6, 0.2, 0.8, 0.75, 0.6, 0.6, 0.55, 0.55, 0.55, 0.5, 0.55.

Pronotum subquadrate, 1.15 times as wide as long, widest slightly before the middle; apex very weakly produced and finely rimmed; base bordered and boldly rimmed,

feebly sinuous on each side; sides weakly produced laterad and very slightly sinuate before base, finely rimmed, the rims visible from above; front angles rounded, hind angles slightly acute; disc moderately, evenly convex and without medial impression, feebly micro-shagreened, closely, shallowly punctate, rarely intermixed with smaller punctures. Scutellum triangular, slightly convex, finely punctate, with shallow medial line.

Elytra 2.3 times as long as wide, 4.2 times the length and 1.54 times the width of pronotum, widest at apical 2/5, very slightly constricted at basal 1/3; dorsum rather strongly convex longitudinally, highest at basal 1/4, very weakly flattened in medial portion of basal 1/5; disc grooved with rows of punctures, which are small and become larger in the lateral portions; intervals gently convex, very feebly micro-shagreened, transversely micro-aciculate, sparsely scattered with microscopic punctures.

Male anal sternite weakly, semicircularly depressed and pubescent. Legs slender and simple; ratios of the lengths of each segment from basal to apical: 0.35, 0.2, 0.2, 0.25, 1.2; 1.75, 0.8, 0.7, 0.6, 1.4; 1.75, 0.8, 0.55, 1.4.

Male genitalia subfusiform, gently curved in lateral view, 3.4 mm in length, 0.6 mm in width; fused lateral lobes 1.6 mm in length with sharply pointed apex.

Body length: 19–20.5 mm.

Holotype: ♂, Nilgiri Hills, southern India, H. L. ANDERSON leg. (NHML). Paratype: 1 ex., same data as for the holotype.

Notes. This new species resembles *Strongylium macrops* (WIEDEMANN, 1823) from Bengal, but can be distinguished from the latter by the eyes more roundly inlaid into head and less closely approximating to each other, the pronotum with apex and base more thickly rimmed, and the elytra with strial punctures inconfluent.

Strongylium mercaraense sp. nov.

(Fig. 8)

A remarkable species in having coarsely punctate and distinctly undulate elytra and modified legs in male, with no close relatives previously known.

Piceous, head, pronotum and scutellum with feeble ironish or brassy tinge, elytra with feeble dark bluish tinge; fore body above slightly sericeous, elytra feebly metallically shining, ventral surface somewhat alutaceous; each surface almost glabrous except for slightly haired abdomen. Oblong-ovate and rather strongly convex.

Head rounded, very weakly micro-shagreened, closely punctate, each puncture with a fine bent hair; clypeus transverse, rather strongly bent downwards in front, with a transverse impression before fronto-clypeal border, which is nearly straight and clearly sulcate; genae somewhat rhombical, strongly, obliquely raised; frons finely T-shaped, steeply inclined forwards; eyes subreniform, rounded laterad, obliquely, roundly inlaid into head, diatone about 1/10 times the width of an eye diameter; vertex somewhat rhombically impressed in middle. Antennae subclavate, reaching basal 1/9 of elytra, ratio of the length of each segment from basal to apical: 0.43, 0.2, 1.1, 0.8,

0.7, 0.7, 0.65, 0.5, 0.45, 0.37, 0.4.

Pronotum subquadrate, 1.25 times as wide as long, widest at apical 2/5; apex almost straight, bordered and rimmed, the rim thickened in middle; base bordered and ridged, feebly sinuous on each side; sides gently declined to lateral margins, which are feebly angulate and finely rimmed, the rims easily visible from above; front angles rounded, hind angles rectangular; disc moderately convex, distinctly grooved in anteromedial portion, very weakly micro-shagreened, closely and coarsely punctate, the punctures often fused with one another, a pair of obsolete gibbosities present slightly behind the middle, their lateral portions being vaguely impressed. Scutellum linguiform, weakly micro-shagreened, scattered with small punctures, each with a fine bent hair.

Elytra somewhat cuneiform, 2.1 times as long as wide, 3.9 times the length and 1.53 times the width of pronotum; dorsum rather strongly convex, quadri-undulate, with a pair of gibbosities at basal 1/9, which are the highest parts; disc feebly microshagreened, scattered with microscopic punctures and feebly micro-aciculate, with rows of punctures, those of scutellar strioles and 1st rows small and rounded, those of 2nd and another external rows becoming larger and coarser, often forming slightly longitudinal foveae; two or three inner intervals almost flat in anterior portion, lateral ones ridged and often sinuous in anterior portion, posterior portions flat and weakly elevated.

Male anal sternite distinctly emarginate at apex; male protibiae noticeably bent at apical 2/5, with ventral faces gouged in apical 1/3; male mesotibiae slender and weakly curved; male metatibiae with inner faces distinctly gouged, widened in basal 1/3, twisted at basal 1/3; ratios of the lengths of pro-, meso- and metatarsomeres: 0.24, 0.19, 0.21, 0.22, 1.2; 2.11, 0.89, 0.75, 0.48, 1.36; 1.88, 0.66, 0.47, 1.36.

Male genitalia fusiform, gently curved in lateral view, 3.4 mm in length, 0.6 mm in width; lateral lobes acutely pointed, 1.3 mm in length.

Body length: 15–16 mm.

Holotype: ♂, Mercara, Coorg Dist., Mysore State, southern India, V–1973, no collector's name (MNHNP). Paratypes: 1 ex., Cinchona, Anamala Hills, V–1966, P. S. NATHAN leg.; 1 ex., Poonmudi Range, Trivandrum Dist., Kerala State, V–1971, R. S. NATHAN leg.

Strongylium anamalaense sp. nov.

(Fig. 9)

Dark reddish brown, elytra, basal portions of femora, tibiae, etc., more or less lighter in colour; head and pronotum except for apical and basal margins, and elytra moderately shining, ventral surface rather alutaceous; each surface almost glabrous. Rather elongate, fairly convex longitudinally.

Head transversely elliptical, weakly micro-shagreened, closely and finely punctate; clypeus rather broadly flattened in basal portion, strongly bent downwards in

front, feebly divergent apicad, fronto-clypeal border widely arcuate and finely sulcate; genae strongly raised, with rounded outer margins; frons finely T-shaped, rather steeply inclined forwards; eyes large, strongly convex laterad, obliquely inlaid into head, diatone about 1/17 times the width of an eye diameter; vertex medially with a shallow, longitudinal impression. Antennae reaching basal 1/5 of elytra, with each segment oblong and widened at each apex, ratio of the length of each segment from basal to apical: 0.55, 0.2, 1.02, 0.72, 0.68, 0.68, 0.65, 0.63, 0.62, 0.62, 0.72.

Pronotum somewhat trapezoidal, 1.33 times as wide as long, widest at base; apex very weakly produced and finely rimmed; base bordered and boldly rimmed, sinuous on each side; sides feebly produced laterad and very slightly sinuate before base, finely rimmed, the rims invisible from above; front angles rounded, hind angles slightly acute; disc moderately convex, gently depressed in medio-basal portion, weakly micro-shagreened, closely and coarsely punctate, with a pair of oblique impressions close to base. Scutellum triangular, slightly convex, finely punctato-aciculate.

Elytra 2.8 times as long as wide, 5.4 times the length and 1.4 times the width of pronotum, widest at base, gradually narrowed apicad, very slightly constricted at basal 1/3; dorsum rather strongly convex longitudinally, highest at basal 1/5, very weakly flattened and inclined forwards in medial portion of basal 1/6; disc grooved with rows of punctures, which become larger laterad and smaller posteriad; intervals gently convex, very weakly micro-shagreened, sparsely scattered with microscopic punctures.

Legs slender, without special features; ratios of the lengths of each segment from basal to apical: 0.3, 0.25, 0.25, 0.26, 1.2; 1.36, 0.65, 0.6, 0.57, 1.33; 1.5, 0.63, 0.61, 1.36.

Male genitalia subfusiform, gently curved in lateral view, 3.6 mm in length, 0.6 mm in width; fused lateral lobes about 1.8 mm in length with sharply pointed apex.

Body length: 17–23 mm.

Holotype: ♂, Cinchona, Anamala Hills, southern India, V–1969, P. S. NATHAN leg. (MNHNP). Paratypes: 1 ex., V–1957, 1 ex., V–1965, 1 ex., V–1968, 2 exs., IV–1969, same locality and collector as for the holotype; 5 exs., Poonmudi Range, Trivandrum Dist., Kerale State, V–1972, R. S. NATHAN leg.; 1 ex., Chembra Peak Area, Calicut Dist., Kerale State, IV–1970, no collector's name.

Notes. The nearest named species is *S. aratum* FAIRMAIRE, 1896, from Kanara, southern India, and is characterized by the medium-sized and subcylindrical body, with pronotum closely and finely punctate, and elytra with rows of coarse punctures. The present new one possesses a pronotum closely and coarsely punctate, and elytra moderately grooved with rows of punctures.

Strongylium malabarense sp. nov.

(Fig. 10)

This new species resembles the preceding new one, *S. anamalaense* sp. nov., but is distinguishable from the latter by the following characteristics:

Body smaller (15.5 mm) and slenderer; coloration and lustre almost the same as those in *S. anamalaense*.

Head slightly more transverse, weakly micro-shagreened, closely and finely punctate; clypeus narrower, fronto-clypeal border very widely arcuate, finely sulcate; genae less strongly raised, with obtuse outer margins; frons finely T-shaped, rather steeply inclined forwards; eyes large, more strongly convex laterad, diatone about 1/15 times the width of an eye diameter; vertex with a shallow longitudinal impression medially. Antennae similar in shape to those of *S. anamalaense*, reaching basal 1/3 of elytra, ratio of the length of each segment from basal to apical: 0.7, 0.2, 0.9, 0.8, 0.65, 0.65, 0.7, 0.7, 0.7, 0.7, 0.8.

Pronotum narrower, 1.2 times as wide as long, widest at base; apex very weakly produced and finely rimmed, the rim feebly thinned in middle; base bordered and boldly rimmed, the rim more finely, highly raised, less noticeably sinuous on each side; sides somewhat subparallel, though very slightly sinuate before base, finely rimmed, the rims hardly visible from above; front angles rounded, hind angles slightly acute; disc similar to that of *S. anamalaense*, with a pair of oblique impressions close to base. Scutellum more narrowly triangular, slightly convex, scattered with microscopic punctures in lateral portions.

Elytra slenderer, 2.54 times as long as wide, 4.5 times the length and 1.4 times the width of pronotum, widest at apical 2/5, gently constricted at basal 1/3; dorsum rather strongly convex longitudinally, highest at basal 1/5; disc punctato-striate, the punctures obviously smaller, often confluent with one another and forming sections, distinctly so in antero-lateral portions; intervals slightly more noticeably convex and micro-shagreened, more frequently micro-aciculate, sparsely scattered with microscopic punctures.

Legs similar to those of *S. anamalaense*, without special characteristics; ratios of the lengths of each segment from basal to apical: 0.23, 0.1.8, 0.22, 0.22, 1.2; 1.35, 0.65, 0.53, 0.45, 1.33; 1.6, 0.65, 0.6, 1.3.

Male genitalia subfusiform, more noticeably curved in lateral view, 3.2 mm in length, 0.6 mm in width; fused lateral lobes about 1.6 mm in length with feebly prolonged apex.

Holotype: ♂, Karkur Ghat, Malabar, southern India, coll. ANDREWES (NHML).

Strongylium shimogaense sp. nov.

(Fig. 11)

This new species resembles *S. angusticolle* MÄKLIN, 1864, from "India orientali (Sylhet)", but can be distinguished from the latter by the following characteristics:

Body slenderer and subcylindrical; head and pronotum indigo-blue, elytra blue with feeble golden greenish tinge, femora reddish brown, tibiae, tarsi, 4 basal segments of antennae, mouth parts, etc., black, ventral surface greenish blue partly with feeble brassy tinge.

Head narrower, smoother, more finely punctate; clypeus narrower and more distinctly protruded apicad, with a transverse impression just before fronto-clypeal border, which is widely arcuate and clearly sulcate; genae with more angulate outer margins; frons T-shaped, moderately inclined forwards; eyes less strongly convex laterad, somewhat obliquely inlaid into head, diatone comparatively wide, about 1/6 times the width of an eye diameter; vertex with a weaker longitudinally rhombical impression in middle. Antennae longer, filiform, reaching basal 1/4 of elytra; ratio of the length of each segment from basal to apical: 0.6, 0.2, 1.0, 0.8, 0.73, 0.68, 0.62, 0.6, 0.54, 0.51, 0.57.

Pronotum narrower, almost as wide as long; apex and base more finely rimmed; sides more distinctly, widely triangularly produced, steeply declined to lateral margins, which are finely rimmed, the rims almost invisible from above; front angles rounded, hind angles rather acute; disc less strongly swollen in apical 3/4, less closely, more finely punctate. Scutellum equilaterally triangular, very feebly micro-shagreened, sparsely scattered with microscopic punctures.

Elytra obviously slenderer, 2.7 times as long as wide, 3.75 times the length and 1.4 times the width of pronotum, gradually narrowed posteriad, though very slightly constricted at basal 1/3; dorsum evenly convex longitudinally, without swellings or transverse ridges unlike that in *S. angusticolle*, very weakly depressed along scutellar strioles; disc in antero-lateral portion with rows of punctures, whose bottoms are small and rounded, and whose upper edges are large and somewhat quadrate, and in posterior portion with punctato-striae, 1st to 4th rows of punctures impressed near base; intervals less strongly, transversely ridged, only gently connected with one another, and somewhat forming a comb-shape.

Male anal sternite parabolically depressed, truncate at apex; male metatibiae simple in shape; ratios of the lengths of pro-, meso- and metatarsomeres: 0.31, 0.24, 0.22, 0.22, 1.2; 2.45, 0.9, 0.7, 0.5, 1.5; 2.87, 1.0, 0.68, 1.52.

Male genitalia 4.5 mm in length and 0.65 mm in width; basal piece somewhat fusiform, 2 mm in length; fused lateral lobes slender, 2.5 mm in length, with acute apex.

Body length: 17–18 mm.

Holotype: ♂, Agumbe Ghat, Shimoga Dist., Mysore State, southern India, V–1974, no collector's name, coll. P. ARDOIN (MNHNP). Paratypes: 1 ex., Mahé, Côte de Malabar, Chass. indigènes, VIII–1901, coll. M. MAINDRON; 2 exs, N. Kanara, T. R. BELL leg., coll. ANDREWES (NHML).

Strongylium cinchonaense sp. nov.

(Fig. 12)

Dark reddish brown, head, pronotum and scutellum, etc., more or less darker in colour, each surface feebly, somewhat sericeously shining and almost glabrous. Oblong, moderately convex.

Head subdecagonal, almost vertical in front, closely rugoso-punctate, each punc-

ture with a microscopic bent hair; clypeus semicircular, gently depressed in basal portion, weakly bent downwards in front, fronto-clypeal border almost straight, indistinctly sulcate; genae gently, obliquely raised, with rounded outer margins; frons rather steeply inclined forwards, weakly depressed before eyes; eyes rather small and subsecuriform, gently convex laterad, obliquely inlaid into head, diatone about 1.3 times the width of an eye diameter; vertex rather distinctly raised, rather steeply inclined laterad behind eyes, with a vague longitudinal impression medially, extending to occiput. Antennae feebly thickened to apices, reaching basal 1/5 of elytra, ratio of the length of each segment from basal to apical: 0.4, 0.2, 0.55, 0.45, 0.37, 0.37, 0.4, 0.4, 0.34, 0.34, 0.45.

Pronotum transversely hexagonal, 1.5 times as wide as long, widest at the middle; apex almost straight, thinly, rather roughly ridged; base very feebly bisinuous, bordered and rather roughly rimmed; sides rather steeply inclined, carinulate, the carinulae denticulate and visible from above; front angles obtuse, hind angles subrectangular; disc moderately convex, longitudinally impressed in middle, with a pair of vague oblique impressions close to base, strongly, very closely rugoso-punctate, each puncture with a short bent hair, borders among punctures finely ridged, the ridges often weakly pointed. Scutellum triangular with rounded apex, rather distinctly convex, irregularly rugoso-punctate.

Elytra twice as long as wide, 4.1 times the length and 1.3 times the width of pronotum, gently widened posteriad, widest at apical 3/8; dorsum rather strongly convex, depressed at basal 1/5, highest at basal 1/4; disc with rows of rather large quadrate punctures, upper edge of each puncture with a granule on each side; intervals irregularly wrinkled and sculptured, often transversely ridged and connected with one another, sutural ones feebly ridged, 3rd, 5th and 7th intervals ridged, 3rd distinctly so.

Legs rather stout, without peculiarities (though the mesotarsi are lost in the type material); ratios of the lengths of pro-, (meso-) and metatarsomeres: 0.3, 0.2, 0.2, 0.25, 1.2; —, —, —, —, —; 0.65, 0.25, 0.35, 1.25.

Male genitalia fusiform, gently curved in lateral view, 0.9 mm in length and 0.18 mm in width; fused lateral lobes nib-shaped, 0.4 mm in length.

Body length: ca. 5 mm.

Holotype: ♂, Cinchona, 1,200 m, Anamala Hills, southern India, IV–1964, P. S. NATHAN leg. (MNHNP).

Notes. This new species is remarkable in having the small body with head and pronotum coarsely and closely rugoso-punctate, and the elytra with rows of somewhat quadrate punctures and distinctly ridged odd intervals. Each upper surface of elytral punctures is provided with a pair of granules. This is one of the important characteristics of the members of the species-group of *Strongylium cultellatum* MÄKLIN, 1864.

Strongylium keralaense sp. nov.

(Fig. 13)

This new species somewhat resembles the preceding new one, *S. cinchonaense* sp. nov., but is distinguishable from the latter by the following characteristics:

Body larger (9 mm) and stouter; coloration and lustre almost the same as in *S. cinchonaense*: reddish brown and feebly sericeously shining; each surface almost glabrous. Oblong, noticeably convex.

Head semicircular, flattened, closely punctate, the punctures often rugose on vertex, each with a bent hair; clypeus subelliptical, weakly bent downwards in front, fronto-clypeal border widely arcuate and clearly sulcate; genae gently dilated, depressed in posterior portions before eyes, with outer margins weakly raised and rounded; frons rather wide, mildly inclined forwards, with a vague impunctate area medially; eyes rather small and transversely comma-shaped, gently convex laterad, roundly inlaid into head, diatone slightly more than twice the width of an eye diameter; vertex obviously not convex but with an impression in middle. Antennae reaching basal 1/8 of elytra, with 4 apical segments weakly thickened, ratio of the length of each segment from basal to apical: 0.6, 0.2, 0.75, 0.7, 0.58, 0.55, 0.55, 0.5, 0.4, 0.38, 0.5.

Pronotum quadrate and obviously wider, 1.38 times as wide as long, widest at the middle; apex bisinuous, rimmed, the rim thickened in middle; base very feebly bisinuous, finely bordered and rather roughly and thickly rimmed; sides steeply inclined, produced laterad, carinulate, the carinulae denticulate and visible from above; front angles obtuse, hind angles slightly acute; disc moderately convex on each side, longitudinally depressed in middle, with a pair of somewhat crescent-shaped depressions at basal 1/4, strongly rugoso-punctate, each puncture with a short bent hair, borders among punctures neither so distinctly ridged nor so much pointed as in *S. cinchonaense*. Scutellum triangular with rounded sides, rather distinctly convex, somewhat longitudinally aciculate.

Elytra twice as long as wide, 4 times the length and 1.3 times the width of pronotum, feebly widened posteriad, widest at apical 1/3; dorsum rather strongly convex, highest at basal 1/4; disc with rows of large quadrate punctures, upper edge of each puncture with a granule on each side; intervals weakly micro-shagreened, scattered with microscopic punctures, each with a bent hair, 3rd interval distinctly ridged, the ridge irregularly aciculate, haired and sparsely punctate.

Legs rather stout, without peculiarities; ratios of the lengths of pro-, meso- and metatarsomeres: 0.35, 0.21, 0.23, 0.25, 1.2; 0.6, 0.4, 0.35, 0.35, 1.3; 0.76, 0.3, 0.25, 1.25.

Holotype: ♀, Cinchona, Anamala Hills, southern India, V–1957, P. S. NATHAN leg. (MNHNP).

Strongylium pallavum sp. nov.

(Fig. 14)

Brown, antennae, head, pronotum, apical portions of femora, basal and apical portions of tibiae, tarsi, etc., darker in colour, dorsal surface with feeble dark greenish tinge, basal portions of femora, middle portions of tibiae and maxillary palpi pale yellow, head and pronotum somewhat sericeously shining, scutellum and elytra rather strongly, somewhat vitreously shining; each surface almost glabrous. Rather elongate, gently convex longitudinally.

Head subdecagonal, feebly convex, weakly micro-shagreened, closely and irregularly punctate; clypeus transverse, weakly bent downwards in front, fronto-clypeal border feebly arcuate posteriad widely in middle, obliquely extending forwards on each side, and finely sulcate; genae moderately raised, with rounded outer margins; frons rather short and wide, mildly inclined forwards; eyes medium-sized, somewhat reniform, rounded laterad, obliquely inlaid into head, diatone 3/4 times the width of an eye diameter; vertex vaguely depressed in middle, rather coarsely punctate. Antennae reaching humeri, 7 apical segments gently thickened, ratio of the length of each segment from basal to apical: 0.6, 0.2, 0.55, 0.4, 0.38, 0.36, 0.37, 0.38, 0.36, 0.34, 0.6.

Pronotum subquadrate, 1.25 times as wide as long, widest at the middle; apex feebly produced and finely rimmed; base feebly sinuous on each side, with widely V-shaped ridge; sides steeply inclined and weakly produced laterad, carinulate, the carinulae barely visible from above, and indistinctly denticulate at the middle; front angles rounded, hind angles subrectangular, slightly prominent; disc gently convex, weakly depressed in antero-medial and basal portions, weakly micro-shagreened, closely and rather coarsely punctate. Scutellum triangular, feebly elevated, sparsely scattered with microscopic punctures.

Elytra 2.15 times as long as wide, 3.85 times the length and 1.48 times the width of pronotum, very feebly widened posteriad, widest at apical 1/3; dorsum rather strongly convex, highest at basal 1/5; disc weakly micro-shagreened, grooved with rows of punctures, each puncture rather large, rounded at the bottom, quadrate at the upper edge, with a granule on each side; intervals gently convex, often transversely ridged and connected with one another, sparsely scattered with microscopic punctures.

Ratios of the lengths of pro-, meso- and metatarsomeres: 0.24, 0.18, 0.18, 0.21, 1.2; 0.8, 0.55, 0.38, 0.33, 1.32; 0.75, 0.35, 0.27, 1.32.

Body length: 8.5–7.5 mm.

Holotype: ♀, Mercara, Coorg Dist., Mysore State, southern India, V–1973, no collector's name (MNHNP). Paratype: 1 ex., Agumbe Ghat, Shimoga Dist., Mysore State, S India, V–1974 (NHNP).

Notes. This new species is also a member of the species-group of *Strongylium cultellatum* MÄKLIN, 1864, but can be easily distinguished from the others by the peculiarly coloured legs.

Strongylium elongatissimum sp. nov.

(Fig. 15)

An isolated species recognized at first sight on its elongated body with peculiar head.

Brown, meso- and metafemora darker in colour, dorsal surface with very feeble dark greenish lustre, ventral surface somewhat alutaceous; each surface almost glabrous. Distinctly elongate, gently convex longitudinally.

Head somewhat transversely elliptical, gently convex, weakly micro-shagreened, closely, finely punctate; clypeus transverse, widely depressed in basal portion, weakly bent downwards in front, fronto-clypeal border extremely widely arcuate, finely though clearly sulcate; genae short and oblique, depressed at the postero-internal portions before eyes, with outer margins rounded and gently raised; frons widely Y-shaped, gently inclined forwards, slightly ridged on each side; eyes rather large, rounded laterad, obliquely inlaid into head, diatone 1/6 times the width of an eye diameter; vertex vaguely depressed in middle. Antennae rather filiform, though 3 apical segments are lost in the type material, ratio of the length of each segment from basal to apical: 0.7, 0.2, 0.5, 0.27, 0.28, 0.8, 0.8, 0.8, —, —, —.

Pronotum trapezoidal, 1.2 times as wide as long, widest at the middle and base; apex almost straight and finely rimmed; base gently ridged, feebly sinuous on each side; sides steeply inclined, with lateral margins gently arcuate laterad, feebly sinuate before base, almost devoid of carinulae; front angles rounded, hind angles feebly acute; disc gently convex, very weakly depressed before base on each side, weakly micro-shagreened, frequently scattered with punctures. Scutellum sublinguiform, feebly elevated, micro-shagreened and micro-aciculate.

Elytra 3 times as long as wide, 5 times the length and 1.5 times the width of pronotum, subparallel-sided; dorsum rather strongly convex longitudinally, highest at basal 1/6; disc grooved with rows of punctures, each puncture rounded at the bottom, somewhat transversely quadrate at the upper edge, without granule on each side, 5th and 6th grooves connected with each other close to base and impressed; intervals gently convex, often transversely ridged and connected with one another, weakly micro-shagreened and often irregularly micro-aciculate.

Ratios of the lengths of pro-, meso- and metatarsomeres: 0.36, 0.31, 0.28, 0.25, 1.2; 1.0, 0.65, 0.5, 0.38, 1.2; 1.3, 0.6, 0.4, 1.1.

Body length: ca. 9.6 mm.

Holotype: ♀, Mercara, Coorg Dist., Mysore State, southern India, V–1973, no collector's name (NHNP).

Strongylium ferreri sp. nov.

(Fig. 16)

This new species resembles *Strongylium angusticolle* MÄKLIN, 1864, from "India

orientali (Sylhet)", but can be easily distinguished from the latter by the following characteristics:

Body slenderer and subcylindrical; piceous with bluish black tinge, head and pronotum with feeble ironish or brassy lustre, elytra with weak brassy lustre broadly in middle, and dark greenish tinge in lateral portions, antennae and femora reddish brown; head and anterior portion of pronotum slightly sericeously shining, posterior portion of pronotum, scutellum and elytra gently, sericeously shining.

Head smaller, smoother, less noticeably punctate; clypeus remarkably projected apicad, with an impression before fronto-clypeal border, which is shorter and almost straight, clearly sulcate; genae nearly of the same shape as in *S. angusticolle*; frons obviously wider, somewhat T-shaped, steeply inclined forwards, with a more noticeable, longitudinal impression; eyes comparatively small, less deeply, obliquely inlaid into head, diatone wider, slightly more than 1/3 times the width of an eye diameter; vertex with a weaker, somewhat rhombical impression in middle. Antennae slightly thicker, reaching humeri; ratio of the length of each segment from basal to apical: 0.6, 0.2, 0.85, 0.8, 0.67, 0.65, 0.64, 0.62, 0.57, 0.55, 0.6.

Pronotum longer, barrel-shaped, 0.83 times as wide as long, widest at the middle; apex and base more finely rimmed; sides less steeply inclined, gently produced laterad, very feebly sinuate before base, more finely rimmed, the rims hardly visible from above; front angles rounded, hind angles subrectangular; disc more noticeably, somewhat parabolically swollen in apical 1/8, mildly inclined towards base in basal 1/3, less frequently, more finely punctate in anterior portion, more coarsely, somewhat transversely punctate and micro-shagreened in posterior portion, the punctures in posterolateral portions often transversely fused with one another, forming rugosities. Scutellum triangular, weakly micro-shagreened, sparsely scattered with microscopic punctures.

Elytra obviously slenderer, 2.74 times as long as wide, 3.17 times the length and 1.4 times the width of pronotum, slightly widened posteriad, widest at apical 3/10, though gently constricted at basal 2/5; dorsum more simply convex, without swellings unlike that in *S. angusticolle*, only feebly undulate at the middle, weakly depressed along scutellar strioles; disc punctato-striate, though the striae are often interrupted by transverse ridges, each puncture small and rounded at bottom, rather large and irregularly shaped at upper edge, those in apical 1/3 distinctly smaller, 1st to 5th striae impressed close to base; intervals more noticeably transversely ridged in anterior portion, gently convex in posterior portion, noticeably micro-shagreened and scattered with microscopic punctures.

Ratios of the lengths of pro-, meso- and metatarsomeres: 0.24, 0.2, 0.22, 0.21, 1.2; 1.6, 0.7, 0.63, 0.47, 1.38; 2.2, 0.73, 0.6, 1.38.

Body length: 16–17.5 mm.

Holotype: ♀, Santikoppa, North Coorg, Mysore State, southern India, 4~10–V–1914, FLETCHER leg. (NHML). Paratype: 1 ex., Poonmudi Range, Trivandrum Dist., Kerala State, southern India (coll. FERRER).

Notes. This new species closely resembles *Strongylium shimogaense* sp. nov., from Agumbe Ghat in Mysore State, but can be distinguished from the latter by the body distinctly elongate and dark greenish, with pronotum more distinctly swollen, and elytra distinctly transversely wrinkled in anterior halves.

要　約

益本仁雄：アジア産ナガキマワリ族(Strongyliini)の研究．III. フランス国立自然史博物館および英国自然史博物館所蔵の南部インドのナガキマワリ属(*Strongylium*)の新種．—— アジア産ナガキマワリ族の研究の第3回として，フランス国立自然史博物館（パリ），および英国自然史博物館（ロンドン）所蔵の南部インドのナガキマワリ属を取り上げた．これまでに，この地域からの報告や新種記載はきわめて少なく，後者にいたってはわずかに5種程度にすぎない．今回の小論では，16種の新種を記載した．

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New Records of *Strongylium* (Coleoptera, Tenebrionidae) from Northern Thailand

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In the course of the study of strongyliine tenebrionids from East Asia, I had the opportunity of examining specimens of the following species of *Strongylium* from northern Thailand.

1) *Strongylium angustissimum* PIC, 1922

Local distribution. 1 ex., Doi Suthep, Chiang Mai Prov., 3–V–1985, M. TAO leg.; 1 ex., same loc., 20–V–1985, M. TAO leg.; 1 ex., nr. Chiang Mai, 1,300 m alt., 17–V–1987, H. HIRASAWA leg.

General distribution. China (Yunnan); Thailand (new record; also occurs in Kanchanaburi of western Thailand).

2) *Strongylium auratopubens* PIC, 1922

Local distribution. 3 exs., Doi Suthep, 11–V–1985, M. TAO leg.; 1 ex., nr. Chiang Mai, 3–V–1994, K. KUME leg.; 1 ex., Wieng Ko Sai, Phrae Prov., 19–V–1985, Y. KOMIYA leg.

General distribution. Vietnam (Tonkin); Thailand (new record; also occurs in Kanchanaburi of western Thailand).

3) *Strongylium crurale* FAIRMAIRE, 1893

Local distribution. 1 ex., Doi Suthep, 1,100 m alt., 23–V–1982, T. SHIMOMURA leg.; 1 ex., same loc., 11–V–1985, M. TAO leg.; 1 ex., same loc., V–1985, A. COTTON leg.; 1 ex., Wieng Ko Sai, 18–V–1985, H. AKIYAMA leg.; 1 ex., Chiang Dao, Chiang Mai Prov., 1989, no collector's name; 1 ex., Fang–Chiang Dao, Chiang Mai Prov., 22~23–V–1989, K. MASUMOTO leg.; 2 exs., nr. Chiang Mai, 1,300 m alt., 17–V–1987, H. HIRASAWA leg.; 1 ex., Doi Sang, Chiang Mai Prov., 5–VI–1993, K. KUME leg.; 2 exs., same loc., 26–V–1990, K. KUME leg.

General distribution. Vietnam (Tonkin); Thailand (new record; also occurs in Kanchanaburi of western Thailand).

4) *Strongylium erythrocephalum* (FABRICIUS, 1801)

Local distribution. 1 ex., Doi Suthep, 11–V–1985, M. TAO leg.; 2 exs., nr. Chiang Mai, V–1985, A. COTTON leg.; 1 ex., Wieng Ko Sai, 18–V–1985, M. SAWAI leg.

General distribution. Widely distributed in the Oriental Region.

5) *Strongylium sparseimpressum* PIC, 1922

Local distribution. 2 exs., Nr. Chiang Mai, VII–1996, native collector; 2 exs., Chiang Mai, 1988, no collector's name; 2 exs., Doi Pui, Chiang Mai Prov., V–1986, A. COTTON leg.; 1 ex., Wiang Pa Pao, Chiang Rai Prov., no further data.

General distribution. Laos; Thailand (new record).

Notes. Individuals from northern Thailand are slightly different in shape from those of Laos (type area), probably due to local variation.

6) *Strongylium varians* (PASCOE, 1883)

Local distribution. 1 ex., Doi Suthep, 1,300 m alt., 27–IV–1980, K. KINUGASA leg.

General distribution. Malay Peninsula; Sumatra; Thailand (new record).

7) *Strongylium viridimembris* PIC, 1922

Local distribution. 1 ex., Doi Suthep, 1,100 m alt., 14–V–1982, T. SHIMOMURA leg.; 1 ex., same loc., 29–V–1985, Y. KOMIYA leg.; 4 exs., same loc., 11–V–1985, M. TAO leg.; 1 ex., Doi Pui, 3–VI–1986, H. HIRASAWA leg.; 1 ex., Konthanthan, nr. Chiang Mai, 1–VI–1986, H. HIRASAWA leg.; 1 ex., Doi Sang, 5–VI–1993, K. KUME leg.; 1 ex., Chiang Dao, 1989, native collector.

General distribution. Vietnam (Tonkin); Thailand (new record; also occurs in Kanchanaburi of western Thailand).

In closing this brief report, I thank Dr. Y. KOMIYA, Messrs, M. TAO, H. HIRASAWA, K. KUME, T. ABE, K. KINUGASA, H. AKIYAMA and S. KONDO, who submitted important materials to me for taxonomic study.

Elytra, Tokyo, **25** (1): 67–78, May 15, 1997

A Taxonomic Study on the Japanese Species of the Genus *Sulcacis* (Coleoptera, Ciidae)

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Abstract A new ciid species of the genus *Sulcacis* is described from Hokkaido, Northeast Japan, under the name of *S. nobuchii*. It seems to belong to the group of *S. lengi* from North America, and is mainly characterized by the 10-segmented antennae and unique conformation of the fronto-clypeal ridge in male. The type series of *S. japonicus* is examined and the lectotype is designated. Diagnostic characters of the genus and a key to the Japanese species are given.

The genus *Sulcacis* DURY, 1917, belonging to the tribe Ciini of the subfamily Ciinae, is a small group of ciid beetles comprising six known species (LAWRENCE, 1971). This genus is widely distributed in Eurasia and North America, and contains some widespread species. In the ciid fauna of Japan, two species, *S. affinis* (GYLLENHAL) and *S. japonicus* (NOBUCHI), were previously recorded from Hokkaido and the northern end of Honshu, Northeast Japan. In the course of my taxonomic study on this family, I have detected an undescribed species of the genus from Hokkaido. This new species seems to belong to the group of *S. lengi* of North America, and is mainly characterized by the 10-segmented antennae and unique conformation of the fronto-clypeal ridge in male. It is interesting from the zoogeographical viewpoint that the Japanese species of the Holarctic genus *Sulcacis* are restricted to Hokkaido and the northern part of Honshu.

In the course of comparative study of species, the syntypes of *S. japonicus* were examined, and its lectotype and paralectotypes are designated. The label data attached to each syntype were recorded exactly in the following way: (1), (2) and (3) indicate the sequence of labels on the pin from top to bottom, and slashes show the separation of printed or written lines on each label. A red label with lectotype designation, or yellow label with paralectotype designation, was attached to respective specimens.

The abbreviations used herein are the same as those explained in previous papers of mine.

Before going further, I wish to express my hearty thanks to the late Dr. A. NOBUCHI for his encouragement and advice. Deep gratitude is also due to Dr. S.-I. UÉNO, National Science Museum (Nat. Hist.), Tokyo, for critically reading the manuscript of this paper.

Genus *Sulcacis* DURY

[Japanese name: Togehime-tsutsukinokomushi Zoku]

Sulcacis DURY, 1917, J. Cincinnati Soc. nat. Hist., **22** (2), p. 20. Type species: *Sulcacis lengi* DURY, 1917, by subsequent designation of LAWRENCE, 1965, p. 278.

Cis: GYLLENHAL, 1827, Ins. Suec., **4**, p. 624 [partim].

Cis (*Entypus*): KIESENWETTER, in ERICHSON, 1877, Naturg. Ins. Dtschl., 1 Coleopt., **5**, p. 190.

Ennearthron: MELLIÉ, 1848, Annls. Soc. ent. Fr., (2), **6**, p. 360 [partim].

Entypus REDTENBACHER, 1847, Fn. Austr., (ed. 1), **3**, p. 350 (nec DAHLBON, 1843, Hymenoptera Europae praecipue borealis, **1**, p. 35, a senior homonym). Type species: *Apate fronticornis* PANZER (misidentification of *Cis affinis* GYLLENHAL, 1827), by monotypy.

Entypus (*Entypocis*): LOHSE, 1964, Ent. Bl., **60**, p. 121. Type species: *Cis bidentulus* ROSENHAUER, 1847, by original designation. Synonymized by LAWRENCE, 1965, p. 278.

Rhopalodontus: JACQUELIN DU VAL, 1861, Gen. Coléopt. Eur., **3**, p. 238 [partim].

Sulcacis (*Entypocis*): LOHSE, 1967, Käf. Mitteleur., Krefeld, **7**, p. 284.

Other references are omitted (see LAWRENCE, 1965 & 1971).

Though the generic status of *Sulcacis* was discussed in detail by LOHSE (1964) and LAWRENCE (1965), a definition with some additional descriptions is given below.

Body oblong, cylindrical, strongly convex; vestiture short, dual, consisting of both erect and inclined bristles. Head moderately declined, partly concealed by pronotum as seen from above; fronto-clypeal ridge in male with two small tubercles; genal ridge rather strongly carinate; antennal fossa relatively deep. Antenna 9- or 10-segmented; apical three segments forming a loose club; each segment of the club provided with four sensillifers which are nearly equidistant from the apex. Pronotum strongly convex, more or less constricted anteriorly, narrowly margined laterally; lateral margins not visible from above for their entire length; anterior margin simple in both sexes; anterior angles broadly rounded. Elytra covered with dual, and irregular or seriate punctures; suture without apical inflexed margin. Prosternal disc in front of coxae slightly tumid medio-longitudinally but not carinate, slightly depressed just before each coxa; prosternal process relatively short and narrow, tapering behind, slightly shorter than prosternal process, upheaved to the basal level of pronotum. Protibia expanded at apex; outer apical angle forming a rounded process which is armed with several spines. Meso- and metatibiae slightly expanded and spinulose at the apices. Abdominal fovea present in male.

Remarks. Up to the present, a total of seven species, *S. affinis* (GYLLENHAL) [Eurasia and Japan], *S. bidentulus* (ROSENHAUER) [southern Europe and northern Africa], *S. curtulus* (CASEY) [northern North America], *S. fronticornis* (PANZER) [Eurasia], *S. japonicus* (NOBUCHI) [Japan], *S. lengi* DURY [eastern North America] and *S. nobuchii* sp. nov. [Japan], have been known, and three of them are distributed in Northeast Japan. It is interesting from the zoogeographical viewpoint that a species related to the North American one and the species common to Eurasia occur in Hokkaido and the northern end of Honshu.

In this genus, the two subgenera *Entypus* and *Entypocis* have been recognized based on the number of antennal segments. However, the number of antennal segments

seems to be a changeable character in the genus, and division of the species to subgenera on the basis of antennal segments may not always be reflected on the phylogeny.

Sulcacis affinis (GYLLENHAL)

[Japanese name: Togehime-tsutsukinokomushi]

(Figs. 1–7, 11, 14, 18, 20 & 22)

Cis affinis GYLLENHAL 1827, Ins. Suec., **4**, p. 628.

Ennearthron affine: MELLIÉ, 1848, Annls. Soc. ent. Fr., (2), **6**, p. 364, pl. 12, fig. 13. —— ABEILLE DE PERRIN, 1874, Ess. monogr. Cisid., p. 82. —— REDTENBACHER, 1874, Fn. Austr., (ed. 3), **3**, p. 72. —— REITTER, 1878, Dtsch. ent. Z., **22**, p. 24. —— SEIDLITZ, 1891, Fn. Transsylv., p. 286. —— SCHILSKY, 1901, Käf. Eur., **37**, no. 48. —— REITTER, 1902, Verh. naturf. Ver. Brünn, **40**, p. 60. —— NOBUCHI, 1960, Ent. Rev. Japan, **11**, p. 41 [first record from Japan].

Entypus affinis: THOMSON, 1863, Skand. Coleopt., **5**, p. 194. —— LOHSE, 1964, Ent. Bl., **60**, p. 118.

Sulcacis affinis: LAWRENCE, 1965, Bull. Mus. comp. Zool., **133**, p. 277. —— LOHSE, 1967, Käf. Mitteleur., Krefeld, **7**, p. 284. —— LAWRENCE, 1971, Bull. Mus. comp. Zool., **142**, p. 503. —— MIYATAKE, 1985, Coleopt. Japan Col., Osaka, **3**, p. 284, pl. 46, fig. 29. —— REIBNITZ, 1989, Käf. Mitteleur., Ökologie, Krefeld, **2**, p. 255.

Apate fronticornis: REDTENBACHER, 1847, Fn. Austr., (ed. 1), **3**, p. 350. —— BACH, 1854, Käferfn., **2**, p. 111. —— KIESENWETTER, 1877, Naturg. Ins. Dtschl., **5**, p. 190.

Biology: MELLIÉ, 1848, Annls. Soc. ent. Fr., (2), **6**, p. 365.

Male (Specimens from Hokkaido, Japan). Body oblong, strongly convex, weakly shiny on dorsum. Color reddish black; antennal clubs, mandibles and legs dark reddish brown; mouthparts, antennal funicles and tarsi yellowish brown.

Head slightly convex on vertex, transversely and somewhat strongly concave on frons, finely and conspicuously reticulated, rather closely and conspicuously punctate; each puncture bearing a yellow bristle; fronto-clypeal ridge weakly produced forward, with two small but conspicuous conical projections. Antennae 9-segmented; 3rd segment 2.8 times as long as 4th; 7th to 9th forming a loose club.

Pronotum wider than long; anterior margin not ridged, broadly rounded; anterior corners rounded in lateral view, somewhat constricted in dorsal view; lateral margins narrowly ridged, barely visible from above, nearly arcuate in dorsal view; basal margin narrowly ridged, and weakly arcuate; hind angles broadly rounded in lateral view; dorsum irregularly and closely punctate; punctures uniform in size and shape, deep, somewhat large and clear, each bearing a yellow, short and suberect bristle; interstices between punctures finely and conspicuously reticulate. Scutellum small, semicircular, slightly broader than length, with some punctures. Elytral sides subparallel from base to basal two-thirds, then gradually convergent apicad, invisible from above except for basal corners; disc somewhat shiny, closely punctate; punctures partially seriate, uniform in size and shape, but diminishing posteriorly in size, somewhat smaller than those on pronotum, separated by a distance about 0.5 to 2.5 times their diameters, each bearing a yellow, short and suberect bristle; suture weakly margined at posterior declivous portion.

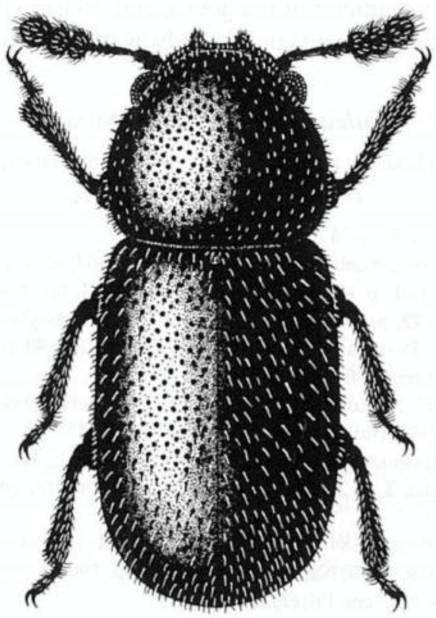


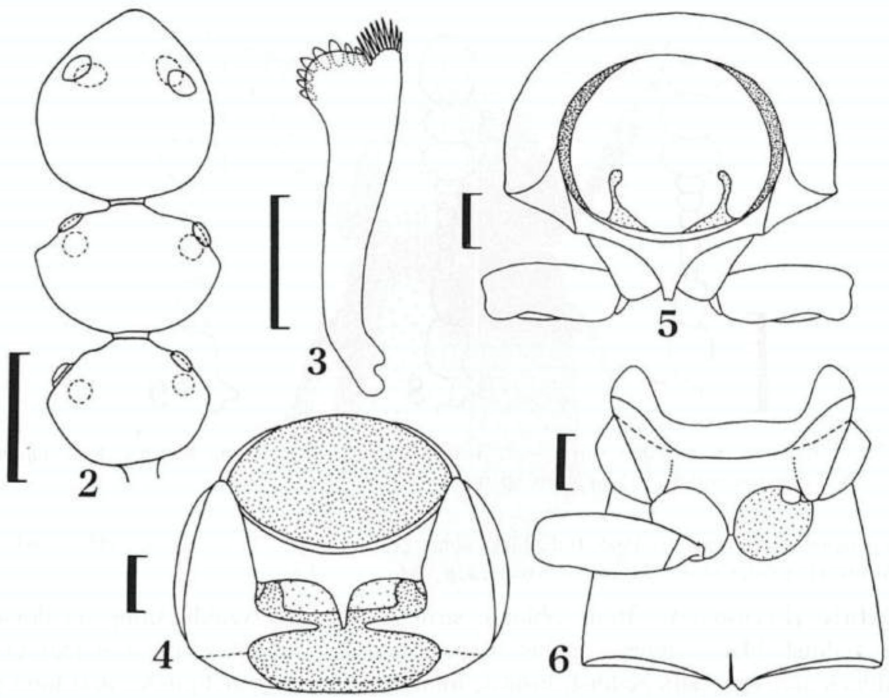
Fig. 1. *Sulcacis affinis* (GYLLENHAL), male, from Kawayu, Teshikaga-chô, Hokkaido.

Prosternal disc in front of coxae slightly tumid medio-longitudinally, then transversely and weakly depressed just before each coxa; prosternal process relatively thick, tapering behind, somewhat upheaved to the level of the base of prosternum. First abdominal sternite with a large, circular and marginally pubescent fovea at the middle. Eighth abdominal sternite trapezoidal, with the apical margin inconspicuously emarginate at the middle, armed with relatively short hairs at the lateral corners. Tegmen subparallel-sided, angustate elliptical, about 0.5 times as long as the combined length of visible abdominal sternites.

Female. Frons weakly concave in the middle; fronto-clypeal ridge slightly produced but without conical projection at each side; first abdominal sternite devoid of pubescent fovea.

Variation in the specimens from Kawayu, Teshikaga-chô, Hokkaido.

Male (n=15)	Female (n=15)
TL (mm): 1.29–1.61 (1.48±0.08)	TL (mm): 1.4–1.56 (1.49±0.05)
EW (mm): 0.6–0.76 (0.67±0.03)	EW (mm): 0.67–0.71 (0.69±0.02)
TL/EW: 2.12–2.28 (2.19±0.04)	TL/EW: 2.1–2.2 (2.16±0.04)
PL/PW: 0.83–0.96 (0.89±0.03)	PL/PW: 0.86–0.93 (0.9±0.02)
EL/EW: 1.33–1.46 (1.39±0.04)	EL/EW: 1.33–1.41 (1.37±0.03)
EL/PL: 1.65–1.82 (1.74±0.05)	EL/PL: 1.7–1.79 (1.75±0.02)



Figs. 2–6. *Sulcacis affinis* (GYLLENHAL), male, from Kawayu, Teshikaga-chô, Hokkaido. —— 2, Antennal club; 3, right protibia; 4, prothorax, ventral view; 5, prothorax, frontal view; 6, meso- and metasterna, ventral view. Scales for Fig. 2: 0.05 mm; for Figs. 3–6: 0.1 mm.

Specimens examined. [Hokkaido] 3 exs., Usubetsu, Jôzankei, 24–VII–1955, A. NOBUCHI leg.; 2 exs., Engaru, Monbetsu, 11–VIII–1955, K. MORIMOTO leg.; 85 exs., Kawayu, Teshikaga-chô, 10–VII–1990, M. KAWANABE leg. [Honshu] ⟨Aomori Pref.⟩ 10 exs., Yachi Spa, Towada, 23~28–VII–1952, T. KISHII & A. NOBUCHI leg.; 5 exs., Yunomata, Shimokita, 1–IV–1956, K. MORIMOTO leg.; 30 exs., Araya, Hiraka-chô, 3–V–1972, A. SATÔ leg.; 6 exs., Tsukushimori, Hirosaki-shi, 1–X–1992, M. KAWANABE leg.; 9 exs., Mt. Iwaki, Hirosaki-shi, 3–X–1992, M. KAWANABE leg.

Distribution. Hokkaido, Honshu (Tôhoku District); Eurasia.

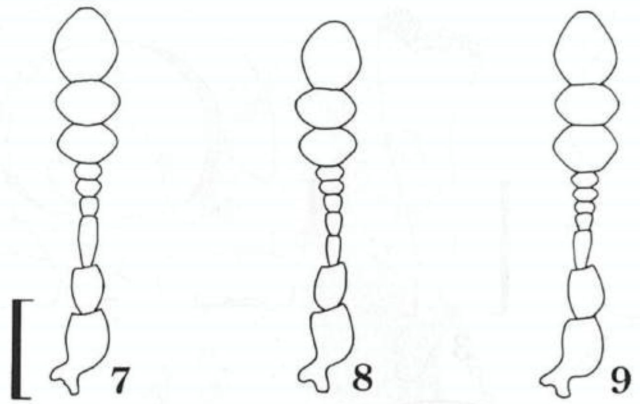
Host fungi. *Coriolus versicolor* (L.: FR.) QUÉL. (Kawaratake in Japanese), *Coriolus hirsutus* (WULF.: FR.) QUÉL. (Aragekawaratake in Japanese) and *Daedaleopsis confragosa* (BOLT.: FR.) SCHROET. (Chamidareamitake in Japanese).

Sulcacis japonicus (NOBUCHI)

[Japanese name: Ezo-togehime-tsutsukinokomushi]

(Figs. 8, 10, 12, 15 & 23)

Rhopalodontus japonicus NOBUCHI, 1960, Ent. Rev. Japan, **11**, p. 39.



Figs. 7–9. Antennae of *Sulcacis* spp.——7, *S. affinis* (GYLLENHAL), from Kawayu; 8, *S. japonicus* (NOBUCHI), paralectotype; 9, *S. nobuchii* sp. nov., paratype. Scale: 0.1 mm.

Sulcacis japonicus: LAWRENCE, 1965, Bull. Mus. comp. Zool., **133**, p. 277; 1971, ibid., **142**, p. 503.—— MIYATAKE, 1985, Coleopt. Japan Col., Osaka, **3**, p. 284.

Male (Lectotype). Body oblong, strongly convex, weakly shiny on dorsum. Color reddish black; anterior areas of pronotum somewhat paler; antennal clubs, mandibles and legs dark reddish brown; mouthparts, antennal funicles and tarsi yellowish brown.

Head slightly convex, transversely and inconspicuously concave in the middle, finely and conspicuously reticulated, rather sparsely and finely punctate; each puncture bearing a yellow bristle; fronto-clypeal ridge weakly produced forward, with two small and somewhat inconspicuous conical projections. Antennae 10-segmented; 3rd segment 1.2 times as long as 4th; 8th to10th forming a loose club.

Pronotum wider than long; anterior margin not ridged, broadly rounded; anterior corners rounded in lateral view, somewhat constricted in dorsal view; lateral margins narrowly ridged, invisible from above, nearly arcuate in dorsal view; basal margin narrowly ridged, and fairly sinuate; hind angles broadly rounded in lateral view; dorsum irregularly and closely punctate; punctures uniform in size and shape, a little finer at front and lateral portions, somewhat large and clear, each bearing a yellow, short and suberect bristle; interstices between punctures finely and conspicuously reticulated. Scutellum small, pentagonal, transverse, with some punctures. Elytra about five-sevenths as wide as long, nearly equal in width to base of pronotum; sides subparallel though weakly divergent from base to the middle, then gradually convergent apicad, invisible from above except for basal corners; disc somewhat shiny, closely and irregularly punctate; punctures uniform in size and shape, but diminishing posteriorly in size, somewhat smaller than those on pronotum, separated by a distance about 0.5 to 2.5 times their diameters, bearing yellow suberect bristles, which are a mixture of short and long ones; suture weakly margined at posterior declivous portion.

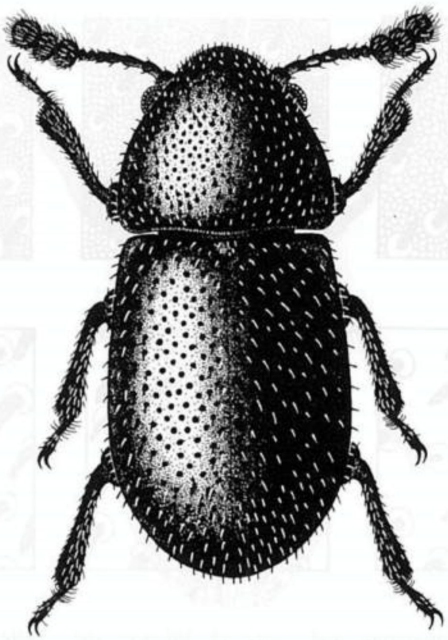


Fig. 10. *Sulcacis japonicus* (NOBUCHI), lectotype.

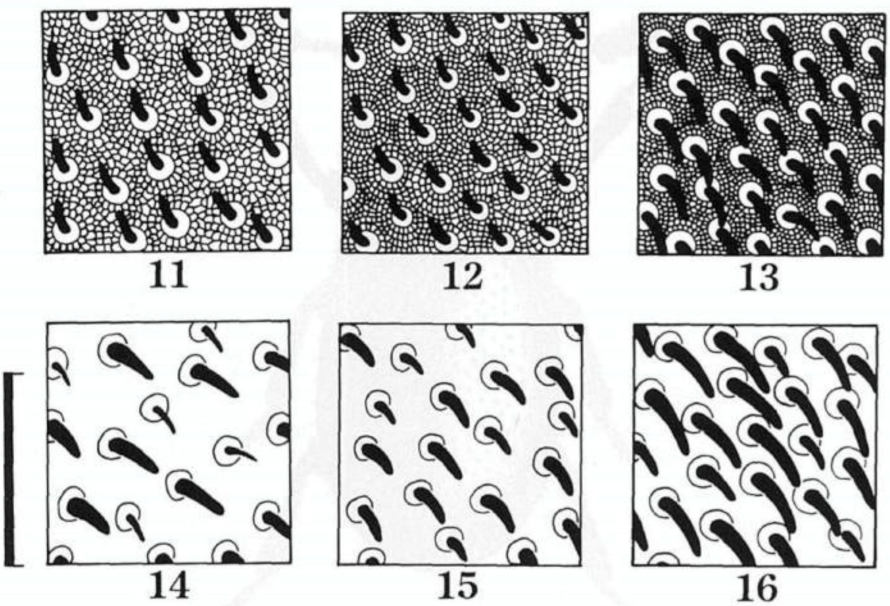
Prosternal disc in front of coxae slightly tumid medio-longitudinally, then transversely and weakly depressed just before each coxa; prosternal process relatively thick, tapering behind, somewhat upheaved to the level of the base of prosternum. First abdominal sternite with a large, circular and marginally pubescent fovea a little behind the middle.

Female. Fronto-clypeal ridge slightly produced but without conical projection at each side; first abdominal sternite devoid of pubescent fovea.

Variation in the type series.

Male (n=1)	Female (n=7)
TL (mm): 1.05	TL (mm): 1.0–1.31 (1.14±0.11)
EW (mm): 0.49	EW (mm): 0.46–0.61 (0.52±0.05)
TL/EW: 2.14	TL/EW: 2.14–2.23 (2.19±0.03)
PL/PW: 0.81	PL/PW: 0.88–0.92 (0.9±0.01)
EL/EW: 1.38	EL/EW: 1.33–1.43 (1.4±0.04)
EL/PL: 1.82	EL/PL: 1.66–1.82 (1.75±0.06)

Lectotype designation. Lectotype: ♂, by present designation–(1) Japan, Hokkaido / Takinosawa / IV, 8, 1956 / Akira Nobuchi, (2) COTYPE [red square label]. Paralectotypes: 6 ♀♀, same as lectotype; 1 ♀–(1) Japan, Hokkaido / Bifuka / VIII, 1, 1956 / Akira Nobuchi, (2) COTYPE [red square label]; 1 ♀–(1) Cotype, (2) Pyuka /



Figs. 11–16. Surface of pronotum and elytra of *Sulcacis* spp., male; 11–13, pronotum; 14–16, elytra. —— 11, 14, *S. affinis* (GYLLENHAL), from Kawayu; 12, 15, *S. japonicus* (NOBUCHI), lectotype; 13, 16, *S. nobuchii* sp. nov., holotype. Scale: 0.1 mm.

VIII, 18, 1955 / A. Nobuchi, (3) Rhopalodontus / japonicus / n. sp. / Det. A. Nobuchi, '55 [Nobuchi's handwriting]; 1 ♀–(1) Cotype, (2) Pyuka / VIII, 18, '55, (3) Rhopalodontus / japonicus / n. sp. / Det. A. Nobuchi, '55 [NOBUCHI's handwriting]. In the original description, the collecting date at Bifuka (=Pyuka) is different from the label data with the specimen.

All the type specimens are preserved in the collection of the National Institute of Agro-environmental Sciences, Tsukuba.

Distribution. Hokkaido.

Host fungus. Unknown.

Sulcacis nobuchii M. KAWANABE, sp. nov.

[Japanese name: Moshiri-togehime-tsutsukinokomushi]

(Figs. 9, 13, 16, 17, 19, 21 & 24)

Male (Holotype). Body length (excluding head): 1.54 mm; greatest breadth of elytra: 0.74 mm.

Body oblong, 2.09 times as long as elytral breadth, strongly convex, opaque on dorsum. Color reddish black; elytra, antennal clubs, mandibles and legs dark brown;

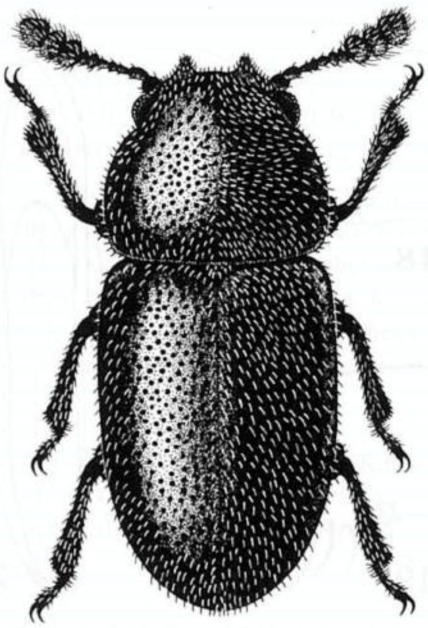
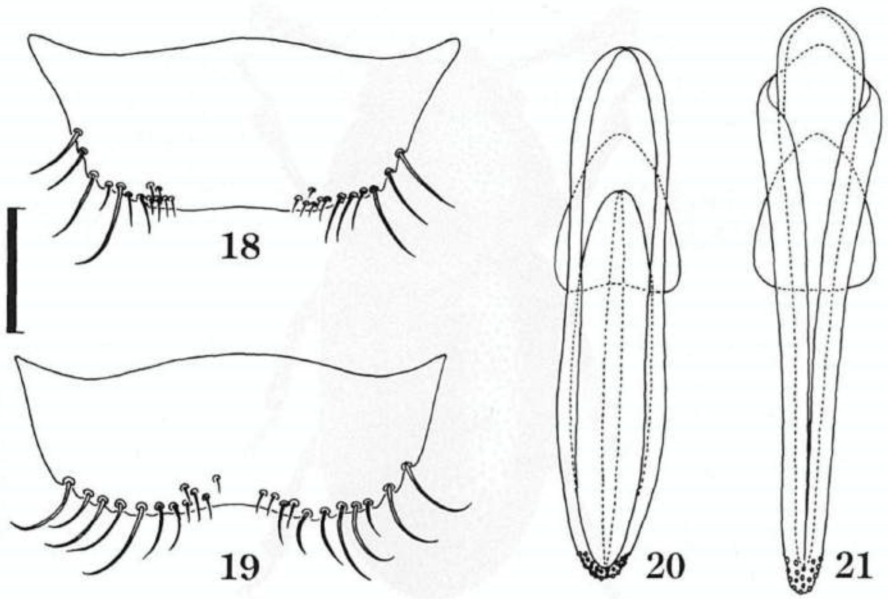


Fig. 17. *Sulcacis nobuchii* sp. nov., holotype.

mouthparts, antennal funicles and tarsi yellowish brown.

Head slightly convex, shallowly concave in the middle of vertex, finely and conspicuously reticulated, rather closely and conspicuously punctate; each puncture bearing a short yellow bristle; fronto-clypeal ridge weakly produced forward, with two small but conspicuous conical projections. Antennae 10-segmented; 3rd segment 1.7 times as long as 4th; 8th to 10th forming a loose club.

Pronotum somewhat transverse pear-shaped, 0.83 times as long as broad; anterior margin not ridged, broadly rounded; anterior corners rounded in lateral view, somewhat constricted in dorsal view; lateral margins narrowly ridged, invisible from above, nearly arcuate in dorsal view; basal margin narrowly ridged, and weakly arcuate; hind angles broadly rounded in lateral view; dorsum irregularly and very closely punctate; punctures uniform in size and shape, diminishing anteriorly in size, deep, somewhat small and clear, bearing yellow, short and suberect bristles aligned windingly; interstices between punctures finely and conspicuously reticulated. Scutellum transverse, nearly pentagonal, with some punctures. Elytra 1.34 times as long as broad, 0.79 times as long as pronotum; sides subparallel from base to basal two-thirds, then gradually convergent apicad, invisible from above except for basal corners; disc weakly shiny, irregularly and very closely punctate; punctures uniform in size and shape, but diminishing posteriorly in size, seemingly confluent at some places in basal areas, almost similar in size and shape to those on pronotum, separated by a distance about 0.5 to 1 times



Figs. 18–21. Male 8th abdominal sternites and genitalia of *Sulcacis* spp.; 18–19, male 8th abdominal sternites; 20–21, male genitalia, dorsal view. —— 18, 20, *S. affinis* (GYLLENHAL), from Kawayu; 19, 21, *S. nobuchii* sp. nov., paratype. Scale: 0.05 mm.

their diameters, bearing yellow suberect bristles consisting of short and long ones; suture weakly margined at posterior declivous portion.

Prosternal disc in front of coxae not or very slightly tumid medio-longitudinally, then transversely and weakly depressed just before each coxa; prosternal process relatively thick, nearly parallel-sided, somewhat upheaved to the level of the base of prosternum. First abdominal sternite with a large, circular and marginally pubescent fovea a little behind the middle.

Male genitalia in a paratype:— Eighth abdominal sternite trapezoidal, with the apical margin weakly emarginate at the middle, armed with relatively long and curled hairs at the lateral corners and short hairs at the bottom of the emargination. Tegmen slender, angustate obovate, gradually convergent apicad, 0.58 times as long as the combined length of visible abdominal sternites.

Female. Frons weakly concave in the middle; fronto-clypeal ridge slightly produced but without conical projection at each side; first abdominal sternite devoid of pubescent fovea.

Variation in the type series.

Male (n=5)	Female (n=3)
TL (mm): 1.43–1.54 (1.48±0.04)	TL (mm): 1.45–1.54 (1.5±0.04)

EW (mm): 0.71–0.74 (0.71±0.02)	EW (mm): 0.71–0.74 (0.73±0.01)
TL/EW: 2.06–2.1 (2.08±0.02)	TL/EW: 2.03–2.09 (2.06±0.02)
PL/PW: 0.81–0.83 (0.82±0.01)	PL/PW: 0.79–0.83 (0.82±0.02)
EL/EW: 1.31–1.37 (1.33±0.02)	EL/EW: 1.31–1.34 (1.32±0.01)
EL/PL: 1.75–1.86 (1.8±0.04)	EL/PL: 1.75–1.86 (1.8±0.05)

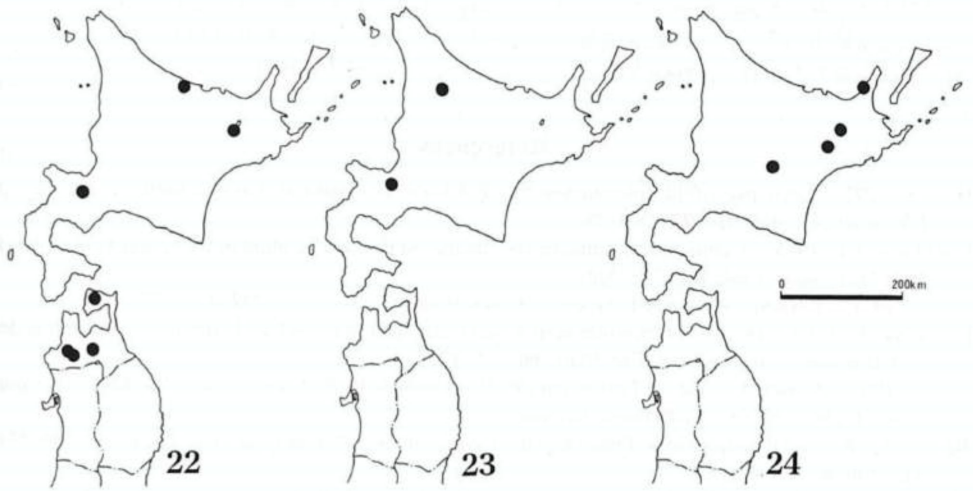
Type series. Holotype: ♂, Meakan Spa, Akan Natn. Park, Hokkaido, 6–VII–1958, M. MIYATAKE leg. Paratypes: 1 ♀, same data as holotype; 1 ♂, 1 ♀, Kawayu, Hokkaido, 22–VII–1970, M. SAKAI leg.; 2 ♂♂, Iwaobetsu, Shari-chô, Hokkaido, 8–VII–1990, M. KAWANABE leg.; 1 ♂, 2 ♀♀, Nukabira Spa, Kamishihoro-chô, Hokkaido, 12～13–VII–1990, M. KAWANABE leg. All the type specimens are preserved in the collection of the Entomological Laboratory, College of Agriculture, Ehime University, Matsuyama.

Distribution. Hokkaido.

Host fungus. *Coriolus versicolor* (L.: FR.) QUÉL. (Kawaratake in Japanese).

Remarks. This new species is allied to *S. lengi* DURY, 1917, from North America in the features of the punctation and bristles on dorsum. In the latter, however, the antenna is 9-segmented and the fronto-clypeal ridge in the male is devoid of conical projections.

This new species is dedicated to the late Dr. Akira NOBUCHI, who unexpectedly passed away on June 22, 1996, at the age of 65, by traffic accident. Dr. NOBUCHI energetically studied ciid beetles in his youth, and was one of the pioneer specialists in the taxonomy of the Japanese Ciidae. He always encouraged my studies, and was a good instructor of mine.



Figs. 22–24. Distribution of *Sulcacis* spp. —— 22, *S. affinis* (GYLLENHAL); 23, *S. japonicus* (NOBUCHI); 24, *S. nobuchii* sp. nov.

Key to the Japanese Species of the Genus *Sulcacis*

1. Pronotum broader, PL/PW less than 0.83. Elytral punctures denser, separated by a distance 0.5 to 1 times their diameters. Body brown to dark brown, a little darker on pronotum. Head closely covered with distinct yellowish bristles. ..... *S. nobuchii* sp. nov.
— Pronotum narrower, PL/PW usually more than 0.83. Elytral punctures sparser, separated by a distance 0.5 to 2.5 times their diameters. Body dark reddish brown to reddish black, uniformly pigmented on dorsum. Head sparsely covered with somewhat indistinct whitish bristles. 2
2. Antennae 9-segmented. Body larger, TL more than 1.29 mm, EW more than 0.6 mm. Elytral punctures partially seriate. ..... *S. affinis* (GYLLENHAL)
— Antennae 10-segmented. Body smaller, TL less than 1.31 mm, EW usually less than 0.6 mm, TL/EW more than 2.14. Elytral punctures not seriate. ..... *S. japonicus* (NOBUCHI)

要　約

川那部　真：日本産トゲヒメツツキノコムシ属の分類学的知見．—— 日本に産するトゲヒメツツキノコムシ属*Sulcacis*を検討したところ，北海道産の標本中に1未記載種を見いだしたので，モシリトゲヒメツツキノコムシ*S. nobuchii* M. KAWANABEと命名して記載した．この種は，北米産の*Sulcacis lengi*に類似するが，触角が10節からなることや雄頭部の二次性徴が顕著であることで，容易に区別できる．北米に産する種の近似種が北海道に産すること，またユーラシア北部から北米にかけて広く分布するトゲヒメツツキノコムシ属の種のうちの2種が，北海道から本州北端付近に局在することは，生物地理学的にみて非常に興味深い．また，エゾトゲヒメツツキノコムシ*S. japonicus*については，原記載で正基準標本の指定がなされていなかったので，総基準標本のうちから，北海道札幌市近郊の滝の沢産の標本を後基準標本に指定した．なお，今回記載した新種は，1996年6月に急逝された野淵 輝博士に捧げたものである．

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Elytra, Tokyo, **25** (1): 79–83, May 15, 1997

A New Species of the Genus *Rhagonycha* (Coleoptera, Cantharidae) from the Koshiki-jima Islands, off Southern Kyushu, Japan[1)]

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Abstract A new cantharid species of the genus *Rhagonycha* is described and illustrated from Shimo-Koshiki-jima Is., Kyushu, Japan, under the name of *Rhagonycha bicolor*.

The genus *Rhagonycha* comprises about 400 species in the Holarctic and Oriental Regions, but predominantly occurs in the Palearctic Region and discoveries of new species have continued up to the present.

As regards the Japanese species of the genus, DELKESKAMP (1977–'78) enumerated three species in his Coleopterorum Catalogus, and NAKANE (1993) added six species in his review, and as the result, nine species are known to occur in Japan at present. All but one of them are, however, also distributed in the Russian Far East. In Japan, *R. coreana* PIC, *R. geniculata* GEBLER, *R. kurilica* WITTMER, *R. latiuscula* J. SAHLBERG, *R. nopporensis* WITTMER, and *R. sibirica* WITTMER are distributed mainly in Hokkaido. *Rhagonycha caroli* PIC is found in Honshu, and *R. transita* WITTMER is known from the Islands of Tsushima, north of Kyushu. *Rhagonycha arakawadakensis* M. SATÔ is the only endemic species known from the Southern Japanese Alps of central Honshu.

Recently, we had an opportunity to examine a new species collected from Shimo-Koshiki-jima Is., off the southern part of Kyushu, which is the southernmost known locality of *Rhagonycha* in Japan. So far as known to us, it is considered closer to Taiwanese species than to the above-mentioned Japanese ones judging from the characteristics of the male genitalia. Therefore, this interesting new species will give us information on the relationship between the Japanese and Taiwanese components of the genus *Rhagonycha*.

Before going further, we wish to express our sincere gratitude to Professor Katsura MORIMOTO of Kyushu University for his continuous guidance and reading the original manuscript of the present paper, and to Mr. Teruhisa UENO of Kyushu University for his kindness in offering the interesting specimens. We also thank Assoc. Prof.

1) Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 4, No. 115).

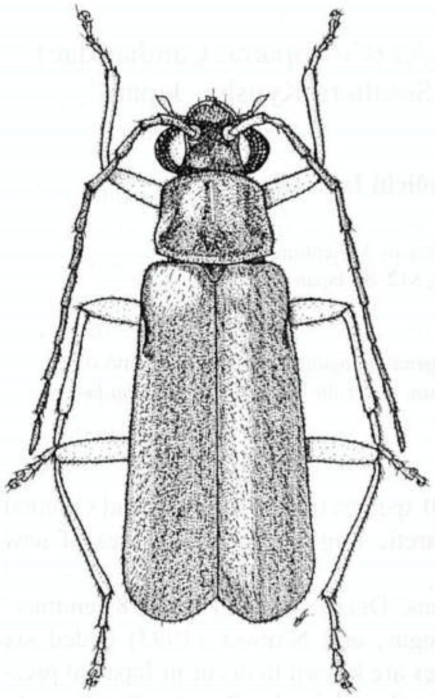

Fig. 1. Habitus of *Rhagonycha bicolor* N. TAKAHASHI et IMASAKA, sp. nov., male. Scale: 2.0 mm.

O. TADAUCHI, Assoc. Prof. M. T. CHÛJÔ and Assist. Prof. S. KAMITANI of Kyushu University for their continuous guidance and encouragement, and to Mr. Hiroaki KOJIMA of Kyushu University for his kind advice.

Rhagonycha bicolor N. TAKAHASHI et IMASAKA, sp. nov.

[Japanese name: Koshiki-kurohime-jôkai]

(Figs. 1–2)

Male (Fig. 1). Head, pronotum, scutellum, and elytra black or brownish black; antennae except for basal two segments, ventral side of body, and basal part of each coxa dark brown; basal two segments of antennae, eyes, apical halves of mandibles, and anterior part of head dark reddish brown; ventral side of 1st and 2nd antennal segments, basal part of mandibles, maxillary and labial palpi, and legs light reddish yellow.

Body elongate, closely covered with pale reddish-yellow pubescence; anterior part of head sparsely covered with longish pubescence; antennae and legs covered with reddish yellow or reddish brown pubescence.

Head broader than long; disc slightly convex and finely shagreened, smooth and somewhat shining from frons to clypeus, weakly concave in anterior area of vertex and

longitudinal line between antennal pits; apical margin of clypeus arcuate with a faint median indentation; eyes globular and strongly prominent, the distance measured at the widest part of head with compound eyes 2.35 times (in the holotype; range 1.67–2.74) as large as the transverse diameter of compound eye; antennae filiform, reaching about four-sevenths of elytra from the base, 1st and 2nd segments subclavate, 3rd to 11th subcylindrical, relative lengths of antennal segments from the base as follows:— 19.3 : 10.6 : 19.6 : 21.3 : 23.0 : 22.0 : 21.8 : 21.0 : 20.0 : 18.3 : 22.0.

Pronotum subquadrate, 1.08 (0.90–1.14) times as wide as head with compound eyes and 1.36 (1.15–1.50) times as wide as long, slightly dilated posteriad; disc somewhat convex dorsally, weakly warped dorsad and strongly arcuate at anterior margin, with anterior angles widely rounded, weakly arcuate at posterior margin and weakly depressed along it between posterior angles including around them, with posterior angles obtuse, feebly explanate and obtuse or slightly rounded at lateral margins just before posterior angles. Scutellum triangular with round apex, closely punctate.

Elytra about 2.90 (2.63–3.06) times as long as wide at humeri, straight at sides and weakly dilated posteriad, with apices separately rounded; disc closely and rugosely punctate. Legs slender, relative lengths of tarsal segments of hind leg as follows:— 18.3 : 11.9 : 8.7 : 8.4 : 10.8. Ventral side of body shagreened, 8th abdominal segment roundly produced posteriad at lateral sides and 9th weakly emarginate at the apex (Fig. 2 D).

Male genitalia (Fig. 2 E–G) relatively stout; dorsal plate of lateral lobe roundly and shallowly emarginate at the apex; ventral process of each lateral lobe becoming slightly narrower to each rounded apex, of which the basal parts are laterally obtuse; each ventral margin of dorsal plate of lateral lobe widely explanate.

Length of body: 5.7 (5.0–6.4) mm; length of hind tibia: 1.7 (1.3–1.9) mm.

Female. Similar to male except for the following features: body stouter, antennae a little shorter, compound eyes smaller than in the male, the distance measured at the widest part of head with compound eyes 2.86–4.43 times as large as the transverse diameter of compound eye. Relative lengths of antennal segments as follows:— 19.5 : 11.3 : 18.3 : 19.4 : 19.9 : 19.4 : 19.0 : 18.7 : 17.3 : 16.1 : 19.7. Pronotum 1.35–1.62 times as wide as long, 1.21–1.44 times as wide as head with compound eyes. Elytra 2.34–2.83 times as long as wide at humeri. Relative lengths of tarsal segments of hind leg as follows:— 18.7 : 12.2 : 9.4 : 9.3 : 11.3. Lateral sides of 8th abdominal segment roundly produced posteriad and middle area obtusely projected (Fig. 2 C).

Length of body: 5.3–6.8 mm; length of hind tibia: 1.3–1.8 mm.

Type series. Holotype: ♂ (Type No. 3045, Kyushu Univ.), Teuchi, Shimo-Koshiki-jima Is., Kagoshima Pref., 17–V–1994, T. Ueno leg. Paratypes: 7 ♂♂, 1 ♀, Mt. Otake, Shimo-Koshiki-jima Is., Kagoshima Pref., 15–VI–1982, S. Imasaka leg.; 4 ♂♂, 2 ♀♀, ditto, but 20–VI–1982, S. Imasaka leg.; 1 ♂, 4 ♀♀, ditto, but 22–VI–1982, S. Imasaka leg.; 2 ♀♀, ditto, but 18–V–1994, T. Ueno leg.; 4 ♂♂, 3 ♀♀, Sesenoura, Shimo-Koshiki-jima Is., Kagoshima Pref., 16–VI–1982, S. Imasaka leg.; 16 ♂♂, 10 ♀♀, Teuchi, Shimo-Koshiki-jima Is., Kagoshima Pref., 17–V–1994, T. Ueno leg.; 4 ♂♂, 6 ♀♀, ditto, but

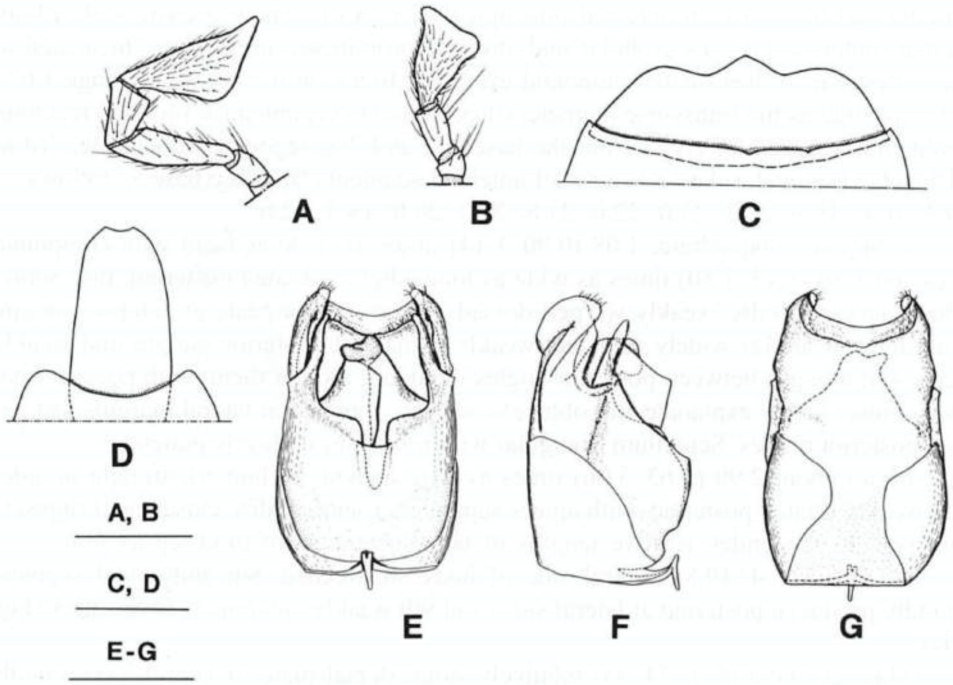

Fig. 2. *Rhagonycha bicolor* N. TAKAHASHI et IMASAKA, sp. nov.; A, maxillary palpus (dorsal view); B, labial palpus (ventral view); C, outline of 7–8th abdominal segments in female (macerated condition); D, outline of 8–9th abdominal segments in male (macerated condition); E–G, male genitalia (E, ventral view; F, lateral view; G, dorsal view). Scales: 0.2 mm for A and B, 0.5 mm for C–G.

17～18–V–1994, T. UENO leg.

The holotype is preserved in the collection of the Entomological Laboratory, Faculty of Agriculture, Kyushu University. The paratypes are preserved in the collection of Kyushu University, Kurashiki Museum of Natural History, Okayama, ours, and so on.

Distribution. Japan: Kyushu (Shimo-Koshiki-jima Is.).

Remarks. This new species is different from the Japanese congeners in somewhat transverse pronotum, light reddish yellow legs, and the characteristic male genitalia whose dorsal plate of lateral lobe is broad from the base to the apex and widely emarginate at the apex. This is similar to *Rhagonycha taiwanonigra* WITTMER, 1982 in general structure of the male genitalia, but the compound eyes are larger in the male, the pronotum is less transverse, the legs are reddish yellow, and the ventral process of each lateral lobe of male genitalia is slightly narrower.

Etymology The specific name of this new species is derived from the coloration of the body.

要　約

高橋直樹・今坂正一：甑島列島産クロヒメジョウカイ属の1新種．—— 下甑島からクロヒメジョウカイ属の1種を新たに記載し，*Rhagonycha bicolor* sp. novと命名した．本種は，これまで日本から知られている同属の種とは前胸や雄交尾器の形状および脚の色彩を異にし，雄交尾器の外観からは台湾より記載された*Rhagonycha taiwanonigra* WITTMER, 1982に近縁と思われるが，複眼が雄では雌よりも大きくなること，前胸がそれほど横長にならないこと，脚が淡橙色であること，および雄交尾器の腹面突起がやや細いことで区別される．

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Elytra, *Tokyo*, **25** (1): 84, May 15, 1997

On the Male of *Trichophya japonica* (Coleoptera, Staphylinidae)

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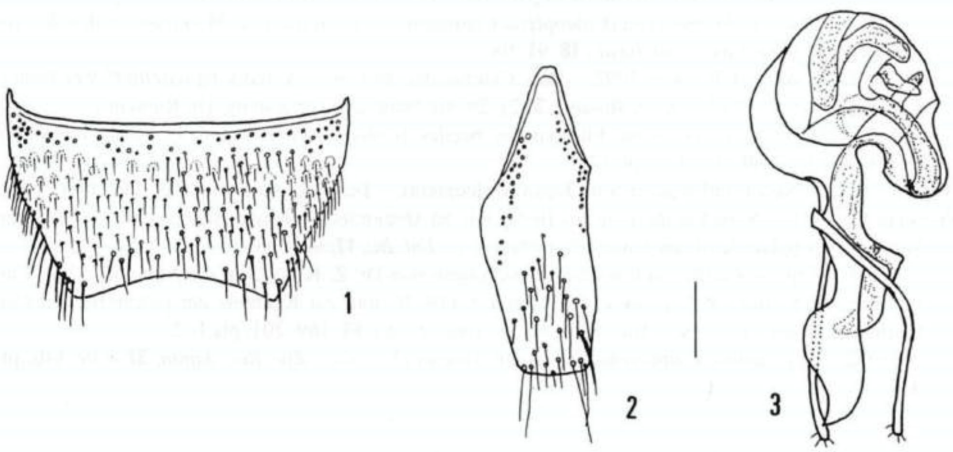
Trichophya japonica Y. WATANABE et Y. SHIBATA has previously been known from only female specimens (WATANABE & SHIBATA, 1962; NAOMI, 1995). Recently, I reported a collection of male specimens of this species from Hokkaido (MIYASHITA, 1996). In the present paper, the aedeagus and the 8th and 9th male sternites of *T. japonoca* are illustrated for the first time (Figs. 1–3).



Figs. 1–3. *Trichophya japonica* Y. WATANABE et Y. SHIBATA, ♂; 1, sternite 8; 2, sternite 9; 3, aedeagus. Scale: 0.1 mm.

Remarks. All the specimens examined were collected by myself by beating a kind of fungi, *Pleurotus cornucopiae* var. *citrinopileatus* (Japanese name: tamogitake).

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Elytra, Tokyo, **25** (1): 85–91, May 15, 1997

Two New Species of the Genus *Stenothemus* (Coleoptera, Cantharidae) from Taiwan

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Abstract Two new species of the genus *Stenothemus* are described and illustrated from Central Taiwan under the names *S. owadai* and *S. taiwanus*. They were collected in late November.

Up to the present, only one species of the genus *Stenothemus* Bourgeois, 1907, *S. furcatus* Wittmer, 1986 has been known from Taiwan.

In recent years, we were fortunate to have been able to examine two additional species of the genus from Taiwan. They were collected by Dr. Mamoru Owada in the late autumn of 1995 as a byproduct of his lepidopteran researches in Taiwan. Through his courtesy, we were given an opportunity to examine these interesting materials. After a careful examination, it has become clear that they must be new to science. It will be described in the present paper.

We wish to express our hearty thanks to Dr. Walter Wittmer of the Naturhistorisches Museum, Basel, for loaning a type specimen for comparison, to Dr. Shun-Ichi Uéno of the National Science Museum (Nat. Hist.), Tokyo, for his critical reading of the original manuscript, and to Dr. Mamoru Owada of the same museum, for his kind support of the invaluable material.

Stenothemus owadai Okushima et M. Satô, sp. nov.

(Figs. 1–4)

Male. Eyes, antennae, maxillary and labial palpi, femora, tibiae, tarsi, meso- and metasterna, and abdominal sternites mostly dark brown to black; mandibles, coxae, trochanters, claws and prosternum yellowish to reddish brown; head dark red-

dish brown but frequently blackish except for the central area; pronotum orange yellow but the central area is sometimes blackish; elytra yellowish brown. Body closely covered with fine yellowish pubescence; pubescence of each elytron short in anterior area and long in posterior area; antennae and legs with some intermingled brown bristles in addition to primary pubescence; apical margin of clypeus fringed with yellowish bristles.

Head as long as wide; disc slightly swollen in posterior area, and depressed along the apical margin of clypeus and in lateral areas before eyes; apical margin of clypeus arcuate with its centre faintly indented; disc covered with minute grains and devoid of

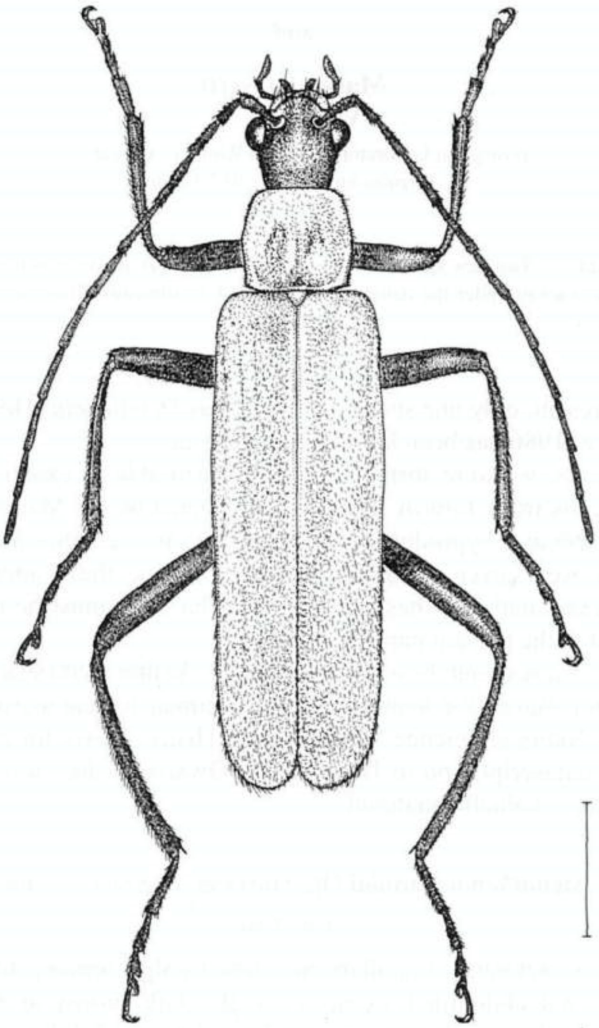


Fig. 1. *Stenothemus owadai* OKUSHIMA et M. SATÔ, sp. nov., ♂. (Scale: 2.0 mm.)

lustre; eyes large, globular and strongly prominent; antennae attaining to apical third of elytra, 1st segment clavate, 2nd short, 3rd to 11th subcylindrical, relative lengths of antennal segments as follows:— 18 : 10 : 13 : 18.5 : 18.5 : 19.5 : 20 : 18.5 : 17.5 : 15 : 16.5.

Pronotum subquadrate, 1.09 times (in the holotype; range 0.98–1.13) as wide as head, 0.91 (0.87–1.00) times as long as wide; anterior margin almost straight without distinct angle on each side, posterior margin feebly sinuate; lateral margins arcuate, particularly behind the centre, and weakly sinuate before posterior angles; anterior angles rounded; posterior angles obtuse; disc swollen, particularly so in the posterior area; antero-lateral areas hollowed; medio-longitudinal furrow distinct in central area; disc covered with minute grains and without lustre. Scutellum triangular with rounded apex.

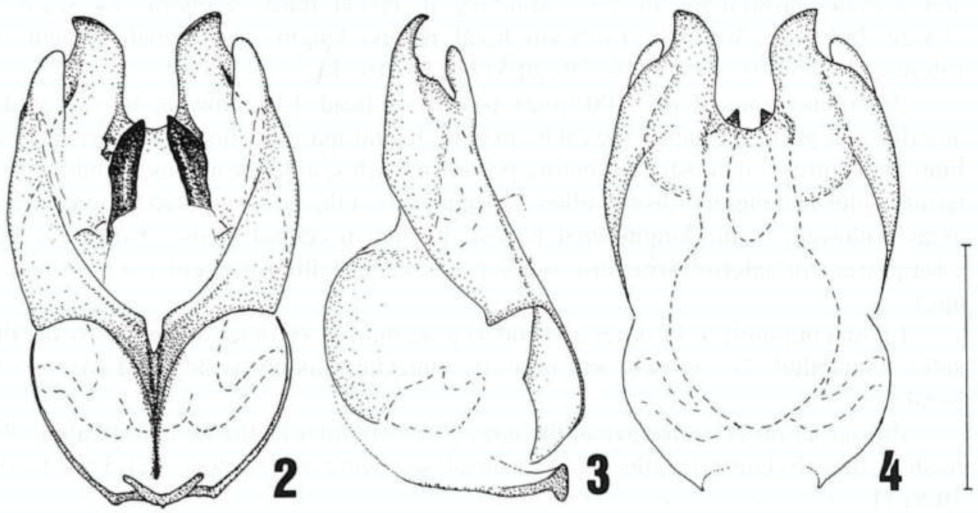
Elytra conjointly 1.36 (1.29–1.43) times as wide as pronotum, 3.21 (2.98–3.48) times as long as wide, the sides subparallel; disc closely and rugosely punctate, though weakly and sparsely in anterior part.

Prosternal process concave at the apex. Mesosternum distinctly convex along the median line. Relative lengths of hind tarsal segments as follows:— 19.5 : 12.5 : 10 : 10 : 10.

Male genitalia: ventral process of each lateral lobe broad and with blunt tip; each lateral process of median lobe curved inwards and upwards with pointed apex; dorsal plates widely separated from each other, the tips blunt and curved outwards (Figs. 2–4).

Length of body: 10.4 mm (in the holotype; range 7.98–10.4); length of hind tibia: 3.39 (2.63–3.39) mm.

Female. Unknown.



Figs. 2–4. Male genitalia of *Stenothemus owadai* OKUSHIMA et M. SATÔ, sp. nov.; 2, ventral view; 3, lateral view; 4, dorsal view. (Scale: 1.0 mm.)

Type series. Holotype: ♂, Meifeng, alt. 2,100 m, Jen-ai, Nantou Hsien, Taiwan, 26–XI–1995, M. OWADA leg. Paratypes: 27 ♂♂, same data as for the holotype.

Distribution. Central Taiwan.

Notes. This new species somewhat resembles *S. badius* (KIESENWETTER, 1874) from Japan, but can easily be distinguished from the latter by the orange yellow pronotum, pale elytra, dark legs, and the peculiarities of male genitalia with broad ventral process and apically pointed dorsal plate of each lateral lobe.

The specific name is given in honour of Dr. Mamoru OWADA for his offer of the interesting material.

Stenothemus taiwanus OKUSHIMA et M. SATÔ, sp. nov.

(Figs. 5–8)

Male. Colour almost yellowish brown; eyes black; mandibles and claws reddish brown; basal halves of antennae, basal parts of tibiae and apical parts of femora of fore legs, both sides of the centre of pronotum, and elytra somewhat dusky. Body closely covered with fine yellowish pubescence; antennae with some intermingled brown bristles in addition to primary pubescence; apical margin of clypeus fringed with yellowish bristles; each elytron with intermingled yellowish bristles in addition to primary pubescence, though they are scarce in anterior half.

Head slightly shorter than width; disc somewhat swollen in posterior area, and depressed along the apical margin of clypeus and in lateral areas before eyes; central area between eyes lightly and longitudinally depressed; apical margin of clypeus arcuate with its centre faintly indented; disc covered with minute grains; eyes large, globular and strongly prominent; antennae attaining to apical third of elytra; 1st segment clavate, 2nd short, 3rd to 11th subcylindrical, relative lengths of antennal segments as follows:— 17.5 : 10 : 13 : 19 : 19 : 19 : 20.5 : 19 : 18 : 16 : 15.5.

Pronotum subquadrate, 1.00 times as wide as head, 1.01 times as long as wide; anterior and posterior margins weakly arcuate; lateral margins moderately arcuate behind the centre, and constricted before posterior angles; anterior angles rounded; posterior angles rectangular; disc swollen, especially so in the posterior area; antero-lateral areas hollowed; medio-longitudinal furrow distinct in central to posterior areas and disappearing in anterior area; disc without lustre. Scutellum triangular with rounded apex.

Elytra conjointly 1.44 times as wide as pronotum, 3.86 times as long as wide, the sides subparallel; disc closely and rugosely punctate, though weakly and sparsely in basal area.

Prosternal process concave at the apex. Mesosternum distinctly convex along the median line. Relative lengths of hind tarsal segments as follows:— 21.5 : 12.5 : 10: 10.5 : 11.

Male genitalia: ventral process of each lateral lobe broad and lightly sinuate; each lateral process of median lobe bent upwards with pointed apex curved outwards; dorsal

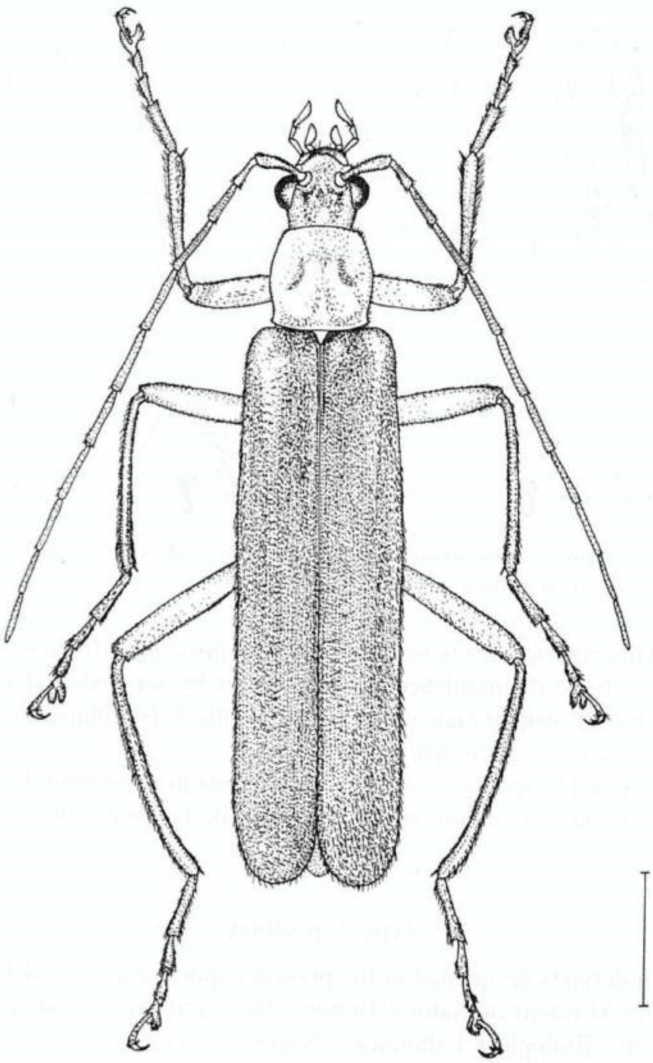


Fig 5. *Stenothemus taiwanus* OKUSHIMA et M. SATÔ, sp. nov., ♂. (Scale: 2.0 mm.)

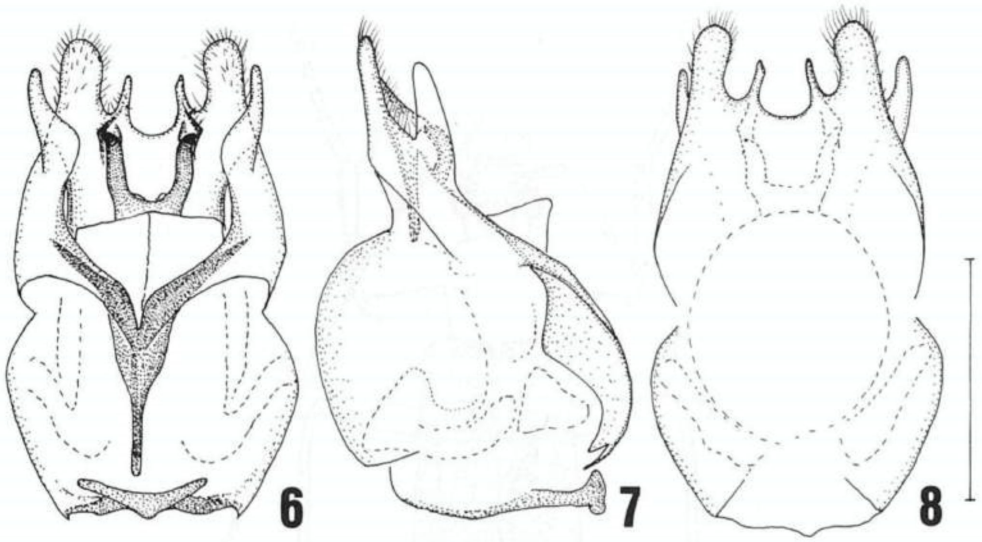
plate of each lateral lobe with rounded apex, with thin process on the inner side (Figs. 6–8).

Length of body: 12.5 mm; length of hind tibia: 3.98 mm.

Female. Unknown.

Type. Holotype: ♂, Meifeng, alt. 2,100 m, Jen-ai, Nantou Hsien, Taiwan, 26–XI–1995, M. OWADA leg.

Distribution. Central Taiwan.



Figs. 6–8. Male genitalia of *Stenothemus taiwanus* OKUSHIMA et M. SATÔ, sp. nov.; 6, ventral view; 7, lateral view; 8, dorsal view. (Scale: 1.0 mm.)

Notes. This new species is very similar to *S. furcatus* WITTMER, 1986 from Taiwan, but can easily be distinguished from the latter by somewhat slender body, pale colour and differently shaped male genitalia, especially dorsal plate of each lateral lobe with a thin process on the inner side.

Only one available specimen of this new species may possibly be a teneral individual, because of its pale colour of the body. In the holotype, the left fore tarsus is missing.

Type Depository

Both the holotypes designated in the present paper are deposited in the collection of the Kurashiki Museum of Natural History. The paratypes will be preserved in the collections of the Biological Laboratory, Nagoya Women's University, the National Science Museum (Nat. Hist.), Tokyo, and so on.

要　約

奥島雄一・佐藤正孝：台湾産クリイロジョウカイ属の2新種．——台湾産のクリイロジョウカイ属の種は，これまで*Stenothemus furcatus* WITTMERただ1種が知られているだけであった．今回，大和田守博士が1995年11月に行われたガ類調査の際に得られた標本を調べたところ，本属に属する2新種を認めたので，それぞれ*S. owadai* OKUSHIMA et M. SATÔ, sp. nov., *S. taiwanus* OKUSHIMA et M. SATÔ, sp. nov.として命名記載した．*S. owadai*は，いくぶん日本産のクリイロジ

ョウカイ *S. badius* (KIESENWETTER)に似ているが，オレンジ黄色の前胸背板，上翅がより淡色であること，脚がより濃色であること，雄交尾器の腹面突起が幅広く，背板の先が尖ることなどの点で容易に区別できる．*S. taiwanus* は，すでに台湾から記載されている *S. furcatus* によく似ているが，いくぶん細長い体と雄交尾器の背板が細い突起をもつことによって区別できる．

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Elytra, Tokyo, **25** (1): 91–92, May 15, 1997

Records of Cantharidae (Coleoptera) from Toku-no-shima of the Ryukyu Islands

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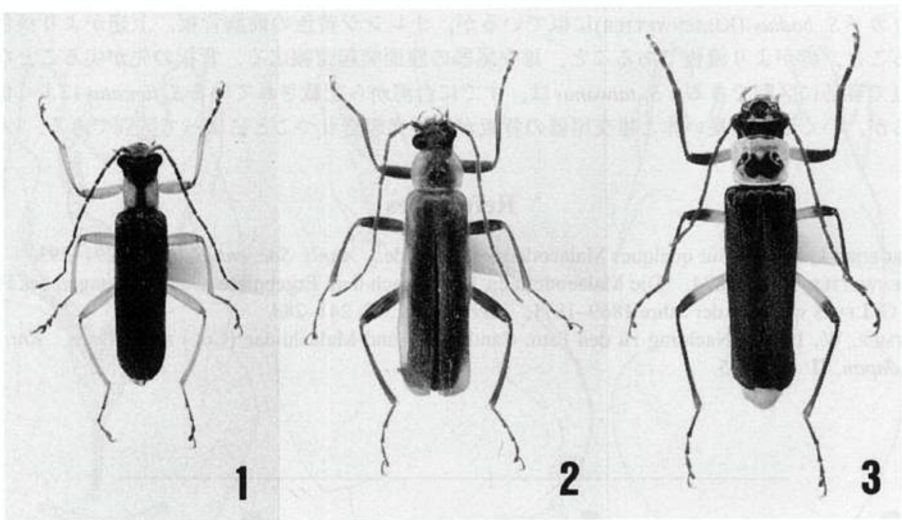
Until now, two species of cantharid beetles, *Themus kazuoi* N. OHBAYASHI et M. SATÔ and *Micropodabrus maculivertex* ISHIDA have been recorded from Toku-no-shima Is. of the Ryukyu Islands by ONO (1976) and IMASAKA (1992), respectively.

Recently, I had an opportunity to examine some cantharid beetles collected on Toku-no-shima Is. through the courtesy of Mr. Rikio MATSUMOTO, Kyushu University. This collection was classified into three species including two unrecorded ones, as listed below with their collecting data.

1. *Athemus* (*Andrathemus*) *akemiae* M. SATÔ et OKUSHIMA

   22 ♂♂, 10 ♀♀, Mt. Inokawa-dake, Toku-no-shima Is., Ryukyus, 28–IV–1996, R. MATSUMOTO leg. (new record).

2. *Prothemus ryukyuanus* WITTMER



Figs. 1–3. Cantharid species from Toku-no-shima Is. —— 1, *Athemus* (*Andrathemus*) *akemiae* M. SATÔ et OKUSHIMA, ♂; 2, *Prothemus ryukyuanus* WITTMER, ♂; 3, *Themus* (s. str.) *kazuoi kazuoi* N. OHBAYASHI et M. SATÔ, ♂.

1 ♂, 3 ♀♀, Mt. Inokawa-dake, Toku-no-shima Is., Ryukyus, 28–IV–1996, R. MATSUMOTO leg. (new record).

3. *Themus* (s. str.) *kazuoi kazuoi* N. OHBAYASHI et M. SATÔ

2 ♂♂, 1 ♀, Mt. Inokawa-dake, Toku-no-shima Is., Ryukyus, 28–IV–1996, R. MATSUMOTO leg.

All the specimens recorded above are preserved in the collection of the Kurashiki Museum of Natural History.

I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO, Dr. Masataka SATÔ and Mr. Rikio MATSUMOTO for their kind support of the present study in various ways.

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コガタシモフリコメツキについて（コウチュウ目，コメツキムシ科）

大　平　仁　夫

〒444–35 岡崎市舞木町狐山6–4

Notes on *Actenicerus aerosus* (LEWIS, 1879) (Coleoptera, Elateridae) from Japan

Hitoo ÔHIRA

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Abstract　Through the courtesy of Miss VON HAYEK of the Natural History Museum, London, the author has had an opportunity to examine the type specimens of *Actenicerus aerosus* (LEWIS, 1879) and *Actenicerus modestus* (LEWIS, 1894) deposited in the collection of that museum. It is concluded that *A. aerosus* and *A. modestus* represent the different sexes of the same species.

Actenicerus aerosus (LEWIS, 1879)

Athous aerosus LEWIS, 1879, Entomologists' mon. Mag., **16**: 157 (Kii).
Corymbites aerosus: LEWIS, 1894, Ann. Mag. nat. Hist., (6), **13**: 257 (Kii and Chiuzenji).
Corymbites otsukae MIWA, 1928, Ins. matsum., **2**: 142, pl. 5, fig. 19 (Mt. Daisen).
Corymbites modestus LEWIS, 1894, Ann. Mag. nat. Hist., (6), **13**: 258 (Fukahori and Nikko). *Syn. nov.*
Actenicerus aerosus: KISHII, 1978, Bull. Heian High School, Kyoto, (22): 23.

G. LEWIS (1839–1926)は，Kii（和歌山県か奈良県）で5月末に採集された，体長10mm内外の小型のシモフリコメツキを*Athous aerosus*と命名し，新種の記載をした．この種は，現在*Actenicerus aerosus*コガタシモフリコメツキとして知られているが，その実態についてはまだよくわかっていなかった．このたび，本種の基準標本を検する機会が得られたので，その近似種とされてきた*A. modestus*ヘリアカシモフリコメツキとの関連も含めて，結果をここに報告する．

本文を草するにあたり，基準標本を調査する機会を与えていただいたThe Natural History Museum, London のVON HAYEK氏，本文について種々ご指導をいただいた国立科学博物館の上野俊一博士，標本について支援していただいた和歌山県の平松広吉氏に対して心からお礼を申し上げる．

コガタシモフリコメツキの分類・生態の概要

G. Lewis (1879)の原記載では，体長4½ lin.（約10 mm）で，体色はcupreo-aeneus, 肢はrufis, 体表面はnitidus, griseo-pubescensなどとなっており，簡単ではあるが本種の特徴をよく示している．その後，G. Lewis (1894)は本種を*Corymbites*属に移し，一般外形は*C. modestus*ヘリアカシモフリコメツキに類似しているが，体はより細長く，上翅はすべて真鍮色，触角は黒色で肢は赤褐色（付節は暗色）を呈すると記している．

LondonのThe Natural History Museum（以下NHMと略）には，本種の正基準標本が保管されている．それは図示 (Fig. 1)した体長10 mmの雄である．Hayek氏によれば，NHMにはほかに3. VI–21. VI. 80と採集日が台紙裏に記入されたChiuzenji産の2頭の標本が保管されているが，これらの個体については調査していない．正基準標本は，交尾器が出されていた (Fig. 1C)．体の一般外形は船形で，前胸背板の両側はやや平行状，背面の点刻はやや密で粗雑に印刻され，正中部の後半にはごく浅い縦凹溝を生ずる．また，上翅の間室は偏平である．

この標本には，最近PolandのD. Tarnawskiによってlectotypeの指定ラベルが付されたが，この指定を公にした印刷物は出ていないし，ただ1頭の標本で原記載がなされており，holotypeの指定ラベルも付けられているので，後基準標本指定は不必要だと考えられる．また，標本に付されているラベルから，その採集者Reinhold Hiller (1841–1903)が日本に滞在していた，1872–1875年ごろのものであることがわかる．

日本の研究者で，この種小名を用いて最初に記録したのは，Miwa (1933)だと思われ，九州大学農学部昆虫学教室の標本に基づいてOeyama (16. IV. 1917)とKurama (27. V. 1919)の個体が報告されている．これらの標本は調べているが，いずれも雌である．また，Miwa (1927)は，*Corymbites otsukae*オオツカヒラタコメツキという新種を鳥取県大山から記載しているが，これはMiwa (1934)のモノグラフの中で本種のシノニムとして扱われている．

本種の知見についてはKishii (1978)の報文があり，京都産の体長10–12.6 mmの雌雄を示している．しかし，成虫の外形，雄交尾器や触角の形などから判断して，ここで取り扱われたものは，本種と異なる種であろうと考えられる．

本種には若干の地域変異があり，近畿地方から西部の地域では，体がやや細長く，前胸背板の点刻がやや粗雑で密に印刻される．また，雄触角の第3節の形態にも変異がみられるが，正基準標本のものは棍棒状に近い．中部地方から北部の地域には，触角の第3節がやや短くて倒円錐状，前胸背板の点刻がよりまばらで，上翅の間室がまったく偏平な個体が分布している．これは，Miwa (1934)がvar. *minoensis*としたものだと思われるが，本種の個体変異なのか別種であるのかまだ不明である．

北海道からは，古く保田（1976）が本種を上川町旭ヶ丘から記録しているが，現在までこの1例があるのみで，おそらく北海道には分布していないと思われる．本州，四国，九州の各地には多くの記録があるが，離島からの記録は，*A. modestus*としての門脇（1978）による隠岐島からのもの以外に見当たらない．成虫は春に主として広葉樹林でみられ，各種の花や新芽などに飛来するが，灯火に飛来した例は知られていないし，一度に多くの個体が得られることもない．

ヘリアカシモフリコメツキの分類・生態の概要

G. Lewisが1894年に，長崎県深堀と栃木県日光から得た体長10 mmの2頭の標本にもとづいて，

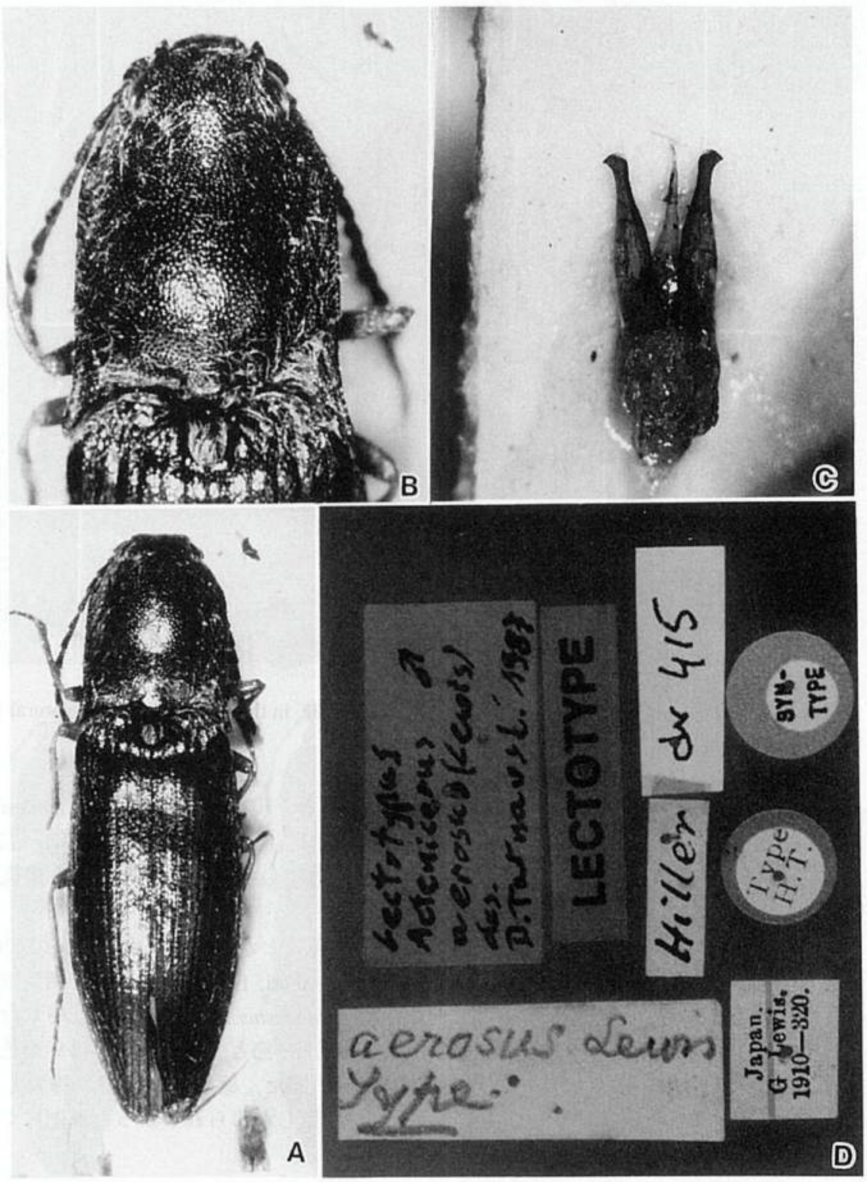


Fig. 1. Holotype of *Actenicerus aerosus* (LEWIS, 1879), male, and the labels, in the collection of the Natural History Museum, London.

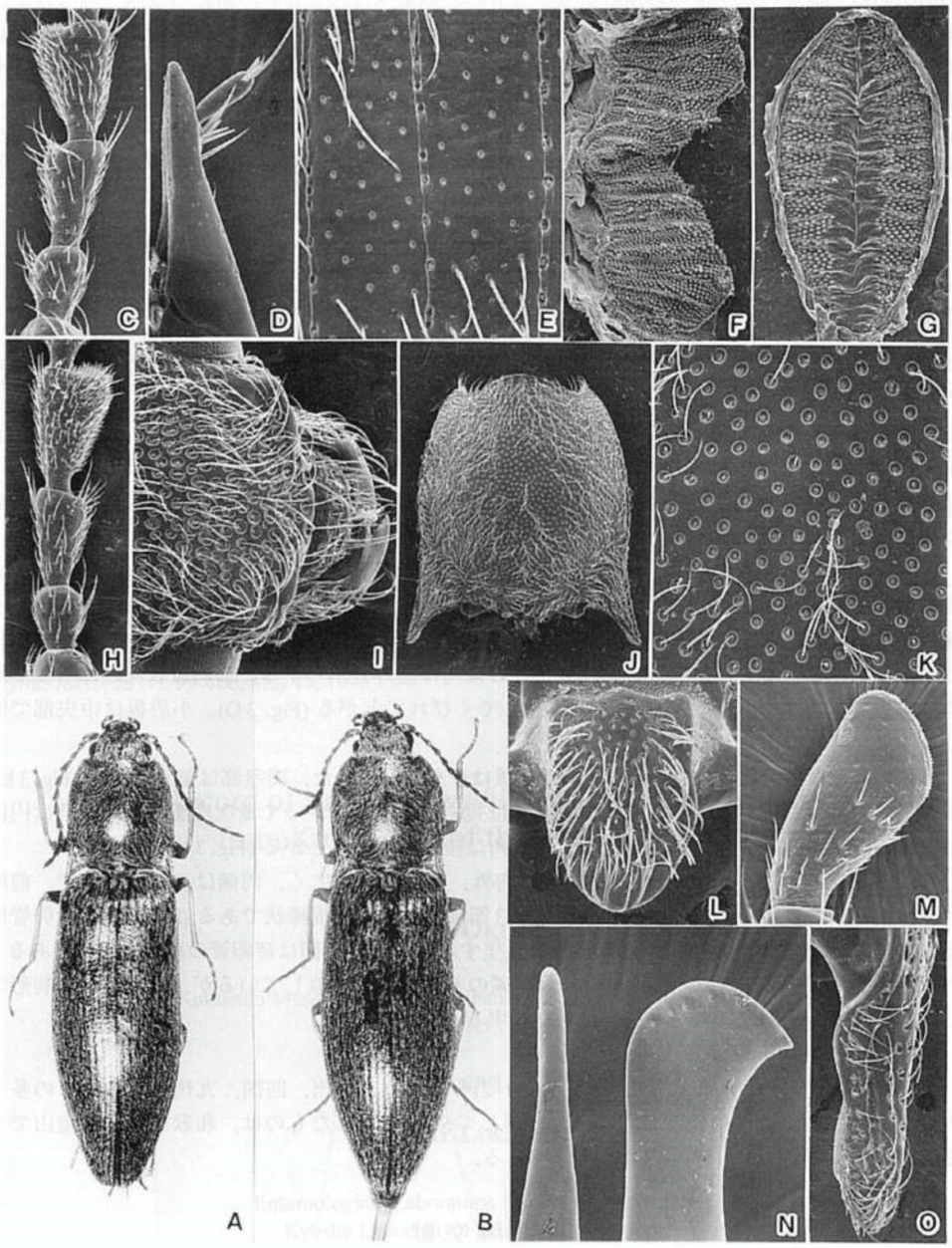


Fig. 2. Holotype of *Actenicerus modestus* (LEWIS, 1894), female, in the collection of the Natural History Museum, London.

*Corymbites modestus*と命名して新種の記載をしたものである．現在は，*Actenicerus modestus*ヘリアカシモフリコメツキとして知られている．原記載で上翅は，"exterior margin narrowly and somewhat obscurely red"とか"three basal joints reddish"などとされていて，前種とのおもな相違点になっている．

筆者は，NHMに保管の，長崎県深堀産の個体を調査することができた．それは，図(Fig. 2)に示したような体長10.5 mmの雌である．台紙の裏側に"Fukahori, 11. 4. 81"とあり，別ラベルには"Nagasaki, 13. 11. 21. IV. 81"と記され，さらに"*Corymbites modestus* LEWIS, type"と記されたラベルも付されていた．体は暗い真鍮色の光沢を有し，触角の基部3節と上翅の側縁部は赤褐色，肢は黄褐色で，これらは原記載の特徴によく一致している．また，原記載の末尾に採集したのは"Two examples only"としているが，このような普通種が2頭しか得られなかった理由については

Fig. 3. *Actenicerus aerosus* (LEWIS, 1879) (Mt. Gomadan, Wakayama Prefecture), male (except for B, C, D, F and G which are of a female). —— A and B, Adult pair: C and H, 2nd to 4th segments of antenna; D, right half of ovipositor; E, 2nd and 3rd intervals of right elytron; F and G, sclerotized plates in bursa copulatrix; I, head, dorsal aspect; J, pronotum, dorsal aspect; K, some punctures on the disc of pronotum; L, scutellum, dorsal aspect; M, apical segment of maxillary palpus; N, apical portion of aedeagus, dorsal aspect; O, prosternal process, lateral aspect.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不明である．前述の基準標本の検討結果からもわかるように，これらのふたつは同一種の雌雄であると判断される．本種には大形で体長13 mmに達するものがいるし，前胸背板の両側が直線状で平行に近い個体も分布している．また幼虫は，大平（1962）が明らかにしたように，山林のやや湿気の多い腐葉土中にいて，老熟した個体は秋に蛹室を作って蛹化，羽化した新成虫はそこに留まって冬を越し，春に地上に現れる．幼虫は，小集団で同じ場所に見出されることがあるので，捕食性はあまりないようである．幼虫が湿地志向であることは，同属の他の種にも見られることで，本属の系統を考察するのに興味ある問題を提起している．

形態の概要

雄の体長は9–11 mm．体は細長くてやや船形である．体表面は鈍い真鍮色の金属光沢を有し，淡黄灰色毛を一様に生じる．触角は黒色–黒褐色で，肢は黄褐色（腿節と付節は暗褐色）である．

頭部は粗雑な点刻を密に生じ，前頭横隆線は前縁中央部で抑圧されて不明瞭である (Fig. 3 I)．小顎枝の末節は矩形状である (Fig. 3 M)．大顎基部上面の微小突起群はよく発達する．触角は比較的短く，末端は前胸背板の後角に届く程度かより短い (Fig. 3 A)，第2節は短小で球状，第3節は棍棒状に近く，第4節から鋸歯状を呈し，第4節は第3節よりやや長い (Fig. 3 H)．

前胸背板は幅よりやや長く，両側は中央部で弱く湾曲し，後角部でもっとも幅広い (Fig. 3 J)．背面の正中部付近は深い点刻をほぼ一様に分布し (Fig. 3 K)，点刻と点刻の間隔は点刻の直径とほぼ同じ程度であるが，側方部では著しく密で粗雑になる．また，前胸背板の正中部は，後方でわずかに凹状を呈することがある．前胸背板の後角は後外方へとがる．前胸腹板突起は前肢基節腔を越えて，後方へ直線状に伸長，末端近くでくびれてとがる (Fig. 3 O)．小盾板は中央部で弱く膨隆し，舌状である (Fig. 3 L)．

上翅の条線は明瞭に印刻されるが，第1条線はやや浅い．また，間室部は偏平である (Fig. 3 E)．雄交尾器の外形は図示したようで，中央突起は短く，末端に向かって漸次細まり，末端部は円筒形である．また，側突起の末端は湾曲し，外角は後外方へ短くとがる (Fig. 3 N)．

雌は雄に比して大型で，体長は11–13 mm内外．体はより幅広く，両側はより平行状で，前胸背板はより顕著に膨隆する．触角は短く，第3節はより幅広い棍棒状である (Fig. 3 C)．産卵管は頑丈で，末端は三角状，gonostylusは棍棒状を呈する (Fig. 3 D)（図は産卵管の片方を示してある）．内部生殖器の袋内の2枚の硬板の外形は，本属のどの種でも類似しているが，本種では小判形をした板が細長く，内表面の小突起物は密に生ずる (Fig. 3 G)．

調査票本：NHM保管の正基準標本 (Figs. 1–2)をはじめ，本州，四国，九州の各地からの多くの個体を検した．ここに図示した雌雄と分解してSEMで示したものは，和歌山県護摩壇山で平松広吉氏が採集（27–V–1994）された標本である．

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Elytra, Tokyo, **25** (1): 99–100, May 15, 1997

A New Record of *Athemus teruhisai* (Coleoptera, Cantharidae) from Kume-jima of the Ryukyu Islands

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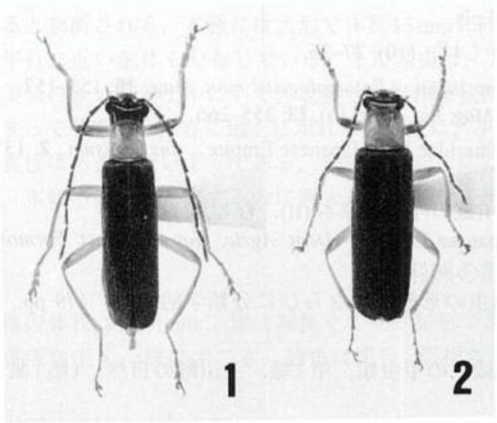
Athemus teruhisai OKUSHIMA, 1991, was described from the northern part of Okinawa-hontô Is., and has not been recorded so far from other islands. Through cantharid investigations



Figs. 1–2. *Athemus* (*Andrathemus*) *teruhisai* OKUSHIMA, from Kume-jima Is., Ryukyus; 1, male; 2, female.

recently made on Kume-jima Is., which lies to the west of Okinawa-hontô Is., we were able to collect this species for the first time from the island. The collecting data are as follows.

Athemus (*Andrathemus*) *teruhisai* OKUSHIMA

Athemus (*Andrathemus*) *teruhisai* OKUSHIMA, 1991, Elytra, Tokyo, **19**: 35, figs. 1–4. —— M. SATÔ & OKUSHIMA, 1992, Jpn. J. Ent., **60**: 861.

Specimens examined. Kume-jima Is., Ryukyus: 1 ♀, Mt. Daruma-yama~Mt. Ô-dake, 15–IV–1995, N. TAKAHASHI leg.; 3 ♂♂, 1 ♀, Mt. Daruma-yama~Mt. Ô-dake, 16–IV–1995, N. TAKAHASHI leg.; 4 ♂♂, 1 ♀, near Mt. Daruma-yama, 7–IV–1996, Y. OKUSHIMA leg.; 1 ♂, Mt. Daruma-yama~Mt. Ô-dake, 9–IV–1996, N. TAKAHASHI leg.

Depository of the specimens examined. The specimens used in the present paper are preserved in the collection of N. TAKAHASHI and in the Kurashiki Museum of Natural History.

Distribution. Ryukyus: Okinawa-hontô Is., Kume-jima Is. (new record).

Notes. The knees are dark in some individuals from Kume-jima Is. All the specimens examined were caught in a dark forest by sweeping or light trap.

We wish to express our hearty thanks to Dr. Shun-Ichi UÉNO, Dr. Masataka SATÔ and Dr. Mamoru OWADA for their kind support of the present study in many ways. TAKAHASHI also thanks Prof. K. MORIMOTO, Assoc. Prof. O. TADAUCHI, Assoc. Prof. M. T. CHÛJÔ and Assist. Prof. S. KAMITANI of Kyushu University for their continuous guidance and encouragement.

Elytra, Tokyo, **25** (1): 101–108, May 15, 1997

Studies on the Buprestidae (Coleoptera) of Asia

2) Notes on *Pseudhyperantha bloetei* and Description of its New Relative

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Abstract *Pseudhyperantha bloetei* THÉRY, 1935 from Sumatra is reviewed, and its relative, *P. pinratanai* sp. nov., is described from the peninsular area in Thailand. The latter resembles the former on the pronotal marking in the first impression, but is distinguished by having punctation on the scutellum, and so on.

The genus *Pseudhyperantha* SAUNDERS, 1869 was established for *P. jucunda* SAUNDERS, 1869 from Penang Island off the Malay Peninsula, and has hitherto been known to include *P. bloetei* THÉRY, 1935 from Sumatra, *P. trifasciata* TÔYAMA, 1989 from Mindanao and *P. itoi* ENDO, 1992 from Borneo. All these species were recorded from the islands of the Oriental Region.

Through the courtesy of Bro. Amnuay PINRATANA, St. Gabriel's College, Bangkok, Thailand, I had an opportunity to examine two specimens of the genus collected in the peninsular area of Thailand. After a careful examination, it has become apparent that the specimens belong to a new species closely related to *P. bloetei* THÉRY, 1935.

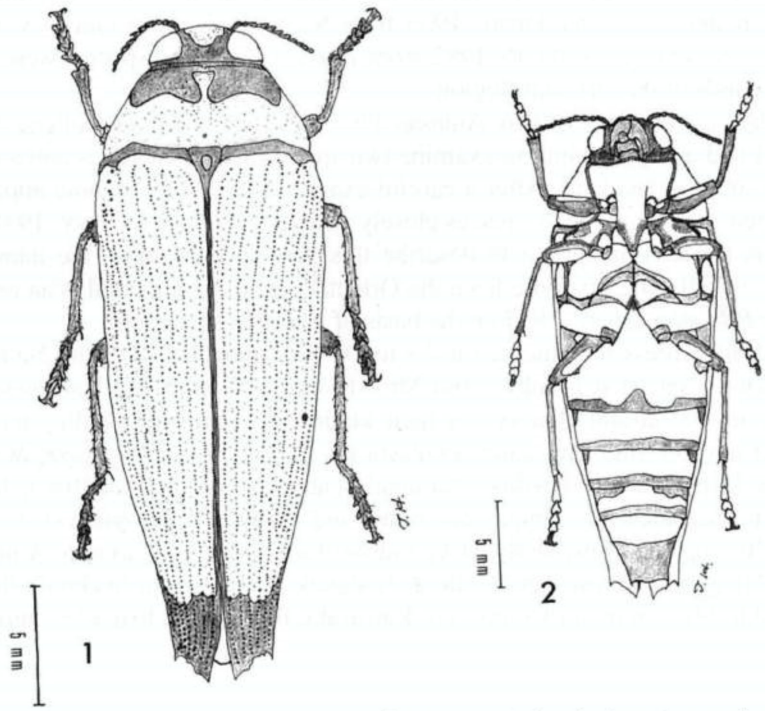
In this paper, I am going to describe this new species under the name *P. pinratanai* sp. nov. for the first time from the Oriental part of Continental Asia and also to redescribe *P. bloetei* THÉRY, 1935 on the basis of a female specimen.

I wish to express my sincere thanks to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, and Mr. Masatoshi TAKAKUWA, Kanagawa Prefectural Museum of Natural History, for their kindness in critically reading the original manuscript and offering invaluable suggestions, to Dr. Yoshihiko KUROSAWA, former head of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance throughout this study, and also to Mr. Kôyô AKIYAMA, Yokohama, for his support of my study. Deep indebtedness is also due to Bro. Amnuay PINRATANA, Manager of St. Gabriel's College, Bangkok, Thailand, for his kind offer of materials, and to Mr. Nobuyuki KOBAYASHI, Kawasaki, for his kind loan of material.

Pseudhyperantha pinratanai sp. nov.

(Figs. 1–6)

Female. Body robust and lustrous; head, pronotum and elytra covered with thin transparent film; head orange yellow, with black margins; antennae black; pronotum orange yellow, with anterior rim black, decorated with a pair of inverted V-shaped black markings attached to the anterior black rim; scutellum black, though bearing a rounded orange yellow spot at the centre in the holotype; elytra orange yellow, black at the bases, suture and apical transverse band, and often with a pair of small black markings at posterior 4/9 between 8th and 9th intervals; ventral surface orange yellow with black markings as follows: prosternum, anterior margin, margin before each procoxa, posterior margin of prosternal process, inner to posterior margins of prepisternum, margin of mesosternum, marking at outer side of mesepisternum, marginal band of mesepisternum and mesepimeron except between them, posterior to lateral margins and transverse line of metasternum, anterior marking and marginal band of episternum, small epimeron, latero-anterior spots and posterior marginal band of 1–4 abdominal segments, and apical band of the last visible segment which spreads over apical



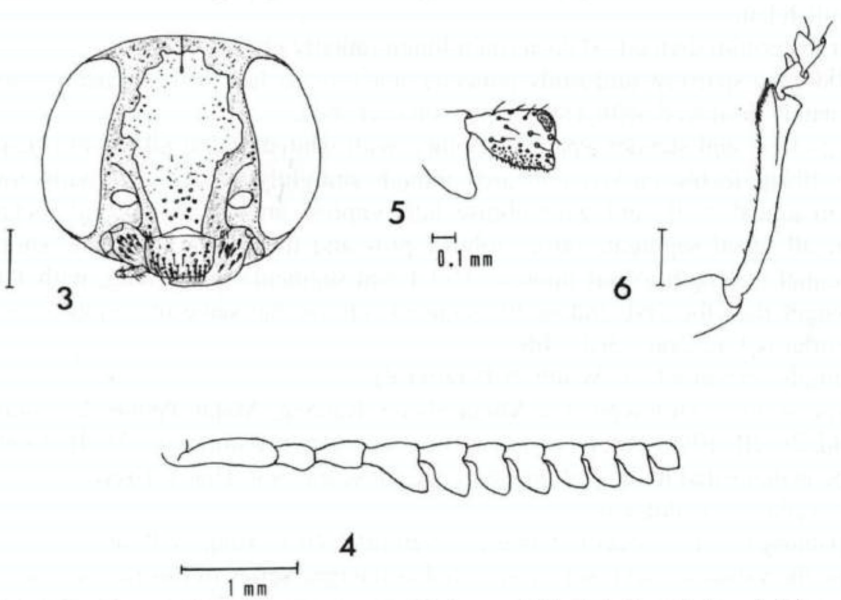
Figs. 1–2. *Pseudhyperantha pinratanai* sp. nov., ♀ holotype; 1, dorsal view; 2, ventral view. (Scale: 5 mm.)

half; legs bluish black with aeneous tinge, with orange yellow transverse marking on the underside of pro- and mesotrochanters and each femur.

Head distinctly narrower than pronotal base; vertex smoothly curved, with narrow median groove running from vertex to the top of frons; frons feebly convex; clypeus transverse, with anterior margin obtusely and shallowly emarginate and arcuate at the bottom, though feebly produced at both sides; clypeal suture absent; epistome visible; antennal cavities moderate, with feebly arcuate internal margins elevated though open laterally and posteriorly; surface sparsely and finely punctate except for the centre of frons, each puncture with a short semirecumbent whitish hair; eyes with interior margins feebly sinuate and feebly convergent towards vertex.

Antennae compact, reaching anterior 1/10 of pronotum, serrate from 4th segment; 1st segment obconical, 2nd short and globular, 3rd obconical, 4th to 10th each triangular, apical segment parallelogrammatic; length (width) of each segment from base to apex as follows (the length is the stem part of the antennae and the width is the maximum width): 8.5 (2.8), 3.0 (2.3), 4.3 (2.3), 4.5 (4.0), 4.0 (4.5), 3.5 (4.5), 3.0 (4.3), 3.0 (4.3), 3.0 (4.0), 2.8 (3.3), 2.8 (2.5) (in 0.1 mm); sensory pores concentrated in a large socket on the apico-internal surface of 4th to apical segments, though in the last segment, the small socket at the apico-lateral corner of outer surface is separated from the socket of inner surface by apical margin.

Pronotum transverse, widest at base; anterior margin feebly bisinuate and grooved just behind anterior margin; posterior margin arcuately produced at middle, obtusely



Figs. 3–6. *Pseudhyperantha pinratanai* sp. nov., ♀ holotype; 3, head in frontal view; 4, left antenna; 5, left apical antennal segment; 6, right anterior tibia in dorsal view. (Scales: 1 mm for Figs. 3, 4, 6; 0.1 mm for Fig. 5.)

emarginate at lateral 4/7 from scutellum and produced at lateral sides; lateral margins arcuately convergent anteriad; marginal carinae absent; disc convex; surface uniformly punctate sparsely (more sparsely than in *P. bloetei* and almost the same as in *P. jucunda*) and finely except for median line; ante-scutellar part with a foveole.

Scutellum longitudinal, wedge-shaped, longitudinally depressed in posterior half; surface finely punctate in anterior half.

Elytra elongate, robust, 5.7 times as long as pronotum, a little wider than pronotum, 2.2 times as long as widest part across the anterior 1/10 of elytral length[1]; humeri obtusely angulate; sides gradually and feebly expanded to the widest part, then feebly sinuate just behind the middle (basal 6/11) where they are arcuate, and then sinuously convergent to apices; each apex dehiscent, obliquely truncated with 4–8 small denticles, provided with two distinct spines at outer and inner angles; each basal lobe subangulately produced towards basal emargination of pronotum, and feebly, transversely depressed just behind basal margin; disc with 10 intervals reaching apex though the 6th and the 8th are connected at postrior 1/4 and the 7th ends at posterior 3/10; all striae punctate with circular pits under transparent film, and also shallow aligned punctations on it; surface sparsely covered with small punctations which are aligned on intervals.

Prosternum prominent in middle; anterior margins bisinuate and costate; prosternal process prominent, subparallel-sided, then straightly attenuate towards apex which is rounded; surface sparsely and uniformly punctate, each puncture with a semirecumbent whitish hair.

Mesosternum divided. Metasternum longitudinally grooved.

Abdomen sparsely, uniformly punctate; apex of the last visible sternite smoothly and arcuately produced, with a short spine on each side.

Legs long and slender, sparsely clothed with whitish hairs; all femora fusiform; anterior tibiae feebly curved outwards though straightly dilated externally towards apices in apical 3/10, and with obtuse latero-apical angles; meso- and metatibiae straight; all tarsal segments rather robust; pro- and mesotarsal segments short and nearly equal in length to one another; metatarsal segments rather long, with 1st segment longer than the 2nd, 2nd to 4th segments almost the same in length though the length order is 1st>2nd>3rd>4th.

Length: 26.5 mm (♀). Width: 9.35 mm (♀).

Type series. Holotype: 1 ♀, Muan Shene, Ranong, Malay Peninsula, Southwest Thailand, 26–III–1990. Paratype: 1 ♀, same locality as the holotype, 26–II–1990. The holotype is deposited in the National Science Museum (Nat. Hist.), Tokyo.

Host plant. Unknown.

Etymology. The specific name is given after Bro. Amnuay PINRATANA who offered me the valuable specimens designated as the type series of this new species.

Remarks. This new species has the following diagnostic features: 1) elytral col-

1) Elytral length is measured from the tip of scutellum to apices.

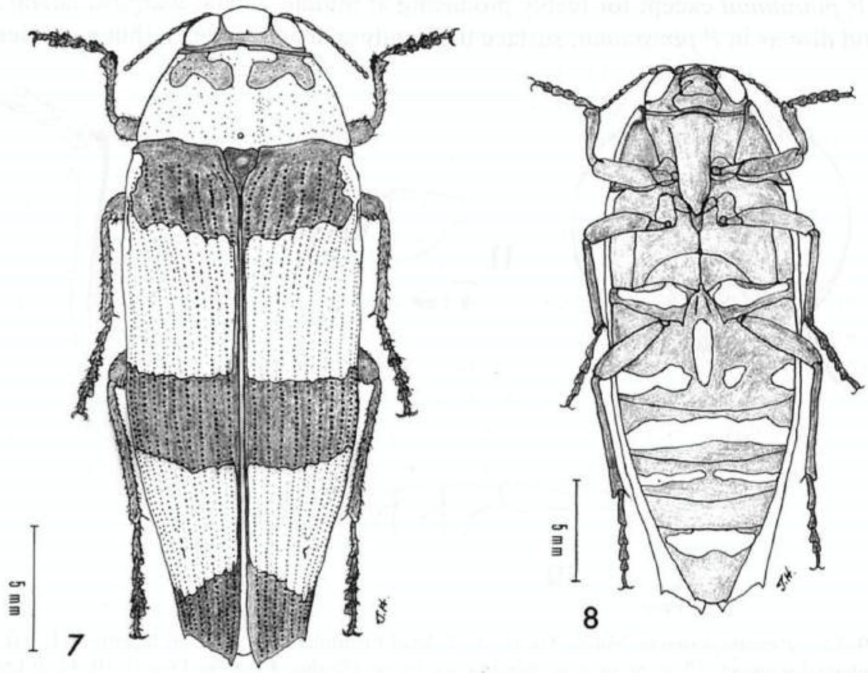
oration and markings entirely orange yellow with black apical band, basal and sutural margin; 2) anterior margin of clypeus shallowly and arcuately emarginate; 3) punctations on frons finely punctate except for the centre; 4) antennae compact and reaching anterior 1/10 of pronotum; 5) sensory pores on apical segment concentrated in a small socket at apico-lateral corner of outer surface; 6) surface of scutellum finely punctate in anterior half; 7) elytral sides gradually convergent in basal halves, then sinuously so apicad; 8) anterior tibiae feebly curved outwards; 9) tarsal segments rather robust.

Pseudhyperantha bloetei THÉRY, 1935

(Figs. 7–12)

Pseudohyperantha Blötei A. THÉRY, 1935, Zool. Meded., Leiden, **18**, pp. 251–252, fig. 3.

Female. Body robust and lustrous as in *P. pinratanai*; head reddish orange except for black margins and vertical median line on vertex; antennae black with bluish tinge; pronotum reddish orange with anterior rim black except for sides, decorated with a pair of inverted Y-shaped black markings attached to anterior black rim; scutellum black; elytra reddish orange, with black basal and sutural margins and three transverse black bands, of which the basal one is connected with basal marginal black line except for sides, while the middle and apical ones reach lateral margin, respectively;



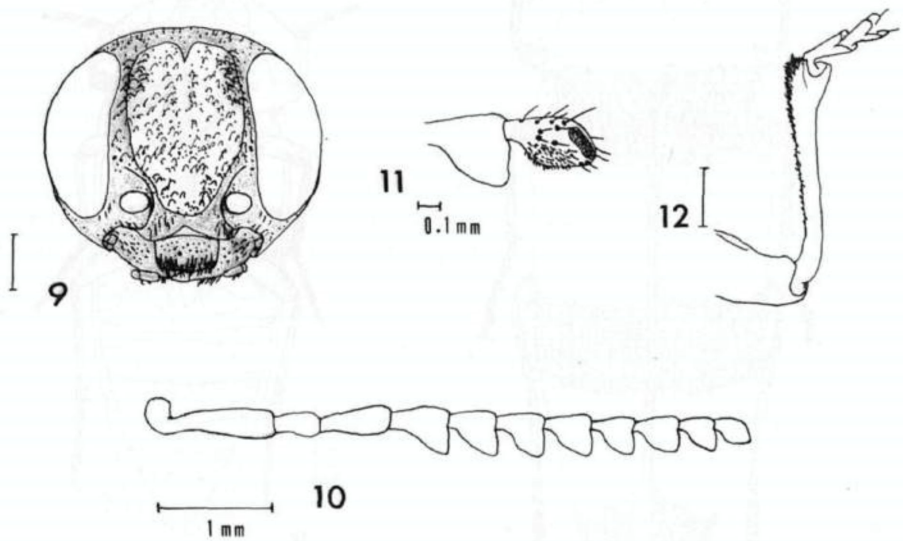
Figs. 7–8. *Pseudhyperantha bloetei* THÉRY, ♀; 7, dorsal view; 8, ventral view. (Scale: 5 mm.)

ventral surface bluish black with bluish lustre, except for yellow markings as follows: transverse ones on metacoxae, transverse ones on both sides, longitudinal one in the middle of 1st abdominal segment, and transverse one on each of the 2nd, 3rd and last visible abdominal segments; legs bluish black with bluish lustre.

Head distinctly narrower than pronotal base; vertex as in *P. pinratanai*; frons feebly convex with shallow depression in middle; clypeus transverse, with anterior margin obtusely emarginate and angulate at the bottom, though feebly produced at both sides; clypeal suture and epistome as in *P. pinratanai*; antennal cavities moderate, with arcuate internal margins elevated though open laterally and posteriorly; surface uniformly punctate sparsely and finely, each puncture with rather a long erect whitish hair; eyes as in *P. pinratanai*.

Antennae rather long, reaching anterior 1/3 of pronotum, serrate from 4th segment; 1st segment obconical, 2nd short and fusiform, 3rd fusiform, 4th to 10th each triangular, apical segment parallelogrammatic; length (width) of each segment from base to apex as follows (the length is of the stem part of antennae and the width is the maximum width): 9.3 (3.0), 4.3 (2.3), 5.5 (2.5), 5.3 (4.0), 4.5 (3.8), 4.3 (3.8), 3.8 (3.5), 3.8 (3.5), 3.5 (3.3), 3.3 (3.0), 3.3 (2.0) (in 0.1 mm); sensory pores as in *P. pinratanai* except for the last segment with the long socket along the apical margin of outer surface separated from the socket of inner surface by apical margin.

Pronotum transverse, widest at base; anterior margin bisinuate; posterior margin as in *P. pinratanai* except for feebly producing at middle; lateral margins, lateral carinae and disc as in *P. pinratanai*; surface uniformly sparsely punctate (but more densely



Figs. 9–12. *Pseudhyperantha bloetei* THÉRY, ♀; 9, head in frontal view; 10, left antenna; 11, left apical antennal segment; 12, right anterior tibia in dorsal view. (Scales: 1 mm for Figs. 9, 10, 12; 0.1 mm for Fig. 11.)

than in *P. pinratanai* and *P. jucunda*) and finely except for median line; ante-scutellar part with a foveole.

Scutellum longitudinal, wedge-shaped, depressed in middle; surface smooth, without punctation.

Elytra robust, elongate, 5.4 times as long as pronotum, a little wider than the latter, 2.2 times as long as the widest part across the anterior 1/4 of elytral length; humeri obtusely angulate; sides gradually and feebly expanded to the widest part, then feebly sinuate and subparallel to the middle, and then sinuously convergent to apices; each apex dehiscent, obliquely truncated, with two distinct spines each at outer and inner angles; each basal lobe subangulately produced towards basal emargination of pronotum, and arcuately depressed along basal margin; disc with 10 intervals reaching apex, though the 6th and the 8th are connected at posterior 1/5 and the 7th ends at posterior 1/4; all striae and surface as in *P. pinratanai*.

Prosternum prominent; anterior margin bisinuate and costate; prosternal process feebly narrowed by frontal coxae, then straightly attenuate towards apex which is rounded; surface sparsely and uniformly punctate, each puncture with an erect whitish hair.

Mesosternum divided. Metasternum longitudinally grooved.

Abdomen sparsely, uniformly punctate; apex of the last visible sternite arcuately produced with shallow emargination at the middle, and with a short spine on each side.

Legs long and slender, sparsely clothed with whitish hairs; all femora fusiform; anterior tibiae almost straight though sinuously dilated externally towards apices in apical 1/5, and with obtuse latero-apical angles; meso- and metatibiae straight; all tarsal segments slender; protarsal segments short, nearly equal in length to one another; meso- and metatarsal segments long, with 1st segment longer than the 2nd, and metatarsal segments with the length order 1st>2nd>3rd>4th.

Length: 26.2 mm (♀). Width: 9.38 mm (♀).

Specimen examined. 1 ♀, Mt. Pesagi, West Lampung, South Sumatra, VI–1994.

Remarks. This species is distinguished from *P. pinratanai* sp. nov. by the following characteristics: 1) elytral coloration and markings entirely reddish orange with black basal, middle and apical transverse bands and sutural margin; 2) anterior margin of clypeus angulately emarginate; 3) punctations on frons fine and uniform; 4) antennae rather long, reaching anterior 1/3 of pronotum; 5) sensory pores on apical segment concentrated in a long socket along the apical margin of outer surface; 6) surface of scutellum impunctate; 7) elytral sides subparallel in basal halves, then sinuously convergent apicad; 8) anterior tibiae almost straight; 9) tarsal segments slender.

要　　約

服部宇春：アジアのタマムシの研究．2）スマトラから記載された*Pseudhyperantha*属の1種とそれに近縁なタイからの1新種．—— スマトラから記載された*Pseudhyperantha bloetei* THÉRY, 1935を1頭の雌に基づいて再記載し，それに近縁な新種としてタイから*Pseudhyperantha pin-*

ratanai sp. nov.を記載した．この新種は，スマトラ産の種とは，頭盾の前縁が弓形にえぐれること，触角が短いこと，小盾板に点刻があること，そして上翅に3本の黒帯がないこと，などの差異によって容易に区別できる．

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Elytra, Tokyo, **25** (1): 108, May 15, 1997

New Localities of *Cis sasakawai* NOBUCHI (Coleoptera, Ciidae)

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The ciid beetle, *Cis sasakawai* NOBUCHI, 1960 [Japanese name: Sasakawa-tsutsukinokomushi], was originally described from Hokkaido, Japan. This is one of the rare species of Japanese ciids, and MIYATAKE (1985) recorded it from Shikoku without detailed collecting data. These are all the records of this species up to the present. In the course of my revisional study of the Japanese Ciidae, I gathered up the collecting data of *C. sasakawai* on the basis of the collection of Ehime University and other private collections. These data contain the first records from Honshu and Kyushu.

Specimens examined. [Hokkaido] 1 ♂, 1 ♀, Takinosawa, near Sapporo, 8–IV–1956, A. NOBUCHI leg. (cotypes); 1 ♀, Pyuka, near Nayoro, 5–X–1955, A. NOBUCHI leg. (cotype). [Honshu] ⟨Hiroshima Pref.⟩ 15 exs., Ôasa, Ôasa-chô, 25~26–VI–1994, M. KAWANABE leg. [Shikoku] ⟨Ehime Pref.⟩ 1 ex., Naose near Kuma-chô, 16–V–1953, M. MIYATAKE leg.; 2 exs., Yoshinogawa, Oda-chô, 15–VII–1993, M. KAWANABE leg. ⟨Kôchi Pref.⟩ 59 exs., Cape Ashizuri-misaki, 25~26–VI–1989, M. KAWANABE leg. [Kyushu] ⟨Ôita Pref.⟩ 12 exs., Kôbaru, 20–VII–1989, M. KAWANABE leg. ⟨Nagasaki Pref.⟩ 3 exs., Tsushima Isls., Kamiagata, 16–XII–1974, M. MOGI leg.

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, Tsushima Isls.).

Host fungi. *Coriolus versicolor* (L.: FR.) QUÉL. (Kawaratake in Japanese) and *Pycnoporus coccineus* (FR.) BOND. et SING. (Hiirotake in Japanese).

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Elytra, *Tokyo*, **25** (1): 109–112, May 15, 1997

Occurrence of a New *Hyphalus* (Coleoptera, Limnichidae) from the Ryukyu Archipelago, Japan

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Abstract A new intertidal limnichid beetle of the genus *Hyphalus* is described from the Ryukyu Archipelago under the name of *H. taekoae*. The occurrence of this new species in the Ryukyus is very interesting from the zoogeographical viewpoint, since its nearest relative *H. insularis* BRITTON was discovered on the Great Barrier Reef, Australia.

In the course of his researches of the Ryukyuan homopterans, Dr. Masami HAYASHI collected a remarkable small limnichid beetle, and submitted the specimens to me for taxonomic study in 1992. It was found at low tide on the coral reef of the Island of Okinawa-hontô together with another limnichid, *Babalimnichus masamii* described by me in 1994. The habitus of this species was clearly impressed in my memory, because a species having the same facies has already been described by BRITTON (1971) from the Great Barrier Reef, Australia under the name of *Hyphalus insularis*. It did not only belong to a new genus, but to a new subfamily, Hyphalinae of the Limnichidae.

Since then, Dr. M. HAYASHI and I visited the Ryukyu Archipelago many times and were able to collect additional specimens of the same species on the rocky shores at several localities, which consisted of coral reefs.

A careful examination of these material has revealed that the limnichid is a second representative of the genus *Hyphalus* as will be described in the present paper.

In 1993, I attended at the 2nd Asia-Pacific Conference of Entomology held at Okinawa together with my wife, Taeko. On that occasion, we went to one of the localities, Bise-zaki, and collected only one specimen of the species in question in the strong sunshine. Why only one specimen was collected at that opportunity? It will be explained in the biological notes following the description of the new species. It is deeply regretted that this was the final trip with my wife. Already then, she had to rely on a wheelchair having suffered from brain hemorrhage, and she never had other opportunities to make a trip with me till January 21, 1996, when she passed away. During her lifetime, she always supported me not only in keeping our home life splendidly and bringing up four children of ours in spite of my frequent absence for collecting trips, but also in helping my studies in various ways. I therefore dedicate this paper to her memory.

I with to express my hearty thanks to Dr. Shun-Ichi UÉNO for his kindness in

reading the original manuscript, and also to Mr. Hiroyuki YOSHITOMI for drawing text-figures and to Dr. Masami HAYASHI for supplying material.

Hyphalus taekoae M. SATÔ, sp. nov.

(Figs. 1–5)

Small in size. Body ovate, well convex, subopaque, closely covered with fine silvery pubescence. Dorsal surface black with brownish tinge. Ventral surface and appendages brown to dark brown, though 3 basal segments of tarsi and claws are yellowish brown.

Head deflexed, moderately convex, but somewhat flattened between antennal insertions, disc closely microreticulate; labrum shining; front clypeal suture emarginate; eyes moderate, lateral, and separated by about 5 times the diameter of each one; antennae clavate, medial in length, closely pubescent, 6th to 10th segments somewhat angulate at the inner sides; terminal segment of each maxillary palpus longer than three basal segments taken together. Pronotum about 1.8 times as broad as long, broadest just before hind angles, the distance between which is about 1.4 times as broad as anterior breadth; sides gently narrowed anteriad; lateral margins rimmed; disc closely microreticulate. Elytra about 1.2 times as broad as pronotum, about 1.3 times as long as broad, broadest at basal third, thence slightly narrowed anteriad and moderately so posteriad; lateral margins rimmed; disc scattered with minute punctures. Hind wings absent.

Ventral surface distinctly microreticulate. Prosternal process wide with rounded apex. Abdominal sternites furnished with sparse stiff hairs in addition to primary pubescence. Legs simple, closely covered with pubescence; femora stout; tibiae slender; tarsi short, 4th segment stout and longer than 1st to 3rd taken together; claws simple.

Male genitalia short; lateral lobe subtriangular with rounded apex; median lobe with rounded apex. Female genitalia more or less sclerotized and symmetrical.

Sexual dimorphism not pronounced.

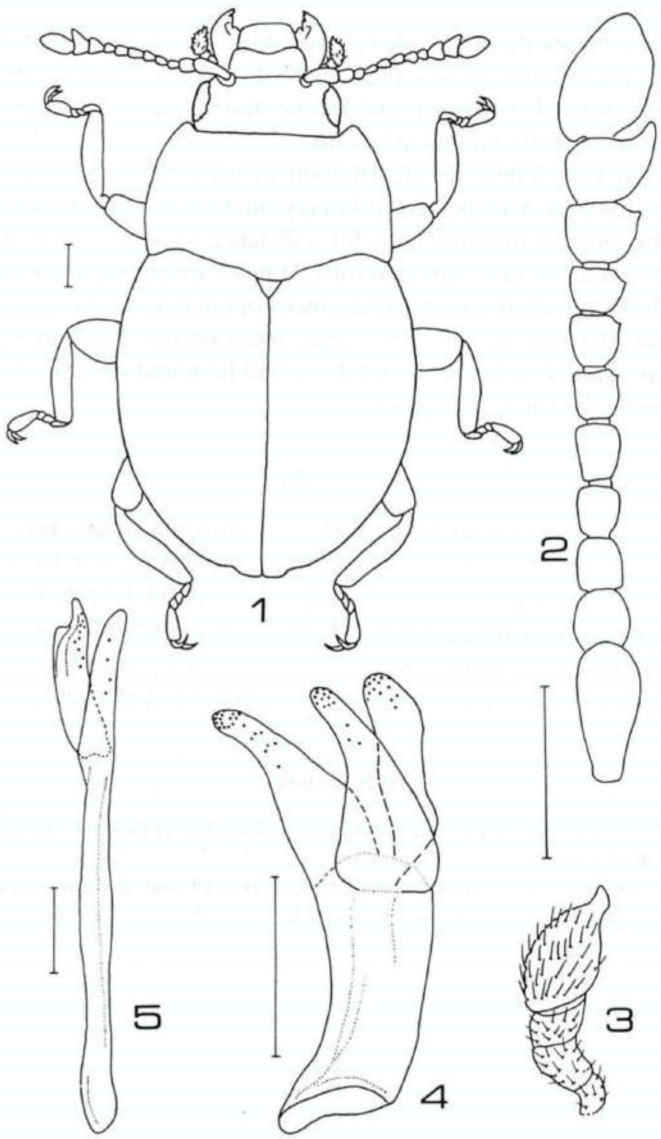
Length: 1.0–1.2 mm; breadth: 0.6–0.7 mm.

Holotype: ♂, Bise-zaki, Okinawa-hontô, Ryukyus, 30–VII–1993, M. & T. SATÔ leg. Paratypes: 101 exs., same locality as for the holotype, 14–IV–1992, 17–V–1993, 23–III–1994, M. HAYASHI *et al.* and M. SATÔ leg.

Further specimens examined. 4 exs., Sumiyoshi, Is. Iriomote-jima, Ryukyus, 6–VII–1993, M. HAYASHI leg.; 12 exs., Nobaru-zaki, Is. Ishigaki-jima, Ryukyus, 9–VII–1993, M. HAYASHI leg.; 2 exs., same locality, 23–III–1996, M. SATÔ leg.; 75 exs., Dannu-hama, Is. Yonaguni-jima, 26–VIII–1994, 21–III–1995, M. SATÔ leg.

The holotype and some paratypes are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo. Most paratypes are deposited now in the collection of the Biological Laboratory, Nagoya Women's University.

Distribution. Ryukyu Islands (Okinawa-hontô, Ishigaki-jima, Iriomote-jima and Yonaguni-jima).



Figs. 1–5. *Hyphalus taekoae* M. SATÔ, sp. nov. —— 1, Habitus; 2, antenna; 3, maxillary palpus; 4, male genitalia in latero-ventral aspect; 5, female genitalia in lateral aspect. (Each scale indicates 0.1 mm.)

Notes. The present new species is almost identical in general appearance with *H. insularis*, though it is differentiated from the latter by having the following characteristics: terminal segment of maxillary palpus somewhat pointed at the tip, the 9th and 10th antennal segments each angulate at a corner, the male genitalia stout, and the

body a little smaller.

This species inhabits the rocky shore consisting of coral reef and emerges from narrow fissures in the evening, or near the sunset when the air temperature is moderate. Most habitats are situated in the intertidal zone and immersed at high tide, though some of them are not directly influenced by tide.

In our present knowledge, the distribution of the genus *Hyphalus* is limited to Australia and the Ryukyu Archipelago. It is very interesting from the zoogeographical viewpoint that the range is discontinuous for a distance of more than 6,000 km. Moreover, the present species is small and apterous. How to spread such a long way is difficult to explain, but a possibility is that their ancestors may have dispersed step by step with tidal current. Because of very small size, these beetles may have escaped from our eyes for a long time, but their close relatives will be found in future in a wide intervening area between the two known places.

要　　約

佐藤正孝：琉球列島における *Hyphalus* 属の発見．—— *Hyphalus insularis* BRITTON は，オーストラリアのグレート・バリヤー・リーフで得られた標本に基づいて，チビドロムシ科の新亜科を形成する特異な種として記載された．ここに記載した別の1新種（サンゴチビドロムシ，*Hyphalus taekoae* M. SATÔ）が，6,000 km も離れた琉球列島のサンゴ礁で発見されたことは，生物地理学的にきわめて興味深い．後翅の退化していることからみて，海流によって分布を拡げたことが想定されるので，将来，南西太平洋の島じまでも発見されることと期待される．

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Elytra, Tokyo, **25** (1): 113–116, May 15, 1997

A Redescription of *Brahmina ciliaticollis* MOSER (Coleoptera, Scarabaeidae, Melolonthinae)

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Abstract A Vietnamese species of rhizotrogine genus *Brahmina*, *B. ciliaticollis* MOSER, 1914 is redescribed.

The genus *Brahmina* BLANCHARD is a group of small-sized scarabaeid beetles of the subtribe Rhizotrogina, and includes about 70 species in the range from East Asia to Turkestan via India. It seems to be divided into some heterogeneous small groups.

Fortunately, I had an opportunity to examine a series of melolonthid beetles from Vietnam and found numerous specimens of *Brahmina ciliaticollis* MOSER, 1914. This species has been neither recorded nor diagnosed since MOSER described it from 3 female specimens, and no description of male specimens is naturally found. In this paper, I am going to redescribe it based on additional materials and a type specimen.

I wish to express my deep gratitude to Prof. Dr. F. HIEKE, Prof. Dr. M. UHLIG and Mr. J. SCHULZE of the Museum für Naturkunde der Humboldt-Universität zu Berlin for their kind loan of a type specimen of *B. ciliaticollis*, and to Mr. M. FUJIOKA of Tokyo for his kind offer of the materials. My hearty thanks are also due to Dr. S.-I. UÉNO for his critical reading of the manuscript, and to Mr. K. MATSUDA of Takarazuka for his excellent guidance in the course of my study.

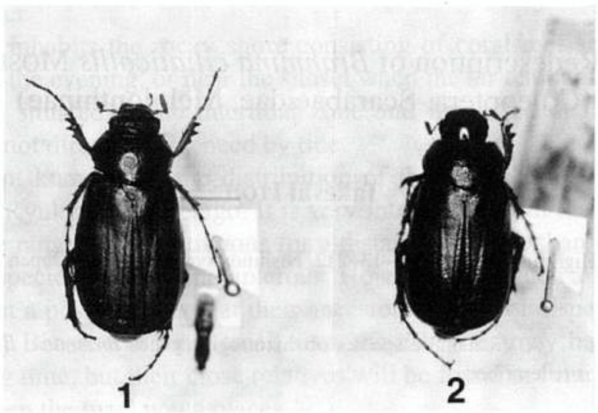
Brahmina ciliaticollis MOSER, 1914

Brahmina ciliaticollis MOSER, 1914, 153–154 (Tonkin: Hanoi).

Description. Length: 9.7–13.6 mm.

Male. Head reddish to dark reddish brown, pronotum reddish brown, elytra and ventral surface light brown to brown, antennae and legs brown. Pronotum, ventral surface and legs moderately shining, but the elytra are almost opaque.

Head moderately wide; clypeus subtrapezoidal, coarsely and densely punctate, 2.9–3.6 (3.3 on an average, n=20) times as wide as long, straight at anterior margin and rounded at anterior corners; frons very coarsely rugoso-punctate, covered with short erect pubescence, and bearing a pair of small tubercles or an obscure transverse elevation; vertex not sharply carinate, but distinctly declivous anteriad; eyes moderately prominent, interocular distance 0.64–0.69 (0.67 on an average, n=20) times as



Figs. 1–2. *Brahmina ciliaticollis* MOSER; 1, male from Sapa; 2, type (♀) from Hanoi.

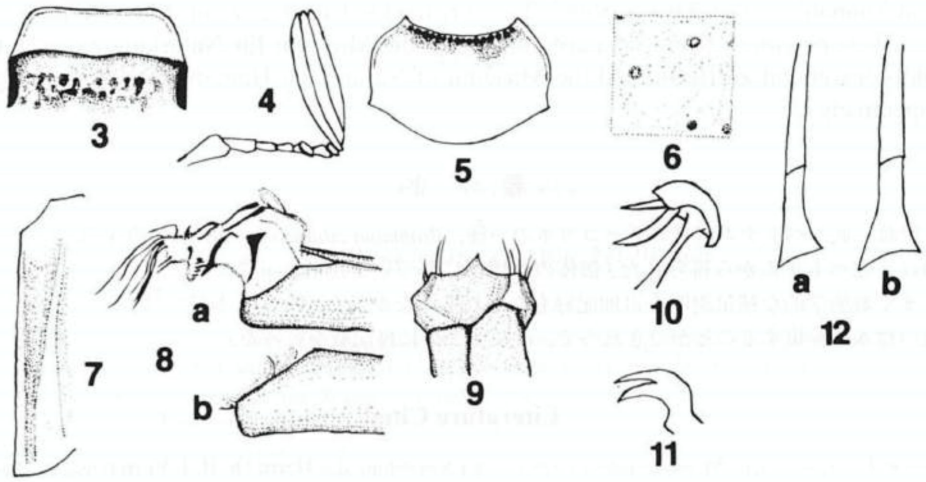
wide as the width of head; antennae 10-segmented; antennal club longer than the total length of apical 6 segments of 7-segmented footstalk, but shorter than footstalk; mentum rather convex.

Pronotum 0.57–0.61 (0.59 on an average, n=20) times as long as wide, smooth, somewhat sparsely and coarsely punctate, but densely so near sides; anterior margin rimmed, engraved with setigerous punctures along its posterior margin, which gives a serrate appearance; anterior and posterior angles almost rectangular though the posterior ones are sometimes a little obtuse; lateral margin narrowly reflexed throughout, distinctly produced at middle, straight and provided with several long bristles in anterior half, feebly to moderately sinuate and with or without a few short bristles in posterior half, and somewhat constricted before posterior angles; posterior margin furnished with a row of punctures throughout, finely rimmed near both corners, whose rim is engraved with punctures; disc with a weak depression inside anterior corners, and transversely furrowed in front of the rim of posterior margin. Scutellum moderately punctate, hardly or slightly so at base.

Elytra costate, sutural costa well-raised, 0.13–0.19 (0.16 on an average, n=20) times as wide as elytral width, 1st costa flattened, gradually widening apicad and approaching sutural one; lateral marginal area mat from level of metacoxa to apex; epipleuron reaching or passing metacoxal level; marginal membrane generally invisible.

Prosternum hairy, provided with a subtrapezoidal keel medio-basally; mesosternum hairy, scabrous in anterior half, smooth and sparsely punctate in posterior half; metasternum somewhat convex, provided with hairy punctures somewhat densely. Abdominal central area sparsely pubescent. Pygidium coarsely, somewhat sparsely and sometimes slightly rugosely punctate.

Legs slender; metacoxa devoid of lateral marginal furrow; metafemur 0.27–0.31 (0.29 on an average, n=20) times as wide as long, somewhat stout, shining, and sparsely punctate; metafemoral bristles about 0.22–0.38 times as long as width of



Figs. 3–12. *Brahmina ciliaticollis* MOSER. —— 3, Part of head; 4, antenna, ♂; 5, pronotum, ♀; 6, punctation of pronotum; 7, part of right elytron; 8, apical portion of male genitalia, a: dorso-lateral view, b: lateral view; 9, apical portion of female genitalia; 10, metatibial apical spurs, ♂; 11, claw of fore leg; 12, metatibia a: ♂, b: ♀.

metafemur; metatibia slender, longer metatibial spur shorter than 1st metatarsal segment; metatarsi with 1st segment shorter than 2nd. Claw bi-toothed, with apical tooth slender and inner tooth stout and truncated at the apex.

Male genitalia as shown in Fig. 8; internal sac with several long flagella, a few spines, bristles and sclerotized armatures.

Female. Clypeus 3.0–3.9 (3.3 on an average, n=20) times as wide as long. Frons punctate and tuberculate or transversely elevated as in male, interocular distance 0.65–0.69 (0.67 on an average, n=20) times as wide as width of head; antennal club longer than the total length of apical 6 segments of footstalk, though shorter than footstalk. Pronotum 0.56–0.60 (0.58 on an average, n=20) times as long as wide; anterior margin much widely rimmed and engraved with punctures in the same way as in male, widely furrowed along the rim, but the furrow is apparently narrowed at middle; postero-lateral margins strongly to moderately sinuate, but less so in the type specimen. Metafemur 0.33–0.37 (0.35 on an average, n=20) times as wide as long; metafemoral bristles about 0.28–0.44 times as long as width of metafemur; longer metatibial spur equal in length to 1st metatarsal segment; metatarsi with 1st segment shorter than the 2nd. Genitalia as shown in Fig. 9; coxite fused, with a distinct projection at apex.

Distribution. North Vietnam, South China.

Specimens examined. 10 ♂♂, 5 ♀♀, Sapa, Hoang Lien Son, 1–V–1991, M. FUJIOKA leg.; 11 ♂♂, 19 ♀♀, same locality, 3~28–V–1993, N. KATSURA leg.; 1 ♀(type), with three labels inscribed "Hanoi. 1903.", "*Brahmina ciliaticollis* MOS. Type" and "Zool. Mus. Berlin"; 2 ♂♂, 1 ♀, "China Yunnan", "Zool. Mus. Berlin"; 1 ♂, 1 ♀, "Tali

Haut Yunnan", "Zool. Mus. Berlin"; 2 ♀♀, "Kiukiang China", "Zool. Mus. Berlin".

Two specimens from Sapa are donated to the Museum für Naturkunde der Humboldt-Universität zu Berlin and the Museum of Nature and Human Activities, Hyôgo, respectively.

要　約

伊藤　武：ベトナム産アカチャコガネの一種，*Brahmina ciliaticollis* MOSER の再記載．—— 本種は，北ベトナムから得られた3個体の雌標本に基づいて，MOSER により記載されて以来，現在まで形態学的な補足説明も追加記録もなされていなかった．今回，本種の雄個体を含めて多数の標本を検視することができたので，改めてここに再記載を行った．

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Elytra, Tokyo, **25** (1): 116, May 15, 1997

Occurrence of *Zoodes formosanus* (Coleoptera, Cerambycidae) in Northern Vietnam

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Zoodes formosanus is a little-known hesperophanine cerambycid beetle and has so far been known as an endemic to Taiwan. Recently, I had an opportunity to examine a single female specimen of the same species collected near the northern border of Vietnam. It is an interesting example from the zoogeographical viewpoint, exhibiting a relationship of the cerambycid faunas between northern Vietnam and Taiwan. The facies of the Vietnamese specimen are similar to those of the type population, except for some weak differences regarded as infraspecific variation.

Zoodes formosanus NIISATO, 1982

Zoodes formosanus NIISATO, 1982, Trans. Shikoku ent. Soc., **16**, pp. 41–43, figs. 1–2.

Specimen examined. 1 ♀, near Sapa, Lao Cai Prov., N. Vietnam, V–1996.

Distribution. Taiwan, N. Vietnam (new record).

Elytra, Tokyo, **25** (1): 117–121, May 15, 1997

A New *Catops* (Coleoptera, Cholevidae) of the *hilleri* Group from Japan

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Abstract A new species belonging to the *hilleri* group of the cholevid genus *Catops* is described, under the name of *Catops fujitaniorum* sp. nov. The new species is allied to *Catops continentalis* SCHWEIGER and *C. bicolor* (PORTEVIN), but can be distinguished from the latter by the configuration of male genitalia and characteristic depressions of abdominal sternites in the female, and so on.

The *hilleri* group (*sensu* SZYMCZAKOWSKI, 1964, pp. 206–210, and HAYASHI, 1988, p. 108) of the cholevid genus *Catops* is distributed in the Holarctic and the Oriental Regions. The members are enriched in East Asia, which is recognized as the diversity center of the group. In the present paper, I am going to describe a new species of the group from Mt. Hachimori-yama in Nagano Prefecture, Central Japan. The new species is somewhat similar to *Sciodrepoides hidakai* (JEANNEL) in the configuration of male genitalia, but the shape of its male protibiae and antennae are different from that of the latter. Incidentally, the latter species was carelessly recorded by myself from Rishiri-tô Island (NISHIKAWA, 1984), but it is identical with this new species. HISAMATSU and HAYASHI (1985) and HISAMATSU (1989) also recorded it from the same island based on my report (pers. comm. from S. HISAMATSU). The abbreviations used herein are the same as those explained in my previous papers.

I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO, Emeritus Curator of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in critically reading the original manuscript of this paper. Hearty thanks are due to Mr. and Mrs. Yoshifumi FUJITANI who helped field works on Mt. Hachimori-yama, and to Dr. Sadanari HISAMATSU, Matsuyama City, and Mr. Yasutoshi SHIBATA, Tokyo, for giving me materials or help in many other ways.

Catops fujitaniorum M. NISHIKAWA, sp. nov.

[Japanese name: Chikuma-chibishidemushi]

(Figs. 1–7)

Sciodrepoides hidakai: NISHIKAWA, 1984, Coleopt. News, Tokyo, (64), p. 12. —— HISAMATSU & HAYASHI, 1985, Coleopt. Japan Col., Osaka, **2**, p. 243 (partim). —— HISAMATSU, 1989, Check list Jpn. Ins., **1**, p. 254 (partim). [Nec JEANNEL, 1950.]

Male. Length 3.00–3.75 mm (from apical margin of clypeus to apices of elytra), width 1.33–1.75 mm. Body elongate, elliptical, almost clothed with moderately long, yellowish brown, adpressed pubescence. Head, pronotum and scutellum blackish brown, though the front marginal area of the former is reddish; labrum, maxillary palpi and mouth parts clear reddish brown; antennae clear reddish brown in segments I–VI, though the remainder is blackish brown, with last segment clothed with silky short hairs in apical half; elytra reddish brown, with opalescent lustre; epipleura yellowish brown; legs almost reddish brown; ventral surface with thoracic segments blackish brown, with abdominal sternites partially yellowish brown, the remainder blackish brown.

Head gently convex, finely foveolate, with front margin straight, widest at the level of occipital carina (length : width = 1 : 1.3); labrum transverse, subtrapezoidal, emarginate at front margin, with gentle punctuations; maxillary palpi with last segment slightly bent, 1.25× as long as the preceding segment; eyes normal, moderately prominent. Antennae robust, hardly reaching pronotal base, with segments VI–X transverse, IV–IX slightly depressed on under side, the depressions on V–IX with granulate punctuations distinct, XI pear-shaped. Segmental measurements (length followed by width) in the holotype as follows: I, 0.23, 0.10; II, 0.14, 0.08; III, 0.14, 0.08; IV, 0.11, 0.08; V, 0.09, 0.10; VI, 0.08, 0.13; VII, 0.10, 0.15; VIII, 0.05, 0.13; IX, 0.10, 0.15; X, 0.09, 0.15; XI, 0.18, 0.13.

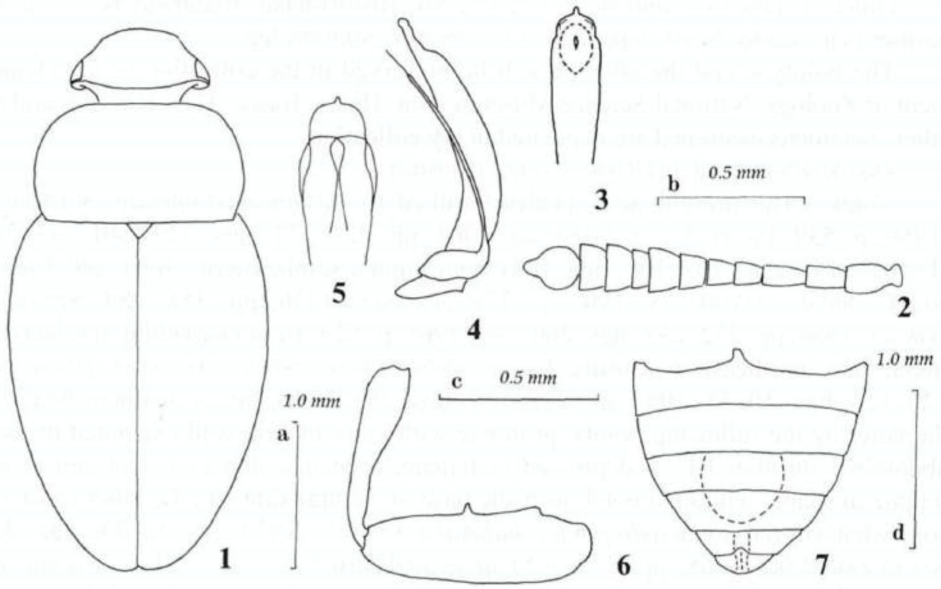
Pronotum transverse, subtrapezoidal, widest at about basal 1/3, with base narrower than elytral base, PW/HW 1.53–1.63 (M 1.58), PW/PL 1.48–1.73 (M 1.58); front margin almost straight, well marginate; front angles rounded; sides strongly arcuate, gently marginate; basal margin gently arcuate; hind angles obtuse; surface clothed with asperate punctuations. Scutellum triangular, asperate-punctate, the punctures stronger than those on pronotum. Hind wings full.

Elytra elongate-ovate, slightly convex, widest at about basal 1/3, EW/PW 1.18–1.35 (M 1.24), EL/PL 2.55–3.17 (M 2.77), EL/EW 1.29–1.45 (M 1.41); sides arcuate, converging apicad, well marginate, with apices separately rounded; suture entire; sutural striae gently arcuate outwards to each other; surface punctate, the punctures close but obscure; microsculpture formed by transverse wrinkles; epipleura ending at apical 1/7, punctate as on elytra. Pygidium weakly punctate.

Ventral surface with thoracic parts strongly punctate, though the mesosternum is clothed with microscopic transverse wrinkles; abdominal sternites granulate-punctate.

Legs with protibia expanded from basal 1/3 along inner margin, widest at the apex; protarsus slightly dilated, though the first segment is narrower than the apex of protibia; profemur with an elongate small tubercle at the middle of under side; mesotarsus with first segment the longest, thicker than the remainder; metafemur roundly depressed in preapical portion of under side.

Aedeagus symmetrical, slender, long, rather strongly dilated in preapical portion, well arcuate in lateral view, with apex broad, tuberculate at the middle, the tubercle projected ventrad; dorsal surface strongly depressed in preapical portion, with a small



Figs. 1–7. *Catops fujitaniorum* M. NISHIKAWA, sp. nov., from Mt. Hachimori-yama, Nagano Pref., Central Japan. —— 1, Outline of body, ♂; 2, left antenna, ♂; 3, apical part of aedeagus in dorso-apical view; 4, male genitalia in lateral view; 5, apical part of aedeagus in ventro-apical view; 6, protibia and profemur in ventral view, ♂; 7, abdominal sternites, ♀. (Scales: a for Fig. 1, b for Figs. 2–3, c for Figs. 4–6, and d for Fig. 7.)

oval fenestra at the middle; ventral surface without notch in lateral view; ligulae constricted in each preapical portion, with apices truncate, their inner angles pointed. Parameres long, reaching apical 1/4 of aedeagus. Basal piece ample, somewhat small in size.

Female. Length 3.00–4.00 mm (measured as in male), width 1.38–1.95 mm. Similar to male in general appearance. Proportions of body parts as follows: PW/HW 1.54–1.63 (M 1.58), PW/PL 1.46–1.71 (M 1.57), EW/PW 1.24–1.38 (M 1.29); EL/PL 2.86–3.19 (M 3.03), EL/EW 1.44–1.58 (M 1.50). Segmental measurements of antenna (length followed by width) in the allotype as follows: I, 0.20, 0.10; II, 0.13, 0.06; III, 0.13, 0.06; IV, 0.09, 0.10; V, 0.06, 0.09; VI, 0.05, 0.10; VII, 0.10, 0.15; VIII, 0.04, 0.13; IX, 0.10, 0.15; X, 0.09, 0.15; XI, 0.18, 0.13. Abdominal sternites entirely yellowish brown, with sternite III well depressed in middle portion, IV also depressed in middle before apical margin, V longitudinally grooved along mid-line, strongly emarginate at the apex, VI deeply grooved at the middle. Legs slender and simple.

Type series. Holotype: ♂, Mt. Hachimori-yama, ca. 1,700–2,000 m in alt., Asahi-mura, Higashi-chikuma-gun, Nagano Pref., Central Japan, 15–IX–1984, M. NISHIKAWA leg. Allotype: ♀, same data as for the holotype. Paratypes: 13 ♂♂, 8 ♀♀, same data as for the holotype.

Other specimens examined. 1 ♂, 1 ♀, Mt. Rishiri-dake, Rishiri-tô Is., Sôya, off northern Hokkaido, North Japan, 24–VII–1963, Y. SHIBATA leg.

The holotype and the allotype will be preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes and the other specimens examined are deposited in my collection.

Distribution. Japan (Rishiri-tô Is., Honshu).

Notes. The present new species is allied to *Catops continentalis* SCHWEIGER (1956, p. 539, fig. 6; SZYMCZAKOWSKI, 1964, pp. 220–222, figs. 229, 240, 243–244; HAYASHI, 1988, pp. 107–108, figs. 1–4) from Fujian, southeastern China, and Taiwan, and *C. bicolor* (PORTEVIN, 1903, p. 329; JEANNEL, 1936, pp. 355, 380; SZYMCZAKOWSKI, 1964, pp. 232–233, figs. 260–261, 1965, p. 529) from Darjeeling, northeastern India, and northeastern Burma (as *C. tuberculatus* SZYMCZAKOWSKI (1961, pp. 126–128, figs. 10–15, 1964, pp. 228–230, figs. 252–259)), but is distinguished from the latter by the following points: protibiae with inner margin well expanded in male; abdominal sternites III–IV depressed in female; aedeagus slenderer, with apical part unique in shape, without a notch near the base on ventral side. On the other hand, it is somewhat similar to *Sciodrepoides hidakai* (JEANNEL, 1950, pp. 32–33, figs. 3–5; SZYMCZAKOWSKI, 1965, pp. 527–528) in genital structure, but is also distinguished from the latter by the bicolored body, well expanded protibiae in male and the segment IV of antenna is hardly transverse in female though distinctly longer than width in male.

要　約

西川正明：ヒレルチビシデムシ群に属する日本産チビシデムシ属の1新種．—— 長野県の諏訪湖の西北西に位置する鉢盛山から得られた，ヒレルチビシデムシ群に属するチビシデムシ属の新種を，チクマチビシデムシ *Catops fujitaniorum* M. NISHIKAWA, sp. nov. と命名して記載した．また以前に利尻島からヒダカコチビシデムシ *Sciodrepoides hidakai* (JEANNEL) として記録（西川，1984）した種は，本種に同定できるので訂正した．なお，久松・林（1985）ならびに久松（1989）の利尻島からのヒダカコチビシデムシの記録は，筆者の誤同定にもとづくものである．

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Elytra, Tokyo, **25** (1): 121–122, May 15, 1997

Lyrosoma ituropense HLISNIKOVSKÝ (Coleoptera, Agyrtidae) from Hokkaido, North Japan

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The genus *Lyrosoma* of the family Agyrtidae is a relatively small genus represented by eight known species, which inhabit the Pacific coast of the northern cool-temperate zone. In the Japanese Islands, *Lyrosoma chujoi* MROCZKOWSKI has been known from northeastern Honshu and Hokkaido, Northeast Japan. Recently, I have found that my collection contains two different species. One of the two agrees with *L. chujoi*, and the other is almost identical with *L. ituropense* HLISNIKOVSKÝ, which is recorded below.

I wish to express my deep gratitude to Drs. Yoshihiko KUROSAWA and Shun-Ichi UÉNO for their kindness in giving me the opportunity to examine interesting specimens or in critically reading the original manuscript of this paper. Thanks are due to Mr. and Mrs. Toshihiko KAWAKAMI of Hakodate, for taking the photograph of the habitat of the beetles inserted in this paper.

Lyrosoma ituropense HLISNIKOVSKÝ, 1964

[Japanese name: Etorofu-hososhidemushi]

Lyrosoma ituropense HLISNIKOVSKÝ, 1964, Čas. čs. Spol. ent., Praha, **61**, pp. 40–42, fig. 2 (female); type lo-



Fig. 1. Habitat of two *Lyrosoma* species at Tachimachi-misaki of Hakodate-shi, SW Hokkaido.

cality: Iturop (=Iturup) Island, Kuril Islands. —— LAFER, 1989, Opred. Nasek. Dal'nego Vostoka SSSR, **3** (1), p. 335, figs. 204, *10–11*.

Lyrosoma iturupi HLISNIKOVSKÝ, 1962, Folia ent. hung., (s. n.), **15**, p. 460 (nom. nud.).

Lyrosoma iturpoi [sic]: KUROSAWA, 1985, Coleopt. Japan Col., Osaka, **2**, p. 252.

Lyrosoma chujoi: NISHIKAWA, 1986, Coleopt. News, Tokyo, (74), pp. 1–3, figs. 3 a–c, 4 b, d, 6 c, d (partim). [Nec MROCZKOWSKI, 1959.]

Specimens examined. 1 ♂, 1 ♀, Oshidomari, Rishiri-tô Is., N Hokkaido, 30–VI–1970, R. TERADA leg.; 2 ♂♂, 4 ♀♀, Tachimachi-misaki, Hakodate-shi, SW Hokkaido, 4–VI–1994, M. NISHIKAWA leg.

Distribution. Kuril Islands (Iturup Is.); Japan (Rishiri-tô Is., Hokkaido).

Notes. The specimens from Hakodate were found from under decayed seaweeds in the intertidal zone of rocky shores together with *L. chujoi*, many hydrophilid and staphylinid beetles, and other halophilous arthropods (Fig. 1). *Lyrosoma ituropense* was found in coexistence with *L. chujoi* in the same microhabitat. I visited there once again in August of the same year but was unable to find any of the two species.

The distribution of the members of *Lyrosoma* is either endemic or irregularly dispersed or rather limited, from the Pribilof and the Aleutian Islands to the Japanese Islands via the Komandorskie Islands, the Kamchatka Peninsula and the Kuril Islands (cf. ANDERSON & PECK, 1985; LAFER, 1989). Probably, their dispersal across the water gaps seems to be effected by ocean current, not to result from geographical history of each island, as is the case of other halophilous apterous beetles.

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Elytra, *Tokyo*, **25** (1): 123–128, May 15, 1997

Two New Species of the Genus *Quedius* STEPHENS, 1829 (Coleoptera, Staphylinidae, Staphylinini, Quediina) from Northern Vietnam[1)]

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Abstract Two new species of the genus *Quedius* from northern Vietnam are described and illustrated: *Quedius* (*Microsaurus*) *zeuxis* and *Quedius* (*Raphirus*) *xeno*, both from the Hoang Lien Son Mountains on the borders between Lao Cai and Lai Chau Provinces. The relationships of the two species are discussed.

Introduction

The following paper deals with two species of the genus *Quedius* STEPHENS, 1829, collected in northern Vietnam by Dr. Shun-Ichi UÉNO in 1994. Both were taken in the mountains near the Chinese border (Yunnan).

The first species, *Quedius* (*Microsaurus*) *zeuxis* sp. nov. belongs to the *Placidus* Group of species (SMETANA, 1995, 49) with representatives occurring in the Himalaya, in China (Yunnan and Sichuan), and in Taiwan. The second species, *Quedius* (*Raphirus*) *xeno* sp. nov. belongs to the *Multipunctatus* Group of species (SMETANA, 1995, 98) with representatives occurring in the Himalaya, Japan and in Taiwan. The relationships of the two species within their species-groups are briefly discussed.

Quedius (*Microsaurus*) *zeuxis* sp. nov.

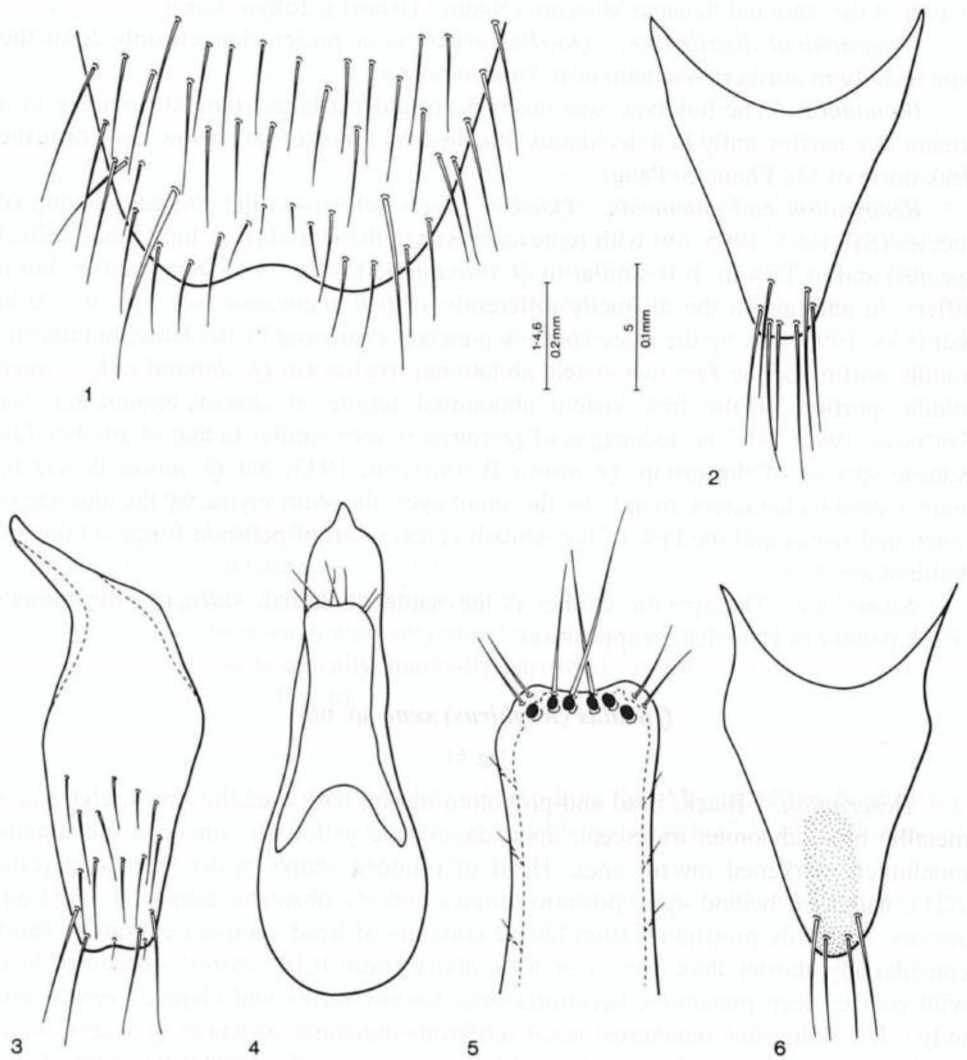
(Figs. 1–5)

Description. Piceous with paler pronotum, lateral and apical margins of abdominal tergites indefinitely, inconspicuously paler; head and pronotum indefinitely, abdomen appreciably iridescent. Mouthparts, palpi and legs rufo-brunneous, antennae piceous with first three segments rufo-brunneous. Head of rounded shape, slightly wider than long (ratio 1.13), with posterior angles entirely obsolete, only indistinctly narrowed posteriad behind eyes, neck therefore rather wide; eyes rather large, moderately convex, tempora distinctly shorter than eyes seen from above (ratio 0.41); no ad-

1) This study is supported by the Grants-in-aid Nos. 0604116 and 09041167 for Field Research of the Monbusho International Scientific Research Program, Japan.

ditional setiferous punctures between anterior frontal punctures; posterior frontal puncture and temporal puncture both situated close to posterior margin of eye, separated from it by distance about equal to diameter of puncture; two fine punctures (one missing on left side) between posterior frontal puncture and posterior margin of head; tempora impunctate; surface of head with very fine and dense microsculpture of transverse waves with scattered micropunctulation. Antenna short, moderately widened toward apex, segment 3 vaguely longer than segment 2, segment 4 slightly longer than wide, segment 5 about as long as wide, following segments wider than long, gradually becoming wider, last segment about as long as two preceding segments combined. Pronotum somewhat wider than long (ratio 1.11), widest at about posterior third, distinctly narrowed anteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate: dorsal rows each with three fine punctures; sublateral rows each reduced to one puncture near anterior margin of pronotum; microsculpture similar to that on head but still denser. Scutellum impunctate, without appreciable microsculpture. Elytra moderately long, at base somewhat narrower than pronotum at widest point, not appreciably dilated posteriad, at suture slightly shorter (ratio 0.86), at sides about as long as pronotum at midline; punctation and pubescence fine and rather sparse, becoming coarser toward lateral margin of each elytron, transverse interspaces between punctures usually at least twice as large as diameters of punctures; each elytron with three inconspicuous, irregular longitudinal rows of two to four coarser punctures bearing longer setae; pubescence piceous; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade fringe; large middle portions of first two visible tergites impunctate, smooth, remaining tergites with fine and sparse punctation almost evenly covering surface of each tergite; pubescence piceous; surface between punctures with excessively fine and dense microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment two about as wide as apex of tibia; segment four narrower than preceding segments. Sternite 8 with one large seta on each side; with moderately wide, rather shallow, subarcuate medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 1). Genital segment with tergite 10 markedly narrowed toward subarcuate apex, with several rather long setae at and near apical margin (Fig. 2); sternite 9 with narrow, elongate basal portion, apical portion rather wide, subemarginate apically, with two subapical setae at each side (Fig. 3). Aedoeagus (Figs. 4, 5) small; median lobe with lateral margins slightly bisinuate, suddenly narrowed into quite narrow, short apical portion with subacute apex, in lateral view with minute tooth on face adjacent to paramere. Paramere short and rather stout, by far not reaching apex of median lobe, gradually dilated anteriad and then narrowed toward shallowly sinuate apex; three strong setae at apex and two weaker setae at each lateral margin just below apex; underside of paramere with six sensory peg setae forming an arc along apical margin; internal sac without



Figs. 1–6. —— 1–5. *Quedius zeuxis*; 1, apical portion of male sternite 8; 2, tergite 10 of male genital segment; 3, sternite 9 of male genital segment; 4, aedoeagus, ventral view; 5, apical portion of underside of paramere. —— 6. *Quedius xeno*; tergite 10 of female genital segment.

larger sclerotized structures.

Female. Unknown.

Length: 5.7 mm.

Type material. Holotype (male): Vietnam: "Hoang Lien Son Mts., 1,840 m, N of Phang Si Pang"/"Lao Cai Prov., N VIETNAM 10–X–1994 S. UÉNO leg." In the col-

lection of the National Science Museum (Natural History), Tokyo, Japan.

Geographical distribution. *Quedius zeuxis* is at present known only from the type locality in northern Vietnam near Yunnan border.

Bionomics. The holotype was taken from under a large stone at the edge of a stream in a narrow gully in a deciduous broadleaved forest of rather low trees near the peak north of Mt. Phang Si Pang.

Recognition and comments. *Quedius zeuxis* belongs to the *Placidus* Group of species (SMETANA, 1995, 49) with representatives in the Himalaya, China (undescribed species) and in Taiwan. It is similar to *Q. shibatai* SMETANA, 1995 from Taiwan, but it differs, in addition to the distinctly differently shaped aedoeagus (see figs. 67–70 in SMETANA, 1995, 61), by the more sparsely punctate elytra and by the large, impunctate middle portion of the first two visible abdominal tergites (in *Q. shibatai* only a small middle portion of the first visible abdominal tergite is almost impunctate, see SMETANA, 1995, 54). The aedoeagus of *Q. zeuxis* is very similar to that of another Taiwanese species of the group: *Q. miwai* BERNHAUER, 1943, but *Q. miwai* differs by many external characters, mainly by the small eyes, the short elytra, by the absence of functional wings and the lack of the whitish apical seam of palisade fringe on the abdominal tergite 7.

Etymology The specific epithet is the name of *Zeuxis*, *-idis*, m., the famous Greek painter of Heraclea, in apposition.

Quedius* (*Raphirus*) *xeno sp. nov.

(Fig. 6)

Description. Black, head and pronotum bright, dark metallic green, elytra dark metallic blue, abdomen iridescent; appendages pale yellowish, antennae indistinctly, indefinitely darkened toward apex. Head of rounded shape, wider than long (ratio 1.21), narrowed behind eyes, posterior angles entirely obsolete; eyes very large and convex, markedly protruding from lateral contours of head, tempora extremely short, considerably shorter than eyes seen from above (ratio 0.18); dorsal surface of head with coarse, deep punctures, becoming finer toward vertex and clypeus, vertex with only a few rather fine punctures; usual setiferous punctures obscured by coarse punctures and traceable only by presence of long setae; posterior frontal puncture almost touching posterio-medial margin of eye; surface of head with fine and moderately dense microsculpture of transverse and oblique waves with numerous longitudinal junctions, becoming almost meshed on a small area on frons. Antenna moderately long, only slightly widened toward apex, segment 3 indefinitely longer than segment 2, segments 4–8 longer than wide, gradually becoming shorter, segments 9 and 10 about as long as wide, last segment as long as two preceding segments combined. Pronotum about as long as wide, widest at about posterior third, broadly rounded basally, distinctly narrowed anteriad, transversely convex, lateral portions not explanate; dorsal rows each with about eight coarse punctures, forming in general an irregular row con-

vex toward pronotal midline; sublateral rows each expanded into irregular group of seven to nine punctures; some considerably finer punctures scattered among coarse punctures; surface of pronotum with fine and moderately dense microsculpture of transverse waves. Scutellum impunctate, with extremely fine microsculpture of rudimentary waves. Elytra rather long, at base about as wide as pronotum at widest point, only slightly widened posteriad, both at suture and at sides longer than pronotum at midline (corresponding ratios 1.18 and 1.28); punctation coarse and dense, slightly asperate, almost confluent and forming transverse rugae toward posterior margin, inflexed portion of each elytron finely and sparsely punctate, more densely so on middle portion; pubescence yellowish-golden; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade fringe; punctation of abdominal tergites very fine and sparse; pubescence fine, black, but each tergite with sparse patch of golden and whitish-yellow (laterally) pubescence on each side, and visible tergites 1–4 with sparse golden pubescence at posterior margin; surface between punctures with very fine and dense microsculpture of transverse striae.

Female. First four segments of front tarsus markedly dilated, sub-bilobed, each covered with modified pale setae ventrally; segment two about as wide as apex of tibia; segment four narrower than preceding segments. Genital segment with second gonocoxites narrow and long, each with very small stylus bearing one long, strong seta; tergite 10 pigmented medio-apically, markedly narrowed toward narrowly arcuate apex, with two subapical setae (Fig. 6).

Male. Unknown.

Length: 6.6 mm.

Type material. Holotype (female): "Hoang Lien Son Mts., 1,920 m, N of Phang Si Pang"/"Lai Chau Prov. N VIETNAM 12–X–1994 S. UÉNO leg." In the collection of the National Science Museum, Tokyo, Japan.

Geographical distribution. *Quedius xeno* is at present known only from the type locality in northern Vietnam near the China border (Yunnan).

Bionomics. The holotype was found in a habitat characterized by rather low trees intermixed with arrow-bamboo. It was taken from a pile of stones near a seepage.

Recognition, comparisons and comments. *Quedius xeno* belongs to the *Multipunctatus* Group of species (SMETANA, 1995, 98) with representatives in the Himalaya, Japan and Taiwan. It differs from all of them by the much more numerous punctures on the head and to a lesser extent also on the pronotum. In these characters it is to some extent intermediate between the members of the *Multipunctatus* Group and those of the *Intricatus* Group (SMETANA, 1995, 103). However, the members of the *Intricatus* Group differ by several characters listed in the Monophyly paragraph in SMETANA (*l. c.*); the most conspicuous of these characters is the presence of tufts of golden-reddish tomentose pubescence at the apical margin of the first visible abdominal tergite.

The metallic dark blue appearance of the elytra may be artificial. It is possible that the surface of the elytra is normally dark metallic green, just like that of the head and

pronotum.

Etymology. The specific epithet is the name of *Xeno*, *-onis*, m., an Epicurean philosopher, a native of Athens, active in the fifth and early fourth centuries BC, in apposition.

Acknowledgments

I thank Dr. Shun-Ichi UÉNO for submitting the two species for study. I also thank Y. BOUSQUET and A. DAVIES for their comments on the original draft of this paper, and Mr. Go SATO for finishing the line drawings.

要　約

A. SMETANA: 北ヴェトナム産ツヤムネハネカクシ属の2新種. —— 北ヴェトナム北西部のホアンリエンソン山地からツヤムネハネカクシ属の2新種を記載し，それぞれに *Quedius* (*Microsaurus*) *zeuxis* および *Q.* (*Raphirus*) *xeno* の新名を与えた．どちらの種も，ヒマラヤから中国南部を経て台湾まで（後者の場合は日本まで）分布する種群に属し，この山系の昆虫相の由来を示す証拠になる．

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Elytra, *Tokyo*, **25** (1): 129–134, May 15, 1997

Contributions to the Knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China

Part 8. Quediini Collected by S. UÉNO and Y. WATANABE in Yunnan

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Abstract Two new species of the genus *Quedius* STEPHENS, 1829 from Yunnan are described and illustrated: *Q.* (*Microsaurus*) *vafer*, and *Q.* (*Raphirus*) *chrysogonus*. *Quedius* (*Raphirus*) *muscicola* is for the first time recorded from China, *Quedius* (*Microsaurus*) *inquietus* for the first time from Yunnan.

Introduction

Recently, a series of specimens of Quediina, collected by Drs. S. UÉNO and Y. WATANABE, Tokyo, in Yunnan in 1992 and 1993, was sent to me for study. This paper deals with the species of the genus *Quedius* STEPHENS, 1829, except for two additional species belonging to the *Muscicola* Group of species (SMETANA, 1988, 243; 1995 a, 68). These species will be dealt with in conjunction with the rich material of the group, collected by the author in several mountain ranges in Yunnan and Sichuan. The material studied also contained two species of the genus *Indoquedius* CAMERON, 1932. For reasons similar to those mentioned above, these two species will be dealt with later in a treatment of *Indoquedius* of China.

The holotypes of the new species are deposited in the collection of the Institute of Entomology, Academia Sinica, Shanghai, People's Republic of China. The other material is in the collection of the National Science Museum, Tokyo, Japan, and in my own collection.

Quedius (*Microsaurus*) *inquietus* (CHAMPION)

Velleius inquietus CHAMPION, 1925, 107.
Quedius inquietus: SMETANA, 1988, 189 (additional synonymy there).

New record. China: Yunnan: Zhonghe Feng (2,500 m), Diancang Shan Mts., Dali Shi, 4–IX–1993, Y. WATANABE, 1 male.

Comments. This is the first record of this species from Yunnan. *Quedius inquietus* was previously known from the Himalaya (SMETANA, 1988, 190) and from Si-

chuan (SMETANA, 1995 b, 235).

Quedius (*Microsaurus*) *becvari* SMETANA

Quedius becvari SMETANA, 1996, 119.

Record. China: Yunnan: Yuan Shan (2,120 m), Kunming, 5–XI–1992, Y. WATANABE, one female.

Comments. This specimen became part of the original series of *Q. becvari* (paratype). For the recognition of this species and for a discussion of its relationships, see the discussion in SMETANA, 1996, 120.

Quedius (*Raphirus*) *vafer* sp. nov.

(Fig. 1)

Description. Form robust, with wide pronotum. Piceous with piceous-black head; abdomen markedly iridescent; maxillary and labial palpi testaceo-brunneous, antennae brunneous, becoming slightly paler toward base, but first segment partially darkened; legs piceous with more or less paler tarsi. Head of rounded quadrangular shape, distinctly wider than long (ratio 1.24), with round impression in middle of frons, moderately narrowed posteriad behind eyes, posterior angles obsolete; eyes moderately large and convex; tempora vaguely shorter than eyes seen from above (ratio 0.90); no additional setiferous punctures between anterior frontal punctures; posterior frontal and temporal punctures situated close to posterio-medial margin of eye, separated from it by distance about equal to diameter of puncture; a group of three to five additional punctures posterio-mediad of posterior frontal puncture, in addition to two punctures at posterior margin of head; surface of head with extremely fine and dense microsculpture of transverse waves with numerous longitudinal junctions, with some intermixed sparse micropunctulation. Antenna moderately long, segment 3 slightly longer than segment 2, segments 4–6 longer than wide, gradually becoming shorter, segments 7–10 about as long as wide, last segment as long as preceding two segments combined. Pronotum voluminous, somewhat wider than long (ratio 1.13), widest slightly behind middle, broadly rounded basally, distinctly narrowed anteriad, lateral portions inconspicuously explanate posteriad; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; microsculpture on pronotum similar to that on head. Scutellum impunctate, with very fine and dense microsculpture of transverse striae. Elytra short, at base markedly narrower than pronotum at widest point (ratio 0.76), vaguely widened posteriad, at suture considerably shorter (ratio 0.65), at sides distinctly shorter (ratio 0.77) than pronotum at midline; punctation fine, moderately dense, transverse interspaces between punctures mostly about twice as large as diameters of punctures; pubescence piceous; surface between punctures with distinct microscopic irregularities, hence somewhat dull. Wings reduced to non-functional stumps. Abdomen with tergite

7 (fifth visible) lacking whitish apical seam of palisade fringe; punctation of abdominal tergites somewhat finer than that on elytra, moderately dense, evenly covering surface of each tergite, in general becoming vaguely sparser toward apex of abdomen; pubescence piceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Female. First four segments of front tarsus considerably dilated, sub-bilobed, each densely covered with modified brownish setae ventrally; segment two about as wide as apex of tibia; segment four narrower than preceding segments. Genital segment with second gonocoxites very narrow and elongate, each with extremely small stylus bearing one long, strong seta; tergite 10 modified, of characteristic shape, pigmented medially, with minute, acutely triangular apex, with numerous unequally long setae at and near apical margin, and with two setae on apical portion in front of them (Fig. 3).

Length: 8.4–8.6 mm.

Type material. Holotype (female) and two female paratypes: China: "Yuzhu Feng (3,350 m), Diancang Shan Mts., Dali Shi, Yunnan, China. 5–IX–1993. Coll. S. UÉNO". The holotype is deposited at the Shanghai Institute of Entomology, Academia Sinica, Shanghai. One paratype at the National Science Museum (Natural History), Tokyo, Japan, and one paratype in the SMETANA collection, Ottawa, Canada.

Geographical distribution. *Quedius vafer* is known only from the type locality in the Diancang Shans in the vicinity of Dali in the southern portion of the Province of Yunnan of the People's Republic of China.

Bionomics. The specimens of the original series were taken in a habitat characterized by rhododendron trees intermixed with arrow-bamboo, with sparse *Abies* trees. The specimens were sifted from a pile of moist, dead rhododendron leaves accumulated among the roots of arrow-bamboo. This is one of the habitats of the carabid beetle *Deuveotrechus yinae* (see UÉNO, 1996, 19).

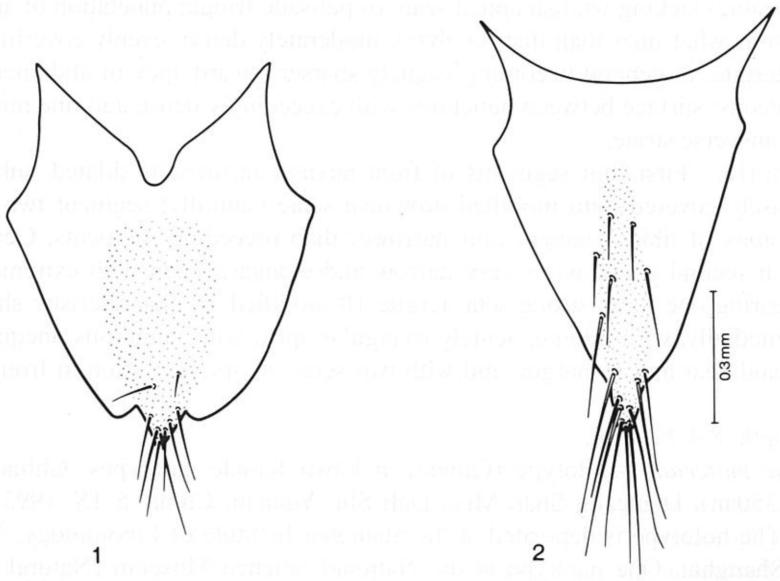
Recognition and comments. *Quedius vafer* may be easily recognized by the general habitus, in combination with the chaetotaxy of the head, particularly by the presence of additional punctures posterio-mediad of the posterior frontal puncture, with the surface sculpture of the short elytra (see the description) and with the characteristic shape of tergite 10 of the female genital segment.

One of the paratypes (deposited in Tokyo) is distinctly teneral.

Etymology. The specific name is the Latin adjective *vafer*, *-fra*, *-frum* (sly, cunning). It refers to the "ingenious" development of the conspicuous group of additional punctures on the head (see the description).

Quedius (*Raphirus*) *muscicola* CAMERON

Quedius muscicola CAMERON, 1932, 295; SMETANA 1988, 253.
Quedius dohertyi CAMERON, 1932, 297; SMETANA, 1988, 254.
Quedius heterogaster CAMERON, 1944, 14; SMETANA, 1988, 254.



Figs. 1–2. Tergite 10 of the female genital segment; 1, *Quedius vafer*; 2, *Q. chrysogonus*.

New record. China: Yunnan: Laohu Shan, Dali Shi, 2,200 m, 3–IX–1993, Y. WATANABE, 3 males, 1 female.

Comments. New record for China. The species was until recently known from the Himalaya (from northern Himachal Pradesh and Uttar Pradesh through Nepal eastward to the Darjeeling area in West Bengal), and from Burma (SMETANA, 1988, 254).

Quedius* (*Raphirus*) *chrysogonus sp. nov.

(Fig. 2)

Description. Piceous-black; head and pronotum with distinct, dark green metallic lustre, elytra brilliant dark green; abdomen moderately iridescent; appendages rufotestaceous. Head rounded, slightly wider than long (ratio 1.15); eyes very large and convex, tempora about five times shorter than eyes seen dorsally (ratio 0.18); clypeus with two shallow, rounded impressions; eight additional punctures between anterior frontal punctures; posterior frontal puncture situated very close to posterio-median margin of eye, separated from it by distance slightly smaller than diameter of puncture; three additional punctures anterio-mediad of posterior frontal puncture and three posterio-mediad of it along posterior margin of head; temporal puncture almost touching posterior margin of eye; all punctures coarse; surface of head with dense, moderately coarse microsculpture of transverse and oblique waves with numerous longitudinal junctions, gradually changing into more or less meshed microsculpture on anterior half

of head, intermixed micropunctulation becoming denser and coarser toward posterior margin of head. Antenna fairly short, segment 3 indefinitely longer than segment 2, segments 4–6 longer than wide, gradually becoming shorter, outer segments as long as wide, last segment about as long as two preceding segments combined. Pronotum as long as wide, strongly transversely convex, broadly rounded basally, widest at about posterior third, moderately narrowed anteriad; dorsal rows irregular, each with seven punctures; sublateral rows each expanded into irregular group of eight to twelve punctures; entire surface of pronotum with very dense and fine microsculpture of transverse and oblique waves with numerous longitudinal junctions, with scattered, inconspicuous micropunctulation. Scutellum impunctate, with very fine, dense microsculpture of transverse and oblique waves. Elytra fairly long, at base slightly narrower than pronotum at widest point (ratio 0.91), at suture slightly (ratio 1.11) at sides distinctly longer than pronotum at midline (ratio 1.25); punctation rather coarse, dense, transverse interspaces between punctures mostly about as large as diameters of punctures, punctation becoming finer and sparser toward posterior margin; surface between punctures without microsculpture. Abdomen with tergite 7 (fifth visible) with whitish apical seam of palisade fringe; punctation of abdominal tergites fine and dense, gradually becoming somewhat sparser toward apex of each tergite, and in general toward apex of abdomen; pubescence uniform, piceous-black; surface between punctures with exceedingly fine and dense microsculpture of transverse striae.

Female. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with pale modified setae ventrally; segment two about as wide as apex of tibia; segment four narrower than preceding segments. Genital segment with second gonocoxites narrow and long, each with extremely small stylus bearing one long, strong seta; tergite 10 rather wide basally, markedly, triangularly narrowed toward acute apex, with narrow medio-apical area pigmented, with six rather long setae at and near apical margin and with some additional setae on apical portion (Fig. 4).

Length: 8.0 mm.

Type material. Holotype (female): China: "(Mt. Ailao Shan) 2,500 m, Jingdong, Yunnan, China III–28, 1993 Coll. N. XIAO". In the collection of the Shanghai Institute of Entomology, Academia Sinica, Shanghai.

Geographical distribution. *Quedius chrysogonus* is at present known only from the type locality in the southern portion of the Province of Yunnan, southwest of Kunming.

Bionomics. Nothing is known about the collection circumstances of the holotype.

Recognition and comparisons. *Quedius chrysogonus* is a new member of the *Multipunctatus* Group (SMETANA, 1995, 98) that until now included five species: one from the Himalaya (*Q. hariyo* SMETANA, 1988), one from Japan (*Q. multipunctatus* SHARP, 1889) and three from Taiwan (*Q. huann* SMETANA, 1995, *Q. bih* SMETANA, 1995, and *Q. yann* SMETANA, 1995). Another species of the group is being described by the author from northern Vietnam.

Quedius chrysogonus is the largest member of the group. It differs from all of them, in addition to the characters on tergite 10 of the female genital segment, by the uniformly piceous-black pubescence of the abdominal tergites. Members of all the remaining species bear some golden, golden-yellowish, or brownish-golden pubescence (intermixed or forming definite patches) on the abdominal tergites.

Etymology. The specific name is that of *Chrysogonus*, *-i*, m. (a Roman name), in apposition.

Acknowledgments

I thank Drs. S. UÉNO and Y. WATANABE for submitting this material for study. My colleagues Y. BOUSQUET and A. DAVIES, Eastern Cereal and Oilseed Centre, Ottawa, commented on the original draft of this manuscript. Mr. Go SATO from the same establishment inked the line drawings. Their assistance was greatly appreciated.

要　約

A. SMETANA: 中国産ツヤムネハネカクシ亜族に関する知見．8．上野俊一，渡辺泰明両博士によって云南省で採集されたツヤムネハネカクシ類．—— 上野，渡辺両博士によって云南省で採集されたツヤムネハネカクシ類のうち，ツヤムネハネカクシ属には7種が認められた．そのうち2種は新種で，*Quedius* (*Raphirus*) *vafer* SMETANA および *Q.* (*R*). *chrysogonus* SMETANA と命名した．また，中国から未記録の1種と，云南省から未記録の1種が見いだされた．

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Elytra, Tokyo, **25** (1): 135–146, May 15, 1997

Four New Species of the *Lathrobium brachypterum* Group (Coleoptera, Staphylinidae) from the Hokuriku District, Japan

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Abstract Four new species of the *Lathrobium* (s. str.) *brachypterum* group are described under the names *L.* (s. str.) *sugiei*, *L.* (s. str.) *notoense*, *L.* (s. str.) *shiritakanum* and *L.* (s. str.) *nabetaniense*. They were obtained by sifting dead leaves or litter in deciduous broadleaved forests on the mountainous areas of the Hokuriku District, Central Japan.

The members of the *Lathrobium* (s. str.) *brachypterum* group are characterized by the body smaller in size than in the *Lathrobium* (s. str.) *pollens* group. Up to the present, nine species of the group have been reported from Japan. Six of them (*L. brachypterum*, *L. densum*, *L. susumui*, *L. shingon*, *L. ohkurai* and *L. ishidai*) have been described from Honshu by SHARP (1889), BERNHAUER (1936), WATANABE (1984, 1992) and HAYASHI (1996), two species (*L. tamotsui*, *L. sanukiense*) from Shikoku by WATANABE (1991, 1994) and one species (*L. onodai*) from the Island of Shimokoshiki-jima off southwestern Kyushu by WATANABE (1996).

Through the courtesy of the late Mr. Yoshiharu SUGIE, Ishikawa Prefecture, I had an opportunity to examine two interesting species of the *Lathrobium* (s. str.) *brachypterum* group obtained by himself from under dead leaves or litter in deciduous broadleaved forests on the hilly area of Nabetani in Tatsunokuchi-machi of Ishikawa Prefecture, Japan. After a careful examination, it has become clear that the two species are new to science for reasons of the secondary sexual characters of the abdominal sternites and configuration of the male genital organ different from those of the known members of the species-group. They will be described in the present paper, together with two other new species of the same group preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo, and of the Laboratory of Entomology, Tokyo University of Agriculture.

Before going further, I would like to express my sincere thanks to Dr. Shun-Ichi UÉNO, Visiting Professor at Tokyo University of Agriculture, for his valuable advice on the present study. Thanks are also due to the late Mr. Yoshiharu SUGIE and Dr. Ichiji TOGASHI, Ishikawa Agricultural College, for their kindness in giving me the opportunity to examine the interesting specimens used in this study. I also extend my hearty gratitude to Mr. Yasuhiko HAYASHI, Kawanishi-shi, for the gift of paratypes of the two species *L.* (s. str.) *ohkurai* and *L.* (s. str.) *ishidai*.

Lathrobium (s. str.) ***sugiei*** Y. WATANABE, sp. nov.

(Figs. 1, 2, 6–9)

[Japanese name: Sugie-himekobane-nagahanekakushi]

Body length: 6.9–8.0 mm (from front margin of head to anal end); 3.3–3.5 mm (from front margin of head to elytral apices).

Body elongate, subparallel-sided. Colour brownish black to black, moderately shining, with mouthparts except for mandibles, legs and two apical segments of abdomen yellowish brown, mandibles and antennae brownish red.

Male. Head subtrapezoidal, gently narrowed anteriad and feebly elevated medially, somewhat transverse (width/length=1.15), lateral sides weakly arcuate, frontal area between antennal tubercles transversely flattened and impunctate; surface sparsely, distinctly and setiferously punctured, the punctures somewhat sparser in median area than in lateral areas, and covered with indefinite microscopic ground sculpture only visible under high magnification; eyes very small and flat, the longitudinal diameter of each eye one-fourth as long as postocular part. Antennae elongate, extending to the middle of pronotum and not thickened apicad, with basal two segments polished, the remainings gradually becoming opaque towards the apicalmost segment, 1st segment robust and strongly dilated apicad, conspicuously longer than broad (length/width=2.50), 2nd constricted at the base, somewhat longer than broad (length/width=1.06) but remarkably shorter (2nd/1st=0.33) and evidently narrower (2nd/1st=0.78) than 1st, 3rd somewhat dilated apicad, apparently longer than broad (length/width=1.56), distinctly longer (3rd/2nd=1.40) but slightly narrower (3rd/2nd=0.96) than 2nd, 4th to 10th more or less moniliform, 4th to 6th equal in both length and width to one another, 4th a little longer than broad (length/width=1.33) but slightly shorter (4th/3rd=0.86) and equal in width to 3rd, 7th a little longer than broad (length/width=1.28) but slightly shorter (7th/6th=0.92) and equal in width to 6th, 8th to 10th equal in both length and width to one another, each somewhat longer than broad (length/width=1.25) but slightly shorter (8th/7th=0.91) and narrower (8th/7th=0.93) than 7th, apicalmost fusiform, more than twice as long as broad, evidently longer than 10th (apicalmost/10th=1.80) though equal in width to 10th, subacuminate at the apex.

Pronotum elliptical and convex medially, evidently longer than broad (length/width=1.26) and distinctly longer (pronotum/head=1.38) though equal in width to head, widest behind anterior angles and feebly narrowed posteriad in anterior three-fourths though rather abruptly so in posterior fourth; lateral sides almost straight at about the middle though slightly arcuate in anterior fourth as seen from dorsal side, anterior margin slightly emarginate at the middle, posterior margin truncate, anterior angles rounded and invisible from above, posterior ones narrowly rounded; surface more densely and more roughly punctured than on head, provided with a narrow longitudinal smooth space at the middle through the whole length of pronotum, and sometimes bearing an indefinite longitudinal sulcus along the median line within a smooth space at the basal part. Scutellum subtriangular, provided with a few punctures on the sur-

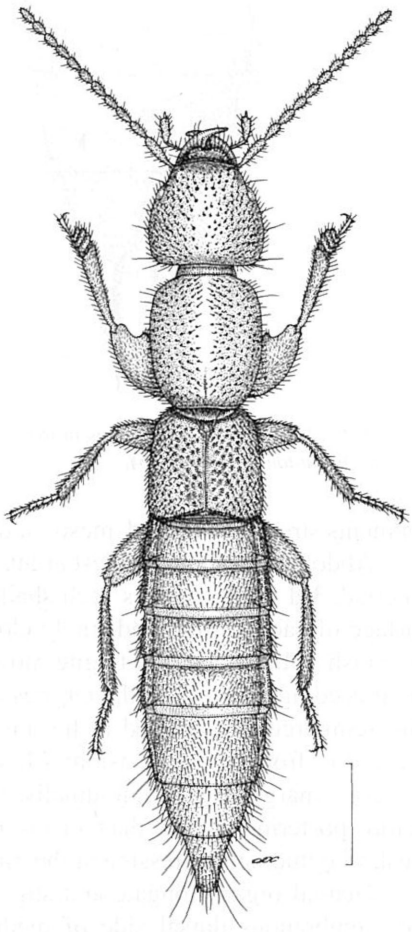
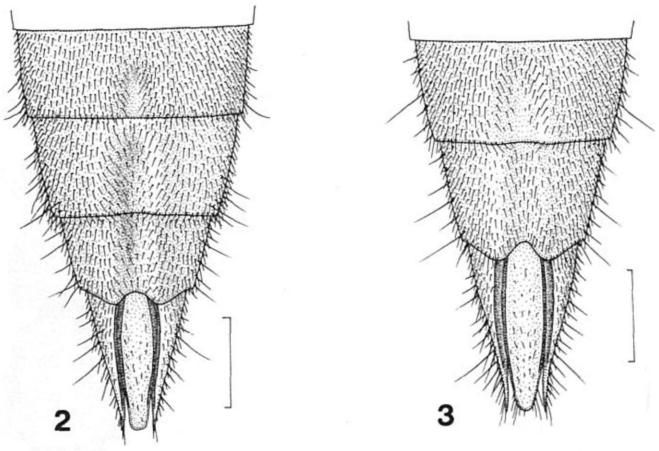


Fig. 1. *Lathrobium* (s. str.) *sugiei* Y. WATANABE, sp. nov., ♂, from Nabetani, Tatsunokuchi-machi, Ishikawa Prefecture. Scale: 1.0 mm.

face. Elytra oblong, slightly dilated posteriad and as long as or only just broader than long (width/length=1.05), distinctly shorter than (elytra/pronotum=0.72) though equal in width to pronotum; lateral sides feebly arcuate, posterior margin emarginate at the middle, posterior angles broadly rounded; surface covered with denser, much shallower and much rougher setiferous punctures than those on pronotum. Legs moderately long; profemur remarkably thickened, though abruptly constricted near the apex and excavated in apical half on the inner side, so that the anterior part of the excavation forms a subtriangular blunt tooth; protibia widened apicad, hollowed in basal half on the inner margin and provided with four or so transverse rows of comb-like fine golden setae in basal half within the hollow; meso- and metatibiae simple; 1st to 4th protarsal



Figs. 2–3. Last abdominal sternites in male of *Lathrobium* (s. str.) spp.; *L.* (s. str.) *sugiei* sp. nov. (2); *L.* (s. str.) *notoense* sp. nov. (3).

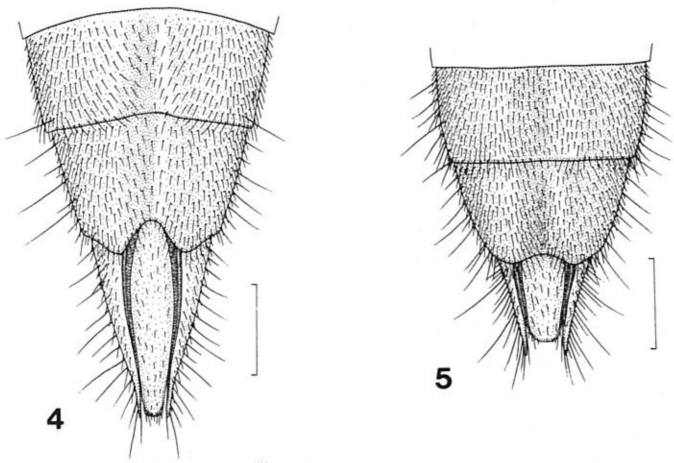
segments strongly widened, meso- and metatarsi thin.

Abdomen elongate, widest at 5th segment, more strongly narrowed posteriad than anteriad, 3rd to 6th tergites each shallowly and transversely depressed along the base; surface of each tergite moderately closely covered with fine superficial punctures and brownish pubescence; 8th tergite more sparsely and more minutely punctured than in the preceding tergites; all the tergites covered with fine brownish pubescence; 8th sternite semicircularly excised at the middle of posterior margin and longitudinally depressed in front of the excision; 7th sternite also slightly emarginate at the middle of posterior margin and longitudinally, though more shallowly, depressed at the middle before posterior margin than in the preceding sternite; 6th sternite provided with a weak longitudinal depression at the middle in front of posterior margin.

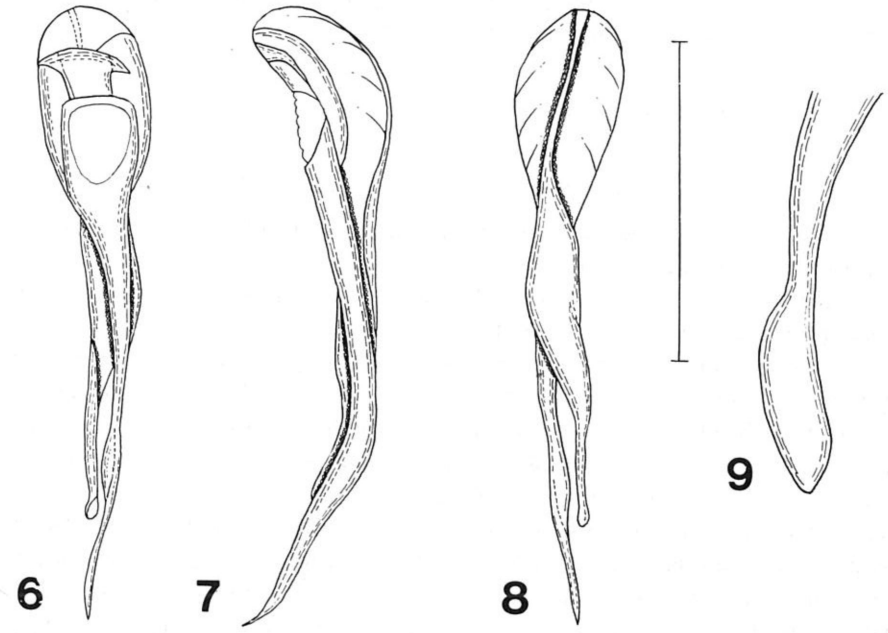
Genital organ elongate and slightly asymmetrical, moderately sclerotized except for membranous dorsal side of median lobe; median lobe apparently broader than fused paramere in the median part, and then abruptly narrowed in apical half, which is lanceolate as seen from right lateral side. Fused paramere very slender and markedly longer than median lobe, gently curved to the right side and somewhat constricted at about middle as seen from ventral side, and distinctly curved ventrad and sharply pointed at the tip in profile.

Female. Similar in size and facies to male, but each one of the 6th to 8th abdominal sternites is simple.

Type series. Holotype: ♂, allotype: ♀, Nabetani, Tatsunokuchi-machi, Ishikawa Pref., Honshu, Japan, 20–IV–1995, Y. SUGIE leg. Paratypes: all from the same locality and by collector as the holotype; 1 ♂, 21–V–1994; 3 ♂♂, 28–V–1994; 1 ♂, 5–VI–1994; 1 ♂, 12–VI–1994; 1 ♀, 24–VII–1994; 1 ♀, 7–VIII–1994; 1 ♀, 13–VIII–1994; 1 ♂, 16–VIII–1994; 1 ♀, 21–III–1995; 1 ♀, 26–III–1995; 2 ♂♂, 10–IV–1995; 2 ♂♂, 15–IV–1995;



Figs. 4–5. Last abdominal sternites in male of *Lathrobium* (s. str.) spp.; *L.* (s. str.) *shiritakanum* sp. nov. (4), and *L.* (s. str.) *nabetaniense* sp. nov. (5). Scale: 0.5 mm.



Figs. 6–9. Male genital organ of *L.* (s. str.) *sugiei* sp. nov.; ventral view (6), lateral view (7), dorsal view (8), and apical part of median lobe from the right side (9). Scale: 1.0 mm (6–8), 0.5 mm (9).

1 ♀, 16–IV–1995; 1 ♀, 18–IV–1995; 1 ♂, 1 ♀, 21–IV–1995; 1 ♂, 2 ♀♀, 22–IV–1995; 3 ♂♂, 2 ♀♀, 27–IV–1995; 1 ♂, 30–IV–1995; 1 ♀, 4–V–1995; 1 ♀, 5–V–1995; 1 ♂, 2 ♀♀, 7–V–1995; 1 ♀, 10–V–1995; 1 ♂, 2 ♀♀, 14–V–1995; 2 ♂♂, 30–V–1995; 1 ♀, 31–V–1995; 2 ♀♀, 1–VI–1995; 5 ♂♂, 1 ♀, 2–VI–1995; 1 ♂, 7–VI–1995; 1 ♂, 9–VI–1995; 2 ♂♂, 11–VI–1995; 1 ♂, 11–VII–1995; 1 ♂, 14–VII–1995; 1 ♂, 20–VII–1995. All the type specimens are deposited in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

Distribution. Japan (central Honshu).

Notes. The present new species resembles *L. ishidai* in general appearance as well as in configuration of male genital organ, but differs from the latter in the following points: head and pronotum more coarsely punctate, 7th and 8th abdominal sternites in male each longitudinally depressed at the middle in front of posterior margin, and 6th sternite provided with a small depression at the middle before posterior margin; male genital organ with median lobe broader than fused paramere in median part, fused paramere somewhat curved to the right side in apical half and much slenderer than that of *L.* (s. str.) *ishidai*.

Bionomics. The type specimens were obtained from under dead leaves or litter in a deciduous broadleaved forest consisting of *Quercus serrata*, *Q. cripspula* and *Hamamelis japanica* var. *abtusata*.

Etymology. The specific epithet of the present new species is dedicated to the late Mr. Yoshiharu SUGIE, who collected all the type specimens.

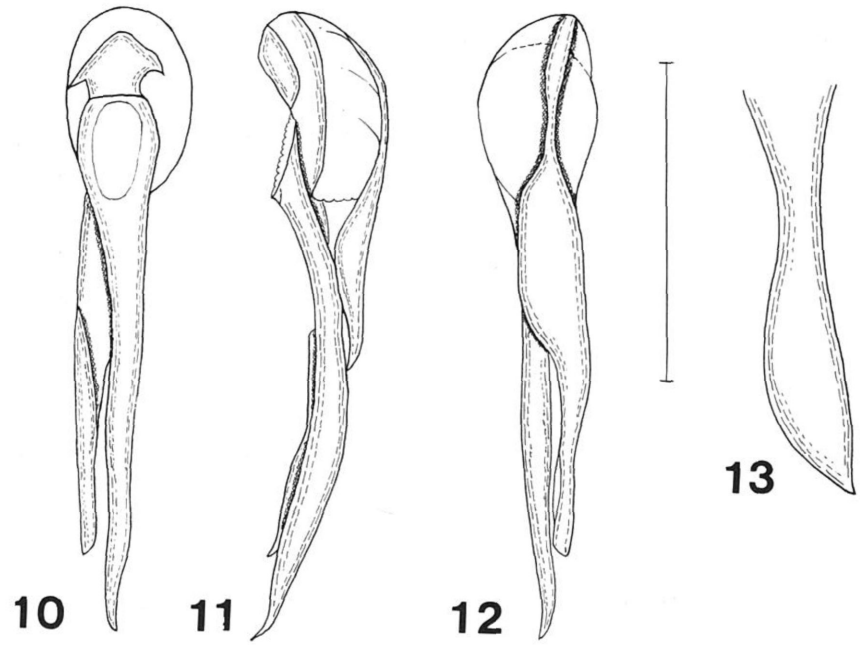
Lathrobium (s. str.) ***notoense*** Y. WATANABE, sp. nov.

(Figs. 3, 10–17)

[Japanese name: Noto-himekobane-nagahanekakushi]

Body length: 6.7–7.0 mm (from front margin of head to anal end); 3.2–3.4 mm (from front margin of head to elytral apices).

Male and female. In facies and body size similar to the preceding species, but differs from it in the following points. Head more closely punctured in lateral areas though more obscurely coriaceous on the surface than in the preceding species. Pronotum more distinctly and evenly narrowed posteriad, provided with less coarse punctures than on head except for median longitudinal smooth space. Elytra somewhat transverse (width/length=1.20), slightly broader (elytra/pronotum=1.07) though evidently shorter (elytra/pronotum=0.71) than pronotum; surface covered with slightly denser punctures than in the preceding species. In male, abdomen with 8th sternite provided with a similar excision at the middle of posterior margin, though the median depression before posterior margin is shallower; 7th sternite more shallowly emarginate at the middle of posterior margin and more shallowly depressed before the emargination than in the preceding species; 6th sternite lacking the depression at the middle in front of posterior margin, though sometimes provided with an obscure depression.



Figs. 10–13. Male genital organ of *L.* (s. str.) *notoense* sp. nov.; from Mt. Hôryû-zan, Wajima-shi, Ishikawa Pref.; ventral view (10), lateral view (11), dorsal view (12), and apical part of median lobe from the right side. Scale: 1.0 mm (10–12), 0.5 mm (13).

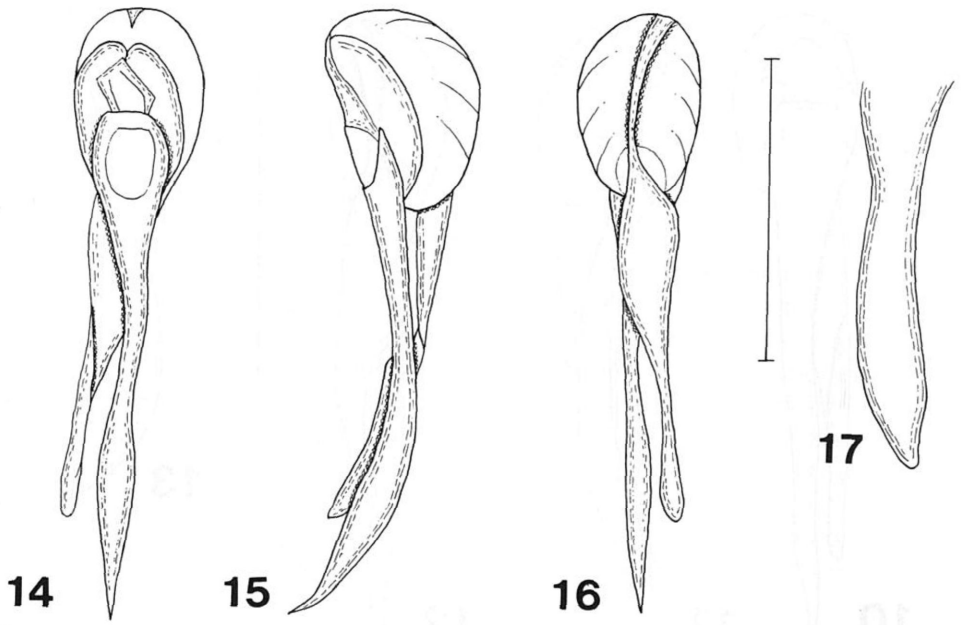
Male genital organ also similar to that of the preceding species, but differs from it by the following details: median lobe broader than that of the preceding species in apical half, which is spindle-shaped as seen from lateral side and subangulate at the apex; fused paramere relatively broad, slightly constricted near the middle, abruptly curved ventrad in apical half in profile.

Type series. Holotype: ♂, allotype: ♀, Hôryû-zan, SE slope, Wajima-shi, Ishikawa Pref., Honshu, Japan, 29–V–1985, Y. NISHIKAWA leg. Paratypes: 2 ♂♂, 4 ♀♀, same data as for the holotype. The type specimens are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo, except for two pairs of the paratypes preserved in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

Further specimens examined. 1 ♂, Sogo, Oshimizu-machi, Hakui-gun, Ishikawa Pref., Honshu, Japan, 21–II–1990, I. TOGASHI leg.; 1 ♂, same locality as above, 19–IV–1996, A. TANAKA leg.

These specimens slightly differ from the type specimens in configuration of the median lobe and the fused paramere in the male genital organ, but the difference is considered to be an infraspecific variation.

Distribution. Japan (central Honshu).



Figs. 14–17. Male genital organ of *L.* (s. str.) *notoense* sp. nov. from Sogo, Hakui-gun Ishikawa Pref.; ventral view (14), lateral view (15), dorsal view (16), and apical part of median lobe from the right side (17). Scale: 1.0 mm (14–16), 0.5 mm (17).

Bionomics. The type specimens were obtained by excavating a scree deposited at the side of a narrow stream at an altitude of 410 m.

Etymology. The specific epithet of the present new species is derived from the Noto Peninsula, on which lies the type locality "Mt. Hôryû-zan".

Lathrobium (s. str.) ***shiritakanum*** Y. WATANABE, sp. nov.

(Figs. 4, 18–21)

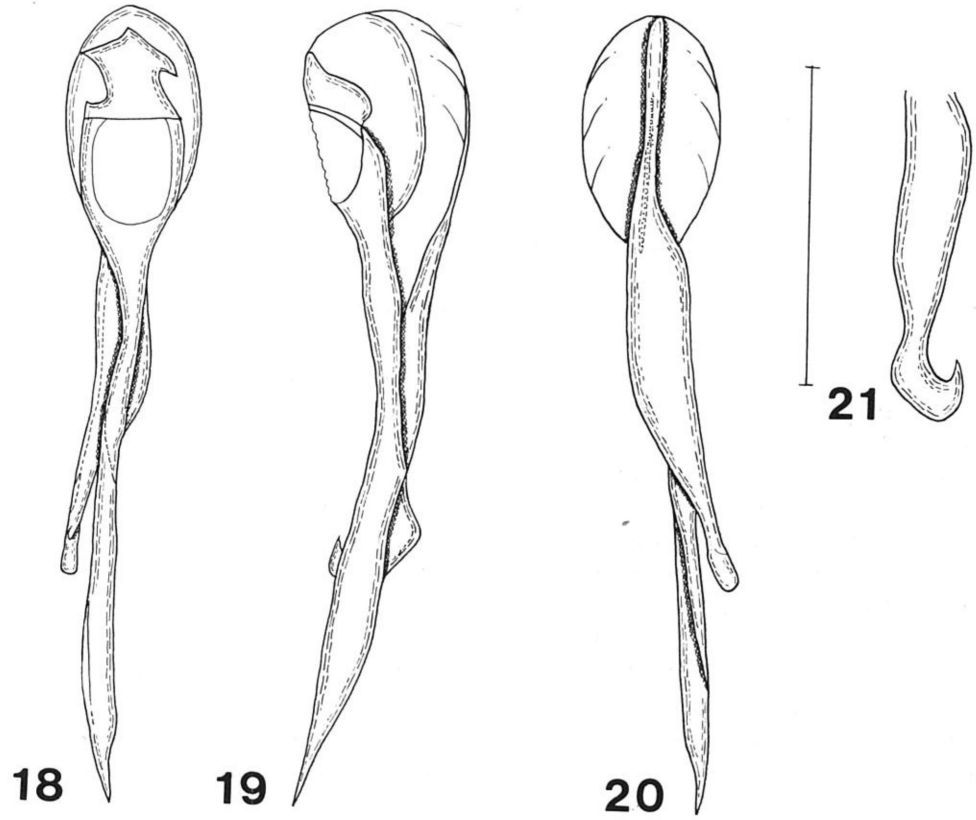
[Japanese name: Shiritaka-himekobane-nagahanekakushi]

Body length: 8.0–8.1 mm (from front margin of head to anal end); 3.6–3.8 mm (from front margin of head to elytral apices).

Male. Again closely resembles *L.* (s. str.) *sugiei* in general appearance and body size, but differing from it in configuration of male genital organ as well as in the following points: head less transverse (width/length = 1.09) and less coarsely punctured than in *L.* (s. str.) *sugiei*; pronotum less narrowed posteriad, lateral sides feebly arcuate in whole length, surface slightly less closely punctured than in *L.* (s. str.) *sugiei* with the exception of the smooth median space; elytra distinctly broader than long (width/length = 1.19) and slightly broader than pronotum (elytra/pronotum = 1.04), surface slightly more coarsely punctured; abdomen more coarsely punctured on the sur-

face of each tergite, 8th sternite more deeply excised at the middle and more strongly depressed in front of the excision, 7th sternite also more distinctly depressed at the middle before posterior margin, surface of the depression almost glabrous; other external features similar to those of *L.* (s. str.) *sugiei*.

Also similar to *L.* (s. str.) *ishidai* Y. HAYASHI in facies and body size, but can be distinguished from it by the following points: head slightly more closely and more coarsely punctured on the surface; pronotum relatively broad, as broad as elytra, more strongly narrowed posteriad in posterior third, lateral sides feebly arcuate in posterior half, surface more coarsely punctured than in *L.* (s. str.) *ishidai*; elytra more transverse (width/length=1.19), with lateral sides slightly arcuate, more closely and more coarsely punctured on the surface; abdominal tergites each more sparingly covered with coarser punctures than in *L.* (s. str.) *ishidai*, 8th sternite more deeply excised at the middle of posterior margin and narrowly, longitudinally depressed in front of the excision, 7th sternite slightly emarginate at the middle of posterior margin and longitu-



Figs. 18–21. Male genital organ of *L.* (s. str.) *shiritakanum* sp. nov.; ventral view (18), lateral view (19), dorsal view (20), and apical part of median lobe from the right side (21). Scale: 1.0 mm.

dinally depressed along the median line, surface of the depression almost glabrous.

Male genital organ similar in general appearance to those of *L.* (s. str.) *sugiei* and *L.* (s. str.) *notoense*, but different from them in the following points: much more elongate, median lobe abruptly narrowed in apical third, strongly curved ventrad in the apical part which is uncinate in profile; fused paramere much longer than median lobe, abruptly narrowed near the apex which is sharply pointed as seen from ventral side.

Female. Unknown

Type series. Holotype: ♂, Mt. Shiritaka, Tsurugi-machi, Nomi-gun, Ishikawa Pref., Honshu, Japan, 23–IV–1991, K. TANAKA leg. Paratypes: 2 ♂♂, same data as for the holotype. The type specimens are deposited in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

Distribution. Japan (central Honshu).

Bionomics. The type specimens were collected from under rock debris at the roadside near the top of the mountain.

Etymology. The specific epithet of this new species is derived from the type locality "Mt. Shiritaka-yama", which lies to the east of Tsurugi-machi in Ishikawa Prefecture.

Lathrobium (s. str.) ***nabetaniense*** Y. WATANABE, sp. nov.

(Figs. 5, 22–24)

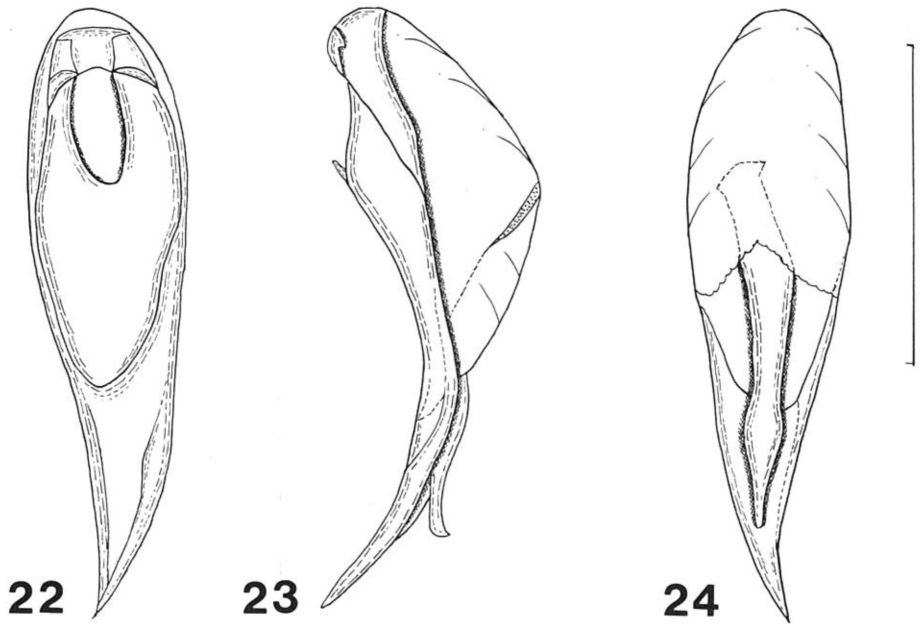
[Japanese name: Nabetani-himekobane-nagahanekakushi]

Body length: 6.5–7.4 mm (from front margin of head to anal end); 3.5–3.7 mm (from front margin of head to elytral apices).

The present new species resembles *L.* (s. str.) *ohkurai* Y. HAYASHI in general appearance and configuration of male genital organ, but differs from it in male secondary sexual character of abdominal sternites and in details of male genital organ.

Male and female. Head subquadrate, slightly transverse (width/length=1.03), more sparingly and less coarsely punctured and covered with more distinct ground sculpture than in *L.* (s. str.) *ohkurai*. Pronotum nearly oblong, slightly more elongate (length/width=1.19), less coarsely punctured on the surface except for smooth median longitudinal space. Elytra subtrapezoidal and somewhat dilated posteriad, evidently transverse (width/length=1.13) and somewhat broader than pronotum (elytra/pronotum=1.09); surface more sparingly and less coarsely punctured than in *L.* (s. str.) *ohkurai*. Abdomen similarly punctured on each tergite to that in *L.* (s. str.) *ohkurai*; in male, 8th sternite more shallowly emarginate at the middle of posterior margin than in *L.* (s. str.) *ohkurai*, shallowly and longitudinally depressed in front of the emargination, surface of the depression somewhat densely covered with more blackish setae than on the other parts, 7th sternite also shallowly and elliptically depressed at the middle before posterior margin.

Male genital organ sclerotized except for membranous dorsal side of median lobe, median lobe much shorter than fused paramere, gradually narrowed towards the



Figs. 22–24. Male genital organ of *L.* (s. str.) *nabetaniense* sp. nov.; ventral view (22), lateral view (23), and dorsal view (24). Scale: 1.0 mm.

broadly rounded apex, provided with a well sclerotized plate on the dorsal side, the plate elongate though dilated near apical fourth and then abruptly narrowed towards the apex, which is turned up dorsad and forming a minute projection in profile.

Type series. Holotype: ♂, Nabetani, Tatsunokuchi-machi, Nomi-gun, Ishikawa Pref., Honshu, Japan, 27–XII–1995, Y. SUGIE leg.; allotype: ♀, same locality and collector as for the holotype, 16–IV–1995. Paratypes: all from the same locality and by the same collector as above, 1 ♂, 5–VI–1994; 1 ♀, 8–IV–1995; 1 ♀, 16–IV–1995; 1 ♂, 20–IV–1995; 1 ♂, 21–IV–1995; 1 ♂, 22–IV–1995; 1 ♂, 2 ♀♀, 27–IV–1995; 1 ♂, 29–IV–1995; 1 ♀, 10–V–1995; 1 ♂, 20–V–1995; 1 ♀, 30–V–1995; 1 ♀, 18–VII–1995; 1 ♀, 6–XII–1995; 1 ♂, 9–XII–1995; 1 ♀, 13–XII–1995; 1 ♂, 1 ♀, 27–XII–1995. All the type specimens are deposited in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

Distribution. Japan (central Honshu).

Bionomics. The type specimens were obtained at the same place as the type locality of *L.* (s. str.) *sugiei*.

Etymology. The specific epithet of this new species is derived from the type locality "Nabetani".

要　約

渡辺泰明：北陸地方から採集されたヒメコバネナガハネカクシ種群に含まれる4新種（甲虫目，ハネカクシ科）．—— ヒメコバネナガハネカクシ種群は後翅が退化した特徴的な種群で，これまでに9種が知られている．わたしは，石川県辰口町に在住されていた故杉江良治氏より，この種群に含まれる2種をご恵送いただいた．これらを分類学的に検討した結果，いずれも新種と判定されたので，国立科学博物館および東京農業大学昆虫学研究室にそれぞれ所蔵されていた別の2新種を加えて4新種を下記のとおり命名・記載した．

1．*Lathrobium* (s. str.) *sugiei* Y. WATANABE スギエヒメコバネナガハネカクシ

本種は，石川県辰口町鍋谷の落葉広葉樹林の林床から採集されたもので，一般的外部形態は *L.* (s. str.) *ishidai* Y. HAYASHI に類似している．しかし，頭部および前胸背板の点刻がより粗く，雄の腹部腹板に表われる第二次性徴や雄交尾器の形状が異なることによって区別できる．

2．*Lathrobium* (s. str.) *notoense* Y. WATANABE ノトヒメコバネナガハネカクシ

本種は能登半島北部の宝立山から採集されたもので，体長および外部形態は前種に類似している．しかし，頭部各側方の点刻がより密で，翅鞘は長さおよび前胸背板より幅広く，雄に表われる腹部腹板の第二次性徴や雄交尾器の形状が異なることなどで区別できる．

3．*Lathrobium* (s. str.) *shiritakanum* Y. WATANABE シリタカヒメコバネナガハネカクシ

本種は，石川県鶴来町の後高山から採集されたもので，*L.* (s. str.) *ishidai* Y. HAYASHI および前記の *L.* (s. str.) *sugiei* の両種に，体長および外部形態が類似している．しかし，雄交尾器の中葉末端部が上方に湾曲し，右側方から見ると鉤形を呈することで容易に区別できる．

4．*Lathrobium* (s. str.) *nabetaniense* Y. WATANABE ナベタニヒメコバネナガハネカクシ

本種は前記の *L.* (s. str.) *sugiei* が採集された場所から得られたもので，外部形態は *L.* (s. str.) *ohkurai* Y. HAYASHI に類似している．しかし，頭部は長さよりわずかに幅広く，よりまばらに点刻されること，翅鞘は長さより明らかに，また前胸背板よりもいくらか幅広いこと，さらに雄の腹部腹板の第二次性徴および交尾器の形状が異なることによって区別できる．

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Elytra, Tokyo, **25** (1): 147–150, May 15, 1997

The Larva of *Drypta fulveola* BATES (Coleoptera, Carabidae)[1)]

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Abstract The larva of a truncatipennes carabid beetle, *Drypta fulveola* BATES, is described on the basis of the third instar larva collected at the estuary of the Riv. Obitsu-gawa in Chiba Prefecture, Central Japan. It is very similar to that of *D. japonica* BATES.

The halophilous carabid beetle *Drypta fulveola* was originally described by BATES (1883, p. 279) from "Honjo, in Tokio" (Sumidaku, Tokyo), Central Japan. It was rediscovered about seventy years later at the estuary of the drain of the Riv. Edo-gawa in Chiba Prefecture. However, this second habitat was destroyed because of the development of the city area, and the beetle was considered to have become extinct. Fortunately in 1984, it was found out again at the estuary of the Riv. Obitsu-gawa in Kisarazu City of Chiba Prefecture. The reedy area at the right side of the estuary is the only extant habitat of this "very local" species known at the present. In 1992, *Drypta fulveola* was designated as an endangered species by the Environment Agency of the Japanese Government and was recorded on the official Red Data Book. MIYANO and YAMAGUCHI (1994, pp. 105–108) studied its ecology and life circle, but have not described its larva in detail. In this paper, we are going to describe and illustrate the larva of this interesting species.

We cordially thank Dr. Shun-Ichi UÉNO, Emeritus Curator of the National Science Museum (Nat. Hist.), Tokyo, for his encouragement and for critically reading the manuscript of this paper, and Mr. Takeshi YAMAGUCHI of the Natural History Museum and Institute, Chiba, for his cooperation in the field and breeding the beetle.

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1) This study is supported in part by the Zoshinkai Grant for the Protection of Threatened Wildlife.

Drypta fulveola BATES — Larva

(Fig. 1)

Description. Length (three specimens of the third instar larva were measured) 9.5–10.5 mm; width 1.8–2.3 mm; cerci 7.8–8.5 mm. Body yellowish white; head brown, though the posterior part of ocelli and neck are brownish yellow; mandible reddish brown; antennae yellowish white, though the terminal segments are fuscous; thoracic nota brown, with the exception of brownish yellow apical fifth of pronotum; abdominal terga and pleura brown, becoming darker towards apical ones; spiracle and cerci black; legs light yellowish white.

Head ovate, gently convex, shiny, ca. 1.3 times as long as wide; nasal arcuately produced, and with three to four setae on each side; lateral margins gently divergent from ocelli, then roundly and strongly convergent posteriad, and with numerous setae; neck narrow, ca. 0.5–0.6 times as wide as head; frontal suture long, reaching a little behind the middle; frontal piece with two pair of primary setae at middle; mandibles slender and arcuate in apical halves, tapering towards apices, which are sharply pointed; antennae consisting of four segments, each segment plurisetose, terminal segment with two long setae at apex.

Pronotum prolonged, convex, shiny, gently narrowed towards apex, almost as wide as head, ca. 1.45 times as long as wide; lateral margins almost straight, and with numerous setae; median line distinct; surface with shallow foveae at basal part on each side. Mesonotum transverse, trapezoidal, convex, shiny, ca. 1.2 times as wide as pronotum, ca. 1.6 times as wide as long; lateral margins gently arcuate and widely rounded at basal corners; median line distinct; apical and basal parts transversely with a row of fine setae; surface with a shallow round fovea at middle on each side. Metanotum transverse, convex, shiny, a little wider than mesonotum, about twice as wide as long; lateral margins arcuate and widely rounded near base; median line distinct; apical and basal parts transversely with a row of fine setae, respectively; surface with a shallow round fovea on each side.

Abdominal terga 1–8 transverse, convex, shiny; median line distinct; apical margin rather widely bordered; a transverse row of three to four setae present behind the border and at the basal part, respectively. Pleura with four setae. Cerci very long, flagellifrom, consisting of eleven segments, lengths of respective segments rather variable with individuals and also right and left, the basal segment often seemingly divided into two segments, each with a seta at the apex, though the terminal segment bears two setae at the apex. Legs slender, wholly setose, tibiae densely with long setae on the ventral side. Claw with a small tooth ventrally at the base.

Notes. The larva of *Drypta fulveola* is very similar to that of *D. japonica* BATES (cf. HABU & SADANAGA, 1965, pp. 166–169) in general appearance, colour and chaetotoxy, and cannot be easily distinguished from the latter, but the body is somewhat larger in *D. fulveola* than in *D. japonica*, and their habitats are evidently different, the former halophilous and the latter hygrophilous near freshwater bodies.

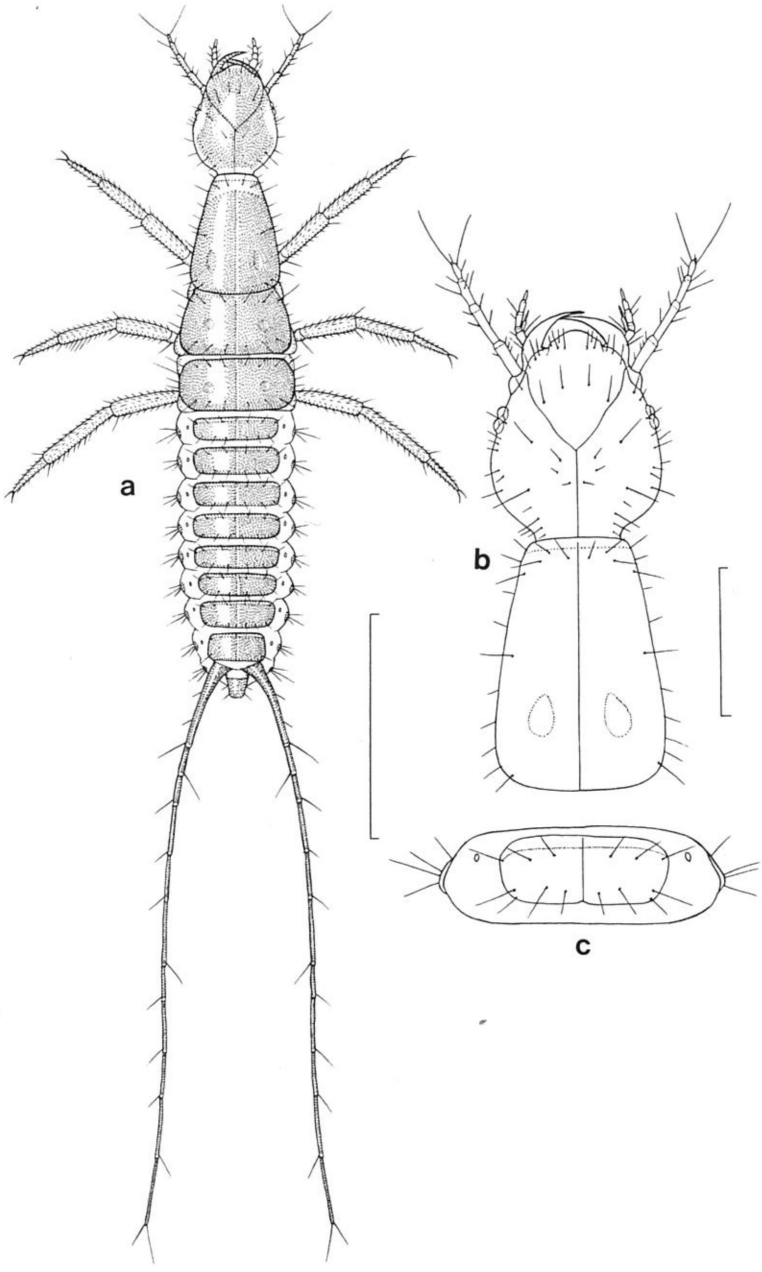

Fig. 1. Third instar larva of *Drypta fulveola* BATES, from the estuary of the Riv. Obitsu-gawa in Chiba Pref.; a, habitus (scale 3 mm); b, head with pronotum; c, third abdominal segment (scale 1 mm).

要　約

笠原須磨生・宮野伸也：キイロホソゴミムシの幼虫．—— キイロホソゴミムシ *Drypta fulveola* BATES は，現在，千葉県木更津市小櫃川河口のヨシ原にのみ生息が確認されている希少種で，1992年に環境庁によって絶滅危惧種に指定された．その生態と生活史については，宮野・山口(1994)が報告しているが，幼虫は未記載のままになっているので，終齢（3齢）幼虫を図示記載した．

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Elytra, Tokyo, **25** (1): 151–154, May 15, 1997

A New *Bradycellus* (Coleoptera, Carabidae) from the Subalpine Zone of the Japanese Alps

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Abstract A new harpaline carabid beetle, *Bradycellus* (*Tachycellus*) *saitoi* sp. nov., is described from the subalpine zone of the Japanese Alps, central Honshu, Japan. It is related to *B.* (*T.*) *chinensis* JEDLIČKA, but differs from it mainly in the shape of aedeagal apex.

The most important and recent work concerning the subgenus *Tachycellus* is that of JAEGER and WRASE (1994). According to their paper, nine species occur in Japan. In this paper, a tenth species is added under the name of *Bradycellus* (*T.*) *saitoi*. But for their study which was based upon the type materials of the species described by old authors, I could never have determined this new species.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the midline; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; WL – length of hind wing; TL – length of hind tarsus; M – arithmetic mean; NSMT – National Science Museum (Nat. Hist.), Tokyo.

I wish to thank Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in reading the manuscript of this paper. My thanks are also due to Dr. Masahiro ÔHARA (Otaru Museum) and Mr. Masahiro SAITÔ (Fukui) for their kind help.

Bradycellus* (*Tachycellus*) *saitoi MORITA, sp. nov.

[Japanese name: Takane-hime-gomokumushi]

(Figs. 1–6)

Diagnosis. Left mandible of normal form (not truncate at the apex); microsculpture vanished on dorsal side; pronotal hind angles obtuse; anal sternite with 2 pair of long setae in ♂; hind wings reduced; aedeagus strongly bent at apex in lateral view.

Description. Length: 4.74–4.82 mm (from apical margin of clypeus to apices of elytra).

Body black to blackish brown, and shiny; side of pronotum and elytral interval 1 brown; ventral side lighter than dorsum; clypeus and appendages brown, but the anten-

nal segments 1 and 2 are usually reddish brown.

Head convex, not large; PW/HW 1.32–1.34 (M 1.33) in 4 ♂♂; frontal furrows clearly and deeply impressed, sometimes shallower near lateral grooves; eyes moderately convex; supraorbital pores located at the post-eye level; apical margin of labrum usually widely emarginate, with both corners rounded; surface very sparsely and finely punctate; microsculpture vanished; left mandible strongly curved in dorsal view, pointed at apex in both dorsal and dorso-apical views; antennae rather short; relative lengths of antennal segments as follows: I : II : III : IV : V : VI : XI≒1 : 0.63 : 0.79 : 0.82 : 0.86 : 0.89 : 1.20.

Pronotum transverse and convex, widest at 3/5 from base; PW/PL 1.39–1.41 (M 1.40) in 4 ♂♂; PW/PA 1.34–1.39 (M 1.37) in 4 ♂♂; PW/PB 1.27–1.33 (M 1.30) in 4 ♂♂; apical margin slightly emarginate, a little narrower than base, PA/PB 0.93–0.96 (M 0.95) in 4 ♂♂; apical angles widely rounded and a little produced; sides rather strongly arcuate, and then narrowed towards hind angles or very shallowly sinuate just before hind angles; marginal gutters deep, joining both basal and apical borders, and then vanished at the medial parts; hind angles obtuse; base slightly arcuate; median line clearly impressed; apical transverse impression shallow, becoming shallower at the

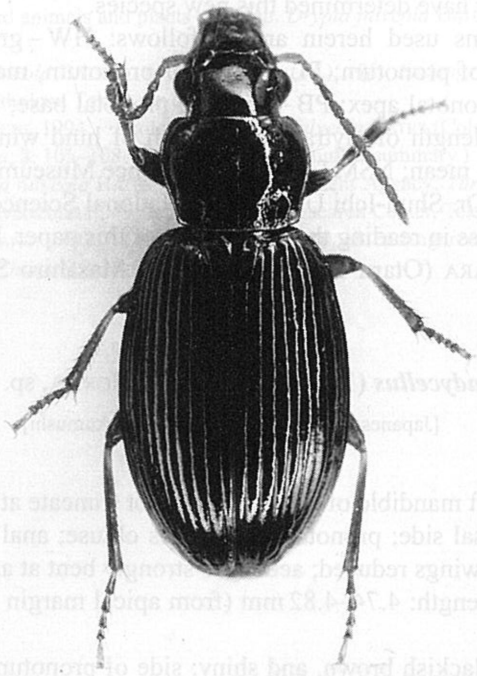

Fig. 1. *Bradycellus* (*Tachycellus*) *saitoi* MORITA, sp. nov., from Mt. Jizô-dake.

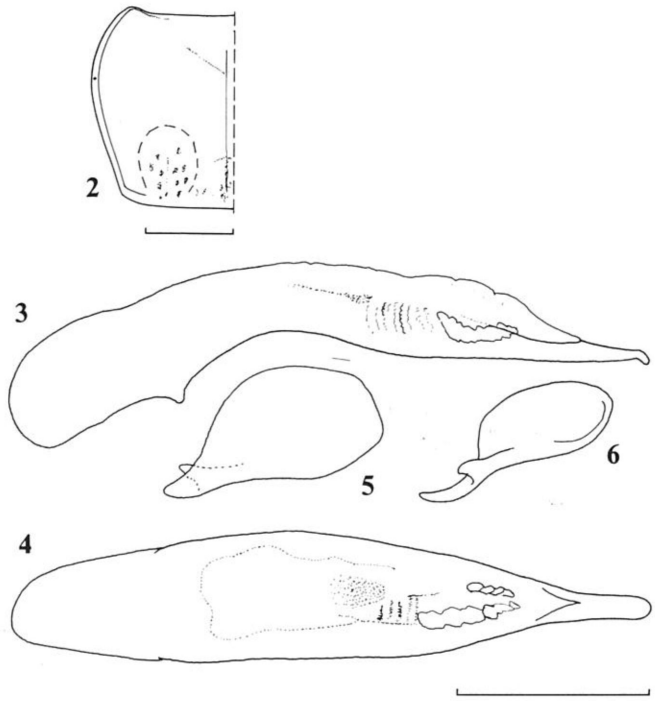

Fig. 2–6. *Bradycellus* (*Tachycellus*) *saitoi* MORITA, sp. nov. —— 2, Outline of the left side of pronotum; 3, aedeagus, left lateral view; 4, aedeagus, dorsal view; 5, left paramere, left lateral view; 6, right paramere, left lateral view. (Scale: 0.5 mm.)

sides; basal transverse impression shallow; basal foveae deep and round, and with coarse punctures; microsculpture vanished.

Wings reduced, WL/EL≒0.24. Elytra convex and relatively narrow in basal parts; EW/PW 1.44–1.47 (M 1.45) in 4 ♂♂; EL/EW 1.45–1.50 (M 1.48) in 4♂♂; shoulders rounded; sides weakly arcuate towards the middle which is the widest, moderately arcuate in apical halves, and with shallow preapical emargination; intervals slightly convex; striae almost smooth; dorsal pore situated at 11/20–3/5 from base; marginal series composed of 15 pores; microsculpture vanished. Anal sternite with two setae on each side. TL/HW 0.85–0.87 (M 0.86) in 3 ♂♂.

Aedeagus elongate; viewed dorsally, apical lobe gradually narrowed towards the tip which is simply rounded; apex strongly bent in lateral view. Inner sac covered with poorly sclerotized teeth and armed with two teeth-patches and a mat of poorly sclerotized teeth; of the two teeth-patches, the left one is larger than the right; a mat of poorly sclerotized teeth small and vague. Left style more or less broad; right one rather elongate.

Female unknown.

Type series. Holotype: ♂ (NSMT), paratypes: 3 ♂♂, 3–XI–1996, M. SAITÔ leg.

Type locality. Mt. Jizô-dake, 2,360 m in altitude, Hôou-zan Mts., Nirazaki-shi, Yamanashi Pref., central Honshu, Japan.

Notes. The present new species can be easily distinguished from all the known members of the subgenus *Tachycellus* from Japan by the obtuse hind angles of pronotum and differently shaped aedeagal apex.

Judging from the shape of pronotum and the chaetotaxy of anal sternite, this new species is rather closely allied to *B.* (*T.*) *chinensis* JEDLIČKA (1953, p. 143). It is, however, distinguished from the latter mainly by the following points: 1) head narrow, PW/HW M 1.33 [in *B. chinensis*, PW/HW M 1.22 (cf. JAEGER & WRASE, 1994, p. 493)], 2) vanished microsculpture on dorsal side, 3) left mandible not truncate at apex, 4) aedeagus with apex strongly bent, and 5) inner sac armed with two teeth-patches and a mat of poorly sclerotized teeth.

Although the two forms are decisively different in the male genitalia in spite of their close similarity in external morphology, this new species is tentatively placed at the side of *B. chinensis*.

要　　約

森田誠司：日本アルプス亜高山帯の*Bradycellus*属の1新種．—— 南アルプスで採集されたヒメゴモクムシの1新種，タカネヒメゴモクムシ*Bradycellus* (*Tachycellus*) *saitoi*を記載した．本種は，わが国から知られている*Tachycellus*亜属のすべての種と，前胸背板の後角が鈍角であること，陰茎先端部が強く屈曲することで容易に識別される．

種名*B. saitoi*は，快く研究材料を提供してくださった斎藤昌弘氏に捧げた．

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Elytra, Tokyo, **25** (1): 155–162, May 15, 1997

Three New Species of the Subgenus *Pseudotrichotichnus* (Coleoptera, Carabidae, Harpalini) from Tropical Asia and New Guinea

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Abstract Three new species of the subgenus *Pseudotrichotichnus* are described from Sri Lanka, Java and New Guinea, respectively. The new species from Java is peculiar in having the body oval and very convex, the frontal impressions not so deep, and the aedeagus triangularly prominent laterad in dorsal view.

Introduction

In this paper, I am going to describe three new species of the subgenus *Pseudotrichotichnus* Habu of the genus *Trichotichnus* Morawitz, *Trichotichnus* (*Pseudotrichotichnus*) *hiekei* from Sri Lanka, *T.* (*P.*) *notabilis* from Java, and *T.* (*P.*) *subcordicollis* from New Guinea. *Trichotichnus* (*P.*) *hiekei* is different from *T.* (*P.*) *lamprus* (Bates, 1886) in having the body smaller and the pronotum weakly sinuate at the sides before base instead of being straight. *Trichotichnus notabilis* is peculiar in the body oval-shaped, the frontal impressions somewhat shallow, and the aedeagus triangularly prominent laterad. *Trichotichnus* (*P.*) *subcordicollis* is distinguishable from *T.* (*P.*) *piceus* N. Ito, 1991 by the pronotum not smooth and the elytral intervals deeper.

I wish to express my deep gratitude to Dr. Fritz Hieke of the Museum der Humboldt-Universität zu Berlin, Dr. Lothar Zerche of the Deutsches Entomologisches Institut, Eberswalde, and Dr. Fritz Gusenleitner of the Landesmuseum, Linz, for their kindly offering many valuable materials. I heartily thank Mr. Taichi Shibata for his kind guidance.

Trichotichnus (*Pseudotrichotichnus*) *hiekei* N. Ito, sp. nov.

(Figs. 1, 4 & 6)

Body rather narrowly oblong, pitchy black or slightly brownish, shiny, not iridescent, with slightly aeneous tinge on pronotum and elytra; palpi, antennae and legs yellowish brown, labrum and clypeus dark reddish brown, mandibles blackish brown.

Head wide, more than three-fourths the pronotal width (0.78 in ratio), well convex, very sparsely and microscopically punctate, with several vague and longitudinal rugosities near each setiferous pore on clypeus; labrum weakly arcuate-sided, widely notched at apex; clypeus shallowly depressed between the pores, weakly raised behind



Figs. 1–3. Habitus of *Trichotichnus* spp. —— 1, *T.* (*Pseudotrichotichnus*) *hiekei* N. Ito, sp. nov.; 2, *T.* (*P.*) *notabilis* N. Ito, sp. nov.; 3, *T.* (*P.*) *subcordicollis* N. Ito, sp. nov.

the depression, rather deeply emarginate at apex, deeply sutured with frons; frontal impressions abruptly divergent behind, reaching supraorbital grooves, deeper than the suture; eyes not large, relatively prominent, but not hemispherical; temples more or less developed, about one-third the eye length, rather steeply contracted behind; space between genuine ventral margin of eye and buccal fissure relatively wide; mandibles short and robust, vertically truncate at tips; antennae slender, short, not surpassing pronotal base, 3rd segment pubescent in apical two-thirds, as long as the 4th and a half longer than the 2nd; labial palpi rather short, 3rd segment more or less tumid, one-fourth longer than the 2nd; ligula narrow, weakly contracted forwards behind truncate apex; paraglossae large, fully prolonged forwards beyond ligula, free from it in the contracted portion; median tooth of mentum narrow, blunt at tip, epilobes slim, parallel at sides; submentum completely sutured with mentum, bisetose at each side; microsculpture mostly invisible, partly observable as vague isodiametric meshes on clypeus and frons.

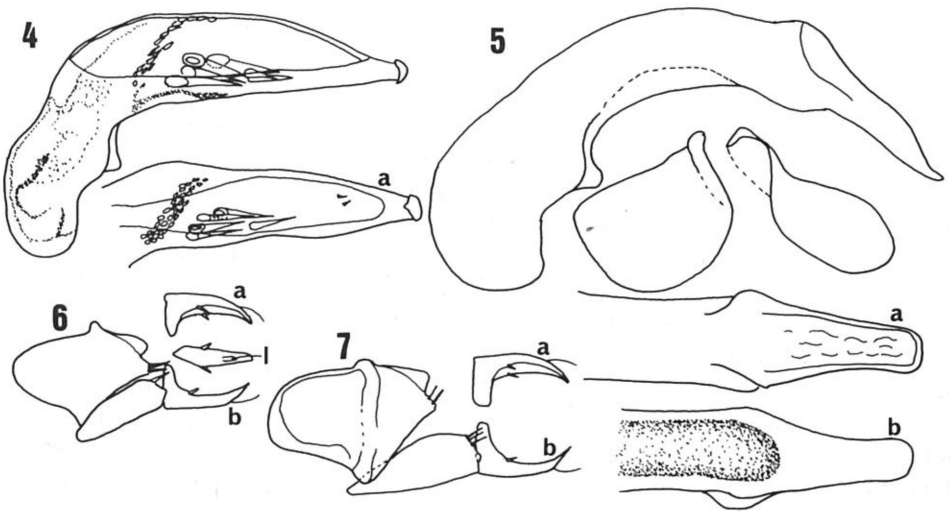
Pronotum subcordate, widest at apical two-fifths, a little more than one and one-third as wide as long (1.36–1.38 in ratio), flat on disc, relatively declivous apico-laterad, centrally smooth, sparsely and moderately punctate in medio-apical area, finely so in latero-apical area, and moderately and coarsely so in basal area, the basal punctures interrupted in the middle; sides clearly arcuate in front and almost straightly oblique behind from the widest point, somewhat deeply sinuate before base; apex truncate, unbordered medially; base one-sixth wider than apex, feebly oblique at sides, finely and entirely bordered; apical angles not produced, narrowly rounded; basal angles a little larger than rectangle, angularly rounded, edentate at tips; lateral furrows

wholly engraved in a line, isolated from basal foveae which are small, shallow and longitudinally elliptical; front transverse impression vague, but not obliterated like the hind one; median line fine and shallow, reduced behind apex and before base; microsculpture invisible under 80× magnification.

Elytra subovally oblong, a little more than a half longer than wide (1.53–1.56 in ratio), well convex, without punctures; sides gently curved at humeri, gradually strongly contracted behind from apical two-fifths, rather deeply sinuate before apices which are weakly prominent, narrowly rounded at tips and with angulate sutural angles; base shallowly emarginate, very obtuse and angulate at humeral angles; striae rather wide, finely crenulate, scutellar striole not long; intervals weakly convex on disc, becoming more convex laterad and apicad, 3rd interval with a setiferous pore a little behind middle; marginal series interrupted in middle, composed of (10–11)+(9–11) umbilicate pores; microsculpture invisible under 80× magnification. Hind wings entire.

Ventral surface almost smooth, very sparsely and vaguely punctate on pro-, meso- and metepisterna and laterally on metasternum, sparsely furnished with very short pubescence on prosternum and along middle of 2nd to 6th abdominal segments; metepisternum strongly narrowed behind, one-fourth longer than wide; 6th abdominal segment bisetose in both sexes on each side, truncate in ♂ and weakly arcuate in ♀ at apical margin.

Mid tarsus sparsely short-setose along fore margin and quadrisetose along hind margin, 1st segment in ♂ without adhesive hairs, hind tarsus trisetose along hind margin, 1st segment in ♂ three-tenths shorter than the width of head including eyes, as



Figs. 4–7. Genitalia of *Trichotichnus* spp. —— 4 & 6, *T.* (*P.*) *hiekei* N. Ito, sp. nov.; 5 & 7, *T.* (*P.*) *notabilis* N. Ito, sp. nov.; 4–5, male genitalia; 6–7, female genitalia; a, dorsal view; b, ventral view; l, lateral view.

long as the 2nd and 3rd together and two-thirds longer than the 2nd, 4th four-fifths the 3rd, claw segment bi- or trisetose along each ventral margin.

Aedeagus (Fig. 4) more or less robust, straightly prolonged, rather thinly knob-shaped at apex; apical orifice large, directed dorso-laterad, inner sac armed with small sclerites near apex and with several long peg-shaped ones near middle; ventral side unbordered, longitudinally raised. Stylus (Fig. 6) moderately curved, with a small spine at basal third of each external margin.

Length: 6.9–8.3 mm. Width: 2.9–3.4 mm.

Holotype: ♂, Ceylon. NIETNER leg. (preserved in the Museum of Humboldt University). Paratype: 1 ♀, same data as the holotype.

This new species is distinguished from *Trichotichnus* (*Pseudotrichotichnus*) *lamprus* (BATES) by the body smaller in length, the pronotum narrower and sinuate before base instead of being straight, and the aedeagus bearing three sclerites in the inner sac instead of single one.

Trichotichnus* (*Pseudotrichotichnus*) *notabilis N. ITO, sp. nov.

(Figs. 2, 5 & 7)

Body oblong-oval, thickened, black, shiny, not iridescent even on elytra; palpi and antennae light brown, lateral margins of pronotum and legs reddish brown.

Head well convex, wide, about four-fifths times the pronotal width, not punctate; labrum transversely subtrapezoidal, with a small blunt notch at apex; clypeus weakly swollen, subtruncate apically, possessing one or two obscure longitudinal rugosities near each side in the holotype and several coarse rugosities throughout in the paratype; clypeus deep even in middle, slant in front; frontal impressions also deepened, slightly deeper in the paratype than in the holotype, reaching supraorbits, front triangular space almost flattened in the holotype and rather raised in the paratype; eyes large and well prominent, but not hemispherical; interocular space wide, about seven-tenths the width of head including eyes; temples short, steeply contractd behind and forming on each side an obtuse and blunt angle with neck constriction; space between buccal fissure and genuine ventral margin of eye more or less wide, equal in width to that of *T. birmanicus* BATES; mandibles short and stout, blunt at apices; antennae short, not passing pronotal base, 3rd segment moderately thickened distad, pubescent in apical three-fifths, as long as the 4th and three-fifths longer than the 2nd; labial palpi somewhat slender and rather long, 3rd segment equal in length to 2nd, sparsely with long pubescence; ligula parallel-sided, abruptly dilated in front from apical fifth, truncate at apex; paraglossae not wide and produced a little forwards beyond ligula, separated from ligula by narrow and deep notches; mentum deeply emarginate, clearly sutured with submentum, median tooth elongate and isosceles-triangular, rounded at tip, epilobes weakly expanded apicad; surface mostly not microsculptured, with vague isodiametric sculpture partly on clypeus and with some transverse ones near supraorbital pores.

Pronotum subcordate, three-tenths to two-fifths wider than long, comparatively

well convex, the convexity strong and approaching baso-laterally, smooth in most part, sparsely and minutely punctate only in basal area, widest at apical third; sides gently arcuate in front and straightly oblique behind from apical two-fifths; apex uniformly emarginate, with the border fine and interrupted in middle; base almost equal in width to apex, feebly bisinuate, weakly arcuate at sides, unbordered in middle; apical angles narrowly rounded; basal angles a little larger than rectangle, bearing a tiny blunt protuberance at each tip; lateral furrows narrow, weakly widened behind; basal foveae longitudinally oblong and small, shallowly impressed on inclined area of the discal convexity, far apart from the furrows; front transverse impression almost evanescent in the holotype and shallowly engraved in the paratype, the hind one invisible; median line fine and clear medially, extending to near apex and base; microsculpture obscure, observable as transverse lines on disc and as transverse meshes in basal and apical areas.

Elytra oval, widest almost at middle, two-fifths longer than wide, rather steeply declivous laterad and apicad, without punctures; sides gently arcuately widened from humeri to the widest point, from there gradually strongly curved inwards and shallowly sinuate before apices; bases gently oblique at sides, humeral angles much wider than rectangle and angulate, edentate at tips; apices not produced behind in the holotype and more or less produced in the paratype, not widely rounded and narrowly separated from each other at tips; striae fine and relatively shallow, finely crenulate, scutellar striole long and reaching 1st striae; intervals weakly convex in most areas, fully raised apico-laterally, dorsal pore lacking on 3rd interval; marginal series interrupted medially, composed of (7–9)+(9–10) umbilicate pores; microsculpture fine and clear, composed of compact transverse lines. Hind wings half reduced.

Ventral surface obscurely and very sparsely punctate on prepisterna, laterally on metasternum and on metepisterna; metepisternum not elongate, weakly contracted behind, and as long as wide; abdomen sparsely ciliate on intercoxal area of 2nd segment, 6th unisetose in ♂ and bisetose in ♀ on each side, entirely bordered and gently arcuate in ♂ and a little more strongly arcuate in ♀ at apex.

Hind femur bisetose along hind margin; 1st segment of mid tarsus in ♂ biseriately squamous only near apex, hind tarsus in ♂ seven-tenths times and in ♀ about two-thirds times the width of head, 1st segment one-sixth shorter than the 2nd and 3rd together and a half longer than the 2nd, 3rd one and four-elevenths times the 4th, claw segment tri- or quadrisetose along each ventral margin.

Aedeagus (Fig. 5) arcuate and gradually tapered towards apex, apex not thickened and weakly reflected dorsally at tip; dorsal side crocodile-shaped, humped laterally at apical third of both sides, apical orifice opened to near apical margin, inner sac without armature; ventral side also bearing a gentle hump at each side, widely depressed from apical third to behind basal orifice. Stylus (Fig. 7) slender, gently arcuate, sharpened apicad, with a single short seta at dorso-external margin and somewhat internally at ventro-external margin, respectively, a seta before apex not long; valvifer bisetose at apex.

Length: 8.1–8.3 mm. Width: 3.5 mm.

Holotype: ♂, Java, BURMEISTER leg. (preserved in the Museum of Humboldt University). Paratypes: 1 ♀, Java, BURMEISTER leg. (Hist.-Coll., Nr. 3454), 1 ♀, Java (without further data).

This new species bears more or less deepened frontal impressions, but the impressions are a little shallower than those in the usual species of the subgenus *Pseudotrichotichnus*. A half reduced wings are also rare in the subgenus. Furthermore, the male genitalia is peculiar in having the humps in the middle.

This species is easily distinguished from the others of the subgenus by the lustre of the body not pitchy, the elytra not iridescent and the metepisterna not long, in addition to the characteristics mentioned above.

Trichotichnus* (*Pseudotrichotichnus*) *subcordicollis N. ITO, sp. nov.

(Figs. 3, 8)

Body oblong, pitchy black and very slightly aeneous-tinged, shiny, with hardly iridescent lustre on elytra; palpi and antennae reddish brown, lateral margins of pronotum and legs dark reddish brown.

Head wide, three-fourths as wide as the pronotal width, rather convex, flattened from frons to clypeus, with fine punctures very sparsely scattered; labrum subsquare, produced at apical corners; clypeus clearly emarginate at apex, vaguely and transversely depressed along middle; clypeal suture rather deeply carved; frontal impression arcuately running to supraorbital groove from each end of the suture and more deeply engraved, space in front of the impression weakly raised; eyes relatively prominent, but not hemispherical; temples short, about one-tenth the eye length; genuine ventral margin of eye more or less widely separated from buccal fissure; mandibles short and thick, vertically truncate at apex of right one; antennae submoniliform, short, not extending to pronotal base, 3rd slightly shorter than the 4th (0.93 in ratio) and three-fifths longer than the 2nd; labial palpi slender, 3rd segment almost as long as the 2nd; ligula slim, weakly converging distad, truncate at apex; paraglossae wide, fully produced beyond ligula, fused with it to just before its apex; mentum rather deeply concave, median tooth not large, epilobes parallel-sided; microsculpture mostly invisible, obscurely observable as isodiametric meshes on clypeus and as broken transverse meshes near frontal impressions.

Pronotum subquadrate, widest at apical two-fifths, about two-fifths wider than long, almost flat on disc, gently declivous apico-laterad, with dorsal punctures very sparse and fine on disc, somewhat denser in front transverse impression and a little coarser and denser in lateral furrows and basal foveae; sides clearly arcuate in front and straightly oblique behind from the widest point, feebly sinuate before base; apex gently emarginate, almost straight at the bottom of the emargination, with the border interrupted at middle; base one-fourth wider than apex, hardly bisinuate, unbordered in medial fifth; apical angles more or less narrowly rounded; basal angles obtuse and angulate; lateral furrows narrow, weakly widened behind, linked with basal foveae; basal

foveae small, each isolated from lateral border by a slight swell; front transverse impression obscure, but not obliterated like the hind one; microsculpture partly visible and very vague, consisting of transverse meshes.

Elytra oblongo-elliptical, three-fifths longer than wide, well convex, abruptly sloping latero-apicad, with microscopic punctures very sparsely scattered; sides widely arcuate at humeri, shallowly sinuate before apices which are not produced, narrowly rounded at tips, blunt at sutural angles; bases shallowly emarginate, with humeral angles angulate and fully wider than rectangle; striae deep, finely crenulate, 9th stria with a short and weak keel before apical sinus, scutellar striole fairly long; intervals almost flat on disc, becoming weakly convex laterad and apicad, a dorsal pore on 3rd interval situated just behind middle; marginal series interrupted in middle, composed of (9–10)+10 umbilicate pores; microsculpture invisible under 80× magnification. Hind wings entire.

Ventral surface mostly smooth, sparsely and obscurely punctate on metepisterna and laterally on metasternum, covered with short pubescence medially on metasternum; metepisternum elongate, twice as long as wide; 6th abdominal segment bisetose on each side, truncate at apex.

Hind femur bisetose along hind margin; fore tibia slender, truncate at apex, longitudinally sulcate on dorsal side, bispinous apico-externally, terminal spur short, robust and simple; mid tarsus in ♂ biseriately squamous ventrally in 2nd to 4th segments, hind tarsus two-thirds shorter than the width of head including eyes, 1st segment a little shorter than the 2nd and 3rd together (0.85 in ratio), 2nd one-tenth longer than the 3rd and one and five-sixths the 4th, claw segment bisetose at each ventral margin.

Aedeagus (Fig. 8) robust and gently curved, weakly constricted before tip which is knob-shaped; apical orifice wide, directed to the left, inner sac armed with two

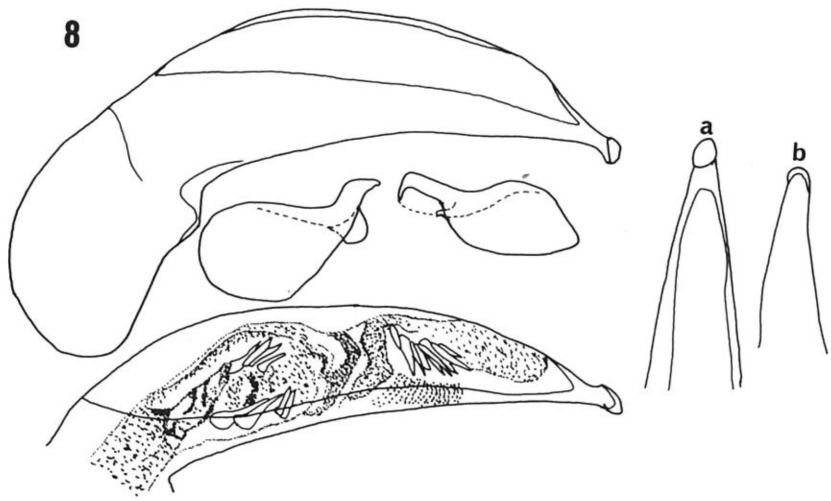


Fig. 8. Male genitalia of *T.* (*P.*) *subcordicollis* N. Ito, sp. nov.; a, dorsal view; b, ventral view.

groups of sclerites near basal bulb and another group near apex; ventral side unbordered, longitudinally raised.

Length: 10.9 mm. Width: 4.5 mm.

♀Unknown.

Holotype: ♂, 1,570 m, Berg, Sepik, New Guinea, XI–1910, Prof. L. SCHULTZE leg. (preserved in the Museum of Humboldt University). Paratype: 1 ♂, same data as the holotype.

This new species is allied to *Trichotichnus* (*Pseudotrichotichnus*) *piceus* N. ITO, but is easily distinguished from the latter by the eyes more prominent, the pronotum not smooth, and the elytral striae deeper.

要　約

伊藤　昇：熱帯アジアおよびニューギニア産*Pseudotrichotichnus*亜属の3新種．—— Sri Lanka, Javaおよび New Guineaから，*Trichotichnus* (*Pseudotrichotichnus*) *hiekei*, *T.* (*P.*) *notabilis*および*T.* (*P.*) *subcordicollis*をそれぞれ記載した．*T.* (*P.*) *notabilis*は，体形が卵形で，前頭溝がこの亜属の通常の種に比べてやや浅く，かつ雄交尾器の陰茎中央部が側方に膨らむ点で特異である．

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Elytra, Tokyo, **25** (1): 163–167, May 15, 1997

A New Macrocephalic Pterostichine (Coleoptera, Carabidae) from Central Japan

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Abstract A new macrocephalic pterostichine carabid is described from Mt. Ena-san, Central Japan, under the name of *Pterostichus todai*. It is related to *P. uedaorum* MORITA et HIRASAWA, but differs from it mainly in the shape of pronotum and aedeagus.

The first specimens of a new species to be described herein were discovered by the second author in 1983 on Mt. Ena-san, Central Japan. The pterostichine was then known from only two females and not determined satisfactorily, though it seemed possibly to belong to a new species. It was then much hoped that further collectings would yield male specimens indispensable for final determination. Quite recently, two males of the same species were obtained on the same mountain, and based on this rediscovery, we have now cleared up the long-pending problem, as will be described in this paper.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the mid-line; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; FL – length of metafemur; ML – length of metatrochanter; TL – length of hind tarsus; M – arithmetic mean; H – holotype of *P. todai*; NSMT – National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the original manuscript of this paper. My thanks are also due to Messrs. Youichi TODA for supplying me with important material, and to Mr. Michiaki HASEGAWA for his kind help.

Pterostichus todai MORITA et KANIE, sp. nov.

[Japanese name : Ena-ôzu-naga-gomimushi]

(Figs. 1–7)

Length: 14.2 mm in H, 15.1–16.9 mm in 3 ♀♀ (from apical margin of clypeus to apices of elytra). Colour dark brown; appendages more or less lighter than dorsum. Body flat and elongate.

Head very large, usually a little narrower than pronotum; PW/HW 1.08 in H, 1.14 in 1 ♂, 1.05, 1.06 in 2 ♀♀, rarely a little wider than pronotum, 0.98 in 1 ♀; frontal furrows short, shallow and almost parallel; eyes entirely flat and small; genae strongly convex; lateral grooves short, deep and straight; additional groove situated a little outside lateral groove and joining posterior end of lateral groove on each side; anterior supraorbital pores situated a little before the post-eye level in H; posterior ones situated a little inside posterior end of lateral groove in H, or at the end of lateral groove; mentum tooth bifid and with a pair of setae; mentum with an oblique groove and a small pit on each side; small rounded pit situated on each side at the meeting point of

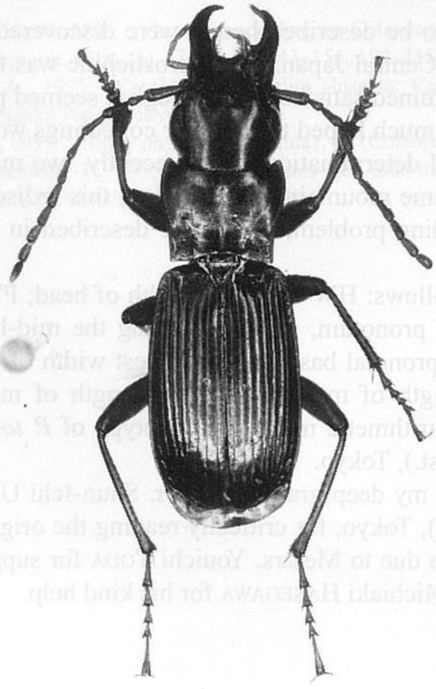


Fig. 1. *Pterostichus todai* MORITA et KANIE, sp. nov., ♂ from the Misaka-tôge.

gular suture and basal margin of submentum; submentum with two pair of setae on each side; mandibles very long and strongly hooked at apices; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI ≒ 1 : 0.44 : 0.80 : 0.72 : 0.76 : 0.75 : 0.71 in H, 1 : 0.42 : 0.74 : 0.65 : 0.72 : 0.69 : 0.65 in 1 ♀; microsculpture composed of irregular meshes but partially disordered.

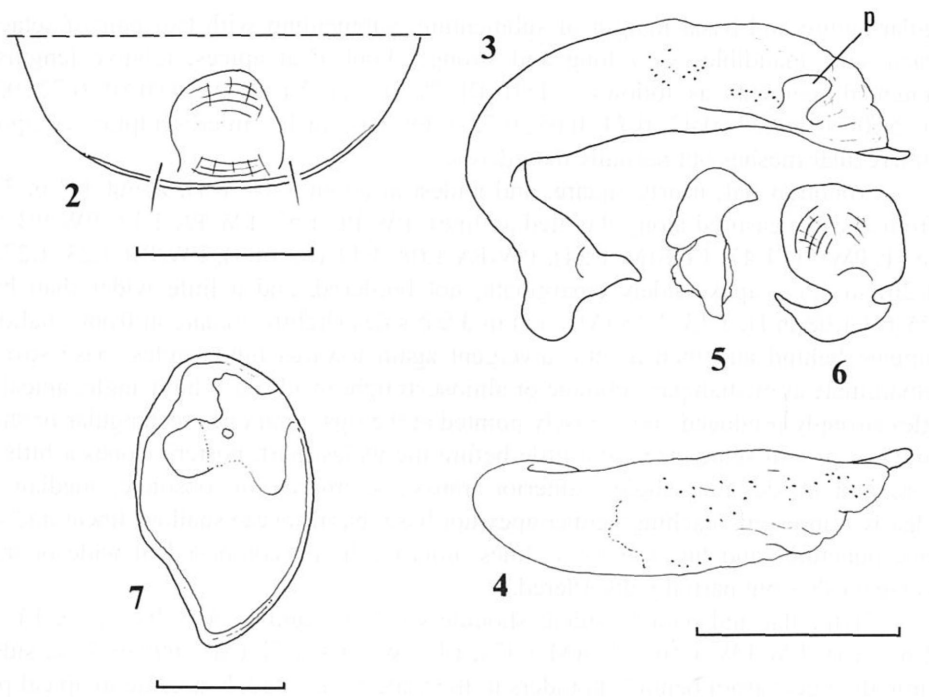
Pronotum flat, nearly square, and widest at about 1/10 in H, about 1/7 in 3 ♀♀ from apex (measured along the median line); PW/PL 1.52, PW/PA 1.13, PW/PB 1.22 in H; PW/PL 1.47–1.60 (M 1.54), PW/PA 1.08–1.11 (M 1.09), PW/PB 1.23–1.27 (M 1.26) in 3 ♀♀; apex widely emarginate, not bordered, and a little wider than base; PA/PB 1.08 in H, 1.13–1.18 (M 1.15) in 3 ♀♀; sides slightly arcuate in front, shallowly sinuate behind and then a little divergent again towards hind angles; base strongly emarginate at median part, oblique or almost straight inside each hind angle; apical angles strongly produced and obtusely pointed at the tips; hind ones rectangular or sharp; anterior pair of setae inserted a little before the widest part, posterior ones a little before and inside hind angles; anterior transverse impression obsolete; median line clearly impressed, reaching neither apex nor base; basal foveae shallow, linear and with fine punctures and fine transverse lines; microsculpture composed of wide or transverse meshes but partially disordered.

Elytra flat and parallel-sided; shoulders rather angulate; EW/PW 1.20, EL/EW 1.62 in H; EW/PW 1.16–1.18 (M 1.17), EL/EW 1.64–1.72 (M 1.69) in 3 ♀♀; sides a little divergent from behind shoulders to the widest part, widely arcuate in apical parts and with shallow preapical emargination; epipleuron gradually narrowed towards apex; inner plica visible; apices separated from each other; apex sharp in H, rarely dentate; basal border moderately arcuate; basal pore situated at the proximal end of stria 1; intervals slightly convex; striae smooth; scutellar striole very short in H, situated on interval 1, and usually joining stria 1, rarely free at the apical end; anterior dorsal pore situated at about middle on stria 2, and posterior one situated at about 4/5–17/20 from base on stria 2; additional pore situated at 1/5–1/3 from base on interval 3 and close to stria 2; marginal series composed of 6+5 pores on the right elytron and of 6+6 pores on the left elytron in H, 6+1+6 in 1 ♂ and 2 ♀♀; microsculpture composed of polygonal meshes, partially disordered or obliterated.

Genae smooth on ventral side; prepisternum, mesepisternum, sides of metasternum, metepisternum and sides of sternites 1 sparsely and finely punctate in ♂, rarely coarsely so in ♀; anal sternite in ♂ deeply and widely excavated between a pair of seta, in ♀ widely depressed between two pair of setae.

Legs slender; tarsi smooth on dorsal side; TL/HW 1.03 in H, 0.86–0.99 (M 0.94) in 3 ♀♀; in ♀, ventral sides of protarsi without adhesive hairs (cf. HABU, 1961, pp. 10–11); protibiae slightly bowed; metatrochanter short and with rounded apex; ML/FL 0.42 in H, 0.41–0.43 (M 0.42) in 1 ♂ and 3 ♀♀.

Aedeagus elongate and strongly bent at basal third; viewed laterally, apical part with a plate which is poorly sclerotized (cf. Fig. 3–p) and situated at the proximal end of apical orifice; apical lobe produced upwards in lateral view; viewed dorsally, apical



Figs. 2–7. *Pterostichus todai* MORITA et KANIE, sp. nov., ♂ from the Misaka-tôge. —— 2, Anal sternite; 3, aedeagus, left lateral view; 4, aedeagus, dorsal view; 5, right paramere, left lateral view; 6, left paramere, left lateral view; 7, genital segment, dorsal view. —— p, poorly sclerotized plate. (Scale: 2 mm.)

lobe inclined to the right; right paramere robust, strongly bent at apical third, and with pointed apex; left one wide.

Type series. Holotype: ♂, 19~26–VIII–1996, Misaka-tôge, Achi-mura, Y. TODA leg. (NSMT). Allotype: ♀, 1–IX–1983, Misaka-tôge, Nakatsugawa-shi, N. KANIE leg. Paratypes: 1 ♀, 1–IX–1983, Misaka-tôge, Nakatsugawa-shi, N. KANIE leg.; 1 ♀, 19~26–VIII–1996, Misaka-tôge, Achi-mura, Y. TODA leg.; 1 ♂, 4–X–1996, Misaka-tôge, Achi-mura, N. KANIE leg.

Type locality. Misaka-tôge, about 1,600 m alt., at the northeastern side of Mt. Ena-san, on the borders between Achi-mura, Nagano Prefecture, and Nakatsugawa-shi, Gifu Prefecture, Central Japan.

Notes. This new species is closely allied to *Pterostichus uedaorum* MORITA et HIRASAWA (1996, p. 27). It is, however, distinguished from the latter by the following points: 1) pronotum nearly square (PW/PB 1.22 in H); 2) elytral apices sharp or dentate; 3) in ♂, anal sternite with a deep and wide concavity; 4) aedeagus more elongate; 5) apical lobe of aedeagus produced upwards in lateral view, and 6) right paramere with pointed apex.

要　　約

森田誠司・蟹江　昇：中部日本産のオオズナガゴミムシの1新種．—— 恵那山の北東に位置する神坂峠から発見された1新種，エナオオズナガゴミムシ *Pterostichus todai* を記載した．この新種はウエダオオズナガゴミムシ *P. uedaorum* に近縁であるが，前胸背板の外形が四角形に近いこと，翅端が尖ること，陰茎が細長く先端部が上を向くこと，および右側片先端が尖ることで容易に区別される．

種名 *P. todai* は，快く研究材料を提供してくださった，戸田羊一氏に捧げた．

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Elytra, Tokyo, **25** (1): 167, May 15, 1997

Occurrence of *Badister* (*Baudia*) *vittatus* BATES (Coleoptera, Carabidae) in Southwest Japan

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Examining the carabid collection made by Mr. KIMURA, a friend of mine, I have found a species unrecorded from Southwest Japan. It agrees with *Badister* (*Baudia*) *vittatus* BATES known from only five specimens collected in Central and North Japan. Its collecting data are as follows:

1 ♂, 3 ♀♀, Kin, Kin-chô, Is. Okinawa-hontô, 6–VII–1995, M. KIMURA leg.

I am thankful to Mr. Masaaki KIMURA for his kindness in giving me the opportunity of studying the specimens.

Elytra, Tokyo, **25** (1): 168, May 15, 1997

New Replacement Name for *Bradycellus insularis* MORITA (Coleoptera, Carabidae)

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Bradycellus (*Tachycellus*) *insularis* MORITA (1993, p. 323) is a large species endemic to the Island of Takara-jima, off southern Kyushu, Southwest Japan. Recently, Mr. JAEGER informed me that the name "*insularis*" was preoccupied by *Bradycellus insularis* REICHARDT (1976, p. 202), from the Galapagos Islands. Therefore, I propose herewith a new replacement name.

Bradycellus* (*Tachycellus*) *jaegeri nom. nov.

Bradycellus (*Tachycellus*) *insularis* MORITA, 1993, *Elytra, Tokyo*, **21**: 323–326, figs. 1–8.
[Nec *Bradycellus insularis* REICHARDT, 1976, Miss. zool. belg. Galapagos Ecuador, Rés. scient., Tervuren, **3**: 202–203, fig. 12.]

In writing this short report, I am deeply indebted to Dr. Shun-Ichi UÉNO for reading the manuscript. I wish to express my cordial thank to Mr. B. JAEGER for informing me of the above homonymy and giving me the opportunity to propose a new replacement name. My thanks are also due to Mr. D. W. WRASE and Mr. Noboru ITO for their kind help.

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Elytra, Tokyo, **25** (1): 169–173, May 15, 1997

A Remarkable New *Pterostichus* (Coleoptera, Carabidae) from Shikoku, Southwest Japan

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and

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Abstract A remarkable new pterostichine carabid beetle is described from Shikoku, Southwest Japan, under the name of *Pterostichus* (*Pterostichus*) *tosanus* sp. nov. It is found under rock debris in the gullies on mountains, and seems very rare.

In the autumn of 1986, the junior author happened to collect a strange pterostichine carabid beetle on Okuminagawa-yama, a head on the southeastern branch of the Ishizuchi Mountains, in Kôchi Prefecture of the Island of Shikoku, Southwest Japan. It was a single female, though clearly discriminated from any of the known pterostichine species in its peculiar facies and must be new to science. Since then he often looked for the male of this species at various places of the island, but was unable to obtain additional specimens. Nine years later, late in the summer of 1995, he at last succeeded in obtaining long awaited male of the same species at Kashiyama in Kôchi Prefecture, lying about 27 km distant to the east by south from the first locality.

In this article, the authors are going to describe it under the name *Pterostichus tosanus* sp. nov. The abbreviations used herein are the same as those explained in other papers of the senior author. The holotype is preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes are deposited in the authors' collection.

Before going further, the authors wish to express their deep gratitude to Dr. Shun-Ichi UÉNO, Emeritus Curator of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the manuscript of this paper.

Pterostichus* (*Pterostichus*) *tosanus sp. nov.

[Japanese name: Tosa-nagagomimushi]

(Figs. 1–3)

Description. Length (measured from apex of labrum to apices of elytra): 11.0–

12.3 mm; width 3.7–4.1 mm. Medium-sized, elongate, and rather flat; dark reddish brown, shiny.

Head moderately wide, gently convex; eyes gently convex, though not prominent; postgenae as long as eyes, gently swollen; apices of both labrum and clypeus weakly emarginate; clypeal suture fine, though distinct; frontal furrows deep, linearly impressed at the bottoms, and divergent posteriad; lateral grooves deep, extending to behind the post-eye level; surface very minutely and sparsely punctate; microsculpture hardly visible; antennae long, reaching the middle of elytra, relative lengths of scape and segments 2–6 as follows:— 1 : 0.65 : 1 : 1: 0.9 : 0.9; segment 2 ventrally unisetose at apex.

Pronotum quadrate-cordate, gently convex, widest at apical third; ca. 1.28 times as wide as head (PW/HW 1.24–1.31, mean 1.28), ca. 1.4 times as wide as base (PW/PBW 1.40–1.43, mean 1.41), ca. 1.24 times as wide as long (PW/PL 1.20–1.27, mean 1.24); lateral margins evenly and gently arcuate in apical halves, then strongly convergent posteriad, and sinuate before base; apical margin distinctly emarginate, apical angles rather acutely produced, though blunt at the tips; basal margin emarginate at median part, almost straight on each side, basal angles rectangular; median line deep, posterior extremity reaching the basal margin; basal foveae deep, linearly impressed at the bottoms, almost parallel to each other, smooth or vaguely punctate; apical transverse impression rather distinct, basal one obsolete; surface smooth, though the basal part often bears transverse wrinkles; microsculpture invisible.

Apterous. Elytra elliptical, flat on the disc, widest a little behind the middle, ca. 1.25 times as wide as pronotum (EW/PW 1.24–1.26, mean 1.25), ca. 2.6 times as long as pronotum (EL/PL 2.56–2.64, mean 2.60), ca. 1.67 times as wide as base (EW/EBW 1.63–1.76, mean 1.67), as long as wide in almost the same proportion (EL/EW 1.66–1.71, mean 1.68); basal border complete, obliquely extending to shoulder, and joining lateral border at an obtuse but distinct angle; shoulders rounded; lateral margins gently divergent from behind shoulders to the widest level, then roundly convergent posteriad, preapical emarginations rather distinct, apex of each elytron rounded; scutellar striole absent; intervals gently convex; interval 3 with three dorsal pores, anterior one adjoining stria 3 at basal fourth, while posterior two adjoin stria 2 at about middle and apical fifth, respectively; marginal series of pores 13–14 in number, widely spaced at middle; microsculpture faintly visible, formed by very fine transverse meshes.

Legs slender; basal three segments of meso-, and metatarsi sulcate on each side. Venter moderately shiny; gula transversely rugose on each side; pro-, meso- and metepisterna, and abdominal sternie 1 punctate; sternites 2–5 vaguely rugged and punctate on each side; prosternal process vaguely bordered, and shallowly furrowed at middle; in the male, terminal sternite excavated at middle, apical margin with a wide and trapezoidal projection, which is emarginate at the apex.

Aedeagus strongly bent at an acute angle at basal third, widely tumid at apical third, then straightly extending to apex in lateral view; distinctly curved rightwards at apical fifth in ventral view; inner sac provided with a heavily sclerotized wide copula-

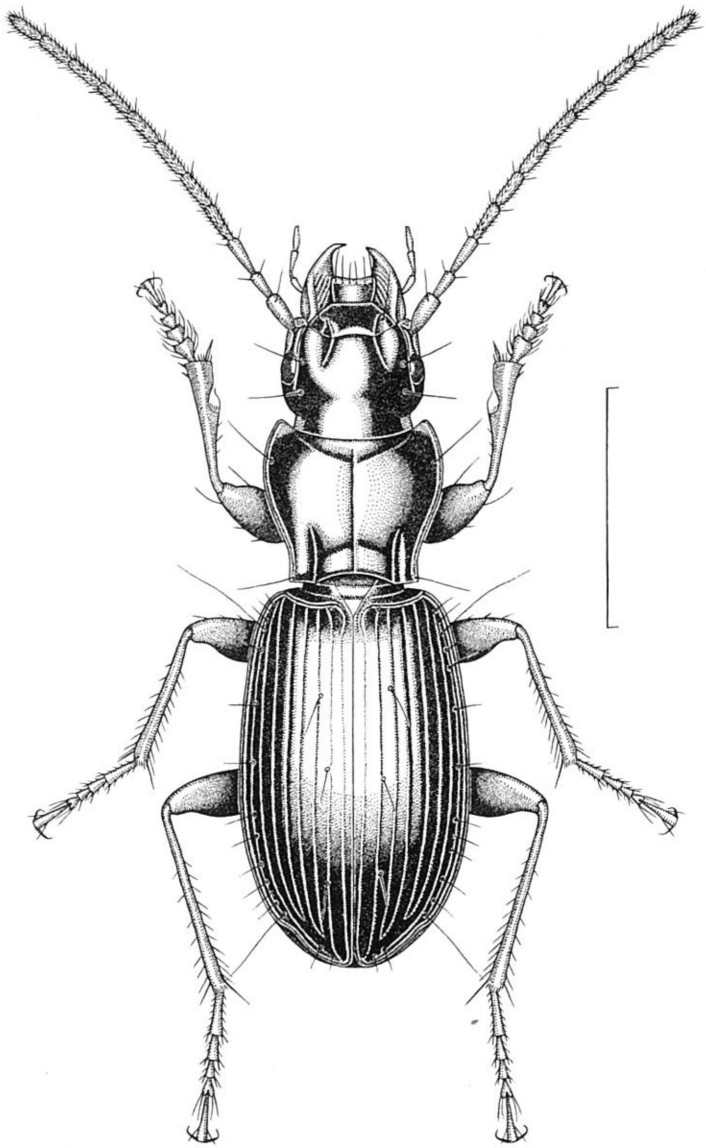

Fig. 1. *Pterostichus* (*Pterostichus*) *tosanus* sp. nov., ♂, from Kashiyama in Kôchi Pref. Scale 4 mm.

tory piece near apical orifice; left paramere wide and square in apical half; right paramere thick, widely rounded at apex.

Type series. Holotype: ♂, Kashiyama (600 m alt.), Tosa-chô, Kôchi Pref., 24–VI–1995, Y. Itô leg. Paratypes: 1 ♂ (teneral), same locality as for the holotype, 14–IX–1995, Y. Itô leg.; 2 ♀♀, same locality, 25–VI–1995, Y. Itô leg.; 1 ♀, Okuminagawa-

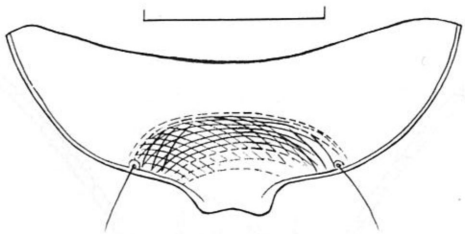

Fig. 2. Terminal sternite in the male of *Pterostichus* (*Pterostichus*) *tosanus* sp. nov., from Kashiyama in Kôchi Pref. Scale 1 mm.

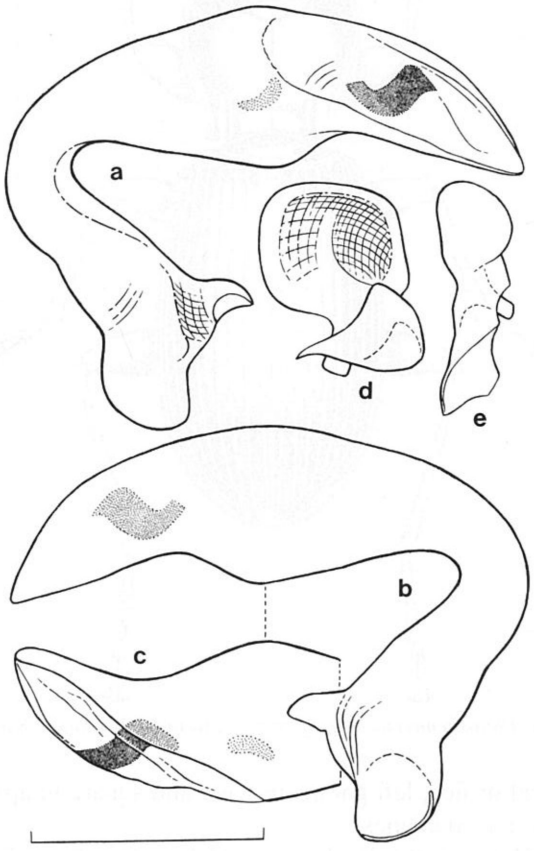

Fig. 3. Male genitalia of *Pterostichus* (*Pterostichus*) *tosanus* sp. nov., from Kashiyama in Kôchi Pref.; a, aedeagus, left lateral view; b, same, right lateral view; c, apical half of the same in ventral view; d, left paramere; e, right paramere. Scale 1 mm.

yama, Hongawa-mura, Kôchi Pref., 22–IX–1986, Y. ITÔ leg.

Notes. This new species seems very rare. All the examples examined were dug out from under rock debris emplaced at the sides of small gullies, and often found in coexistence with *P.* (*Sphodroferonia*) *miyamai* KASAHARA et ITÔ (1987, pp. 139–145), an upper hypogean dweller. Judging from their habitat and from the conformation of aedeagus, the two pterostichine species may have some relationship with each other.

要　約

笠原須磨生・伊東善之：四国産の注目すべきナガゴミムシ属の1新種．——10年ほど前に四国の石鎚山系の山中で発見されたナガゴミムシの1種の雌は，その特徴的な形態から明らかに新種と認められるものであったが，雄が容易には得られなかった．一昨年（1995年），最初の産地から27km東方の山中で，ようやく雄を含む数頭の同種が採集されたので，これらに基づき，トサナガゴミムシ *Pterostichus* (*Pterostichus*) *tosanus* と命名記載した．所見標本は，いずれも小谷のかたわらに堆積した岩礫の下から掘り出されたもので，同時にしばしばシコクヒラタナガゴミムシ *P.* (*Sphodroferonia*) *miyamai* KASAHARA et ITÔ が得られている．生息個所のみならず雄交尾器の構造も似ているので，両種の間にはなんらかの類縁関係があるのかもしれない．

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Elytra, Tokyo, **25** (1): 173–174, May 15, 1997

A New Record of *Hypocaccus lewisii* (Coleoptera, Histeridae) from Urup Island of the Kuril Archipelago

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Key words: Coleoptera; Histeridae; middle Kuril Islands; Russia.

A team of American, Russian and Japanese biologists surveyed the fauna and flora of the

middle Kuril Islands, Russia in August, 1995. As a team member, I collected coleopterans from Urup, Broutona, Chirpoi, Simushir, Ushishir, Ketoi, and Rasshua Islands. *Hypocaccus lewisii*, from Urup, was the only histerid collected in this expedition. This species was previously known from Kyushu, Honshu, Hokkaido, southern Primorsky and southern Sakhalin. This is a new record for the Kuril Islands.

Hypocaccus* (*Hypocaccus*) *lewisii (SCHMIDT)

Saprinus lewisii SCHMIDT, 1890, 53.
Hypocaccus (*Hypocaccus*) *lewisii*: ÔHARA, 1994, 248.

Specimens examined. Kuril Islands. Urup Island. [UR–95–MO–003] 1 ex., 45°51.04′N–149°46.12′E, Otkrytyy Bay (Tokotan-wan in Japanese), under pebbles and rocks along stream, 4–VIII–1995, hand picking, M. ÔHARA leg.; [UR–95–MO–001] 2 exs., 45°51.49′N–149°46.95′E, Otkrytyy Bay, under logs and rocks on the beach, 4–VIII–1995, hand picking, M. ÔHARA leg.; [UR–95–MO–004] 2 exs., 45°51.59′N–149°47.05′E, coastal hills in Otkrytyy Bay, on sand of the hills, 5–VIII–1995, hand picking, M. ÔHARA leg.; [UR–95–PO–017] 8 exs., 45°51.49′N–149°42.67′E, inland coastal margin of Otkrytyy Bay, shore of Tokotan lake, picked from sandy shore, alt. 5 m, 5–VIII–1995, by hand and forceps, N. MINAKAWA leg.; [UR–95–MO–008] 1 ex., 46°12.84′N–150°18.69′E, Novo-Kurylisk Bay (Kinko-wan), near mouth of the Bystraya River, on sand of the shore, 8–VIII–1995, hand picking, M. ÔHARA leg.

Distribution. Japan (Hokkaido, Honshu, Kyushu), Russian Far East (Kuril Islands: Urup Is., Primorsky, Sakhalin). New to the Kuril Islands.

I am grateful to Prof. K. AMAOKA (Hokkaido Univ.), Prof. T. W. PIETSCH (Univ. of Washington: UW), and Dr. V. V. BOGATOV (Far East Branch of the Russian Academy of Sciences, Vladivostok) for their invaluable support and to Messrs. N. MINAKAWA, B. K. URBAIN and P. OBERG (UW) for their kind collaboration during the field works. The work described here was supported in part by the International Program Division and the Biological Science Directorate (Biotic Survey and Inventories Program) of the U. S. National Science Foundation, Grant No. DEB–9505031, Theodore W. PIETSCH, principal investigator; and by the Japan Society for the Promotion of Science, Grant No. BSAR–401, Kunio AMAOKA, principal investigator.

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Elytra, *Tokyo*, **25** (1): 175–180, May 15, 1997

Occurrence of a New Pterostichine Carabid Beetle in the Bôsô Peninsula, Central Honshu, Japan

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Abstract A new pterostichine carabid beetle, *Pterostichus* (*Nialoe*) *isumiensis* sp. nov., is described from the Bôsô Peninsula in Chiba Prefecture, central Honshu, Japan. This is a *Nialoe* species first recorded from the peninsula, and seems much localized and widely isolated in distribution.

It is most unexpected that a pterostichine carabid beetle belonging to the subgenus *Nialoe* of the genus *Pterostichus* occurs in the Bôsô Peninsula of Chiba Prefecture, central Honshu, Japan. None of its relatives have hitherto been known from that peninsular area.

In the late summer to the autumn of 1995, the junior author and the students of the Nature Conservation College, Tokyo, collected a series of specimens of a *Nialoe* species by baited pit-fall traps set on the low hills (less than 80 m alt.) covered with a plantation of cryptomeria and coppice lying at the right side of the River Isumi-gawa, only 7 km distant to the west from the Pacific shore. This seemed to be an exceptional habitat for apterous pterostichine beetles.

This unnamed species may be related to *P.* (*N.*) *yokohamae* NAKANE et STRANEO (1979, pp. 56–57) endemic to the banks of the River Tsurumi-gawa in Kanagawa Prefecture and *P.* (*N.*) *nishiyamai* KASAHARA (1986) widely distributed on the Abukuma Hills in Ibaraki and Fukushima Prefectures. It is, however, widely isolated in distribution from the two species and is evidently different from them in several characteristics. It must be new to science. In this paper, the authors are going to describe it under the name *Pterostichus* (*Nialoe*) *isumiensis* sp. nov. The abbreviations used herein are the same as those explained in other papers of the senior author's.

The holotype to be designated is preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo [NSMT]. The paratypes are

deposited in the same collection, the collection of the Natural History Museum and Institute, Chiba [CBM], and the first author's cabinet.

Before going further, the authors wish to express their sincere thanks to Dr. Shun-Ichi UÉNO, Emeritus Curator of the National Science Museum (Nat. Hist.), Tokyo, for his encouragement and for reading the manuscript of this paper. Thanks are also due to Messrs. Toshiyuki AKAMINE, Masato AMEMIYA, Nozomu FUJII, Tomonari NAKAJIMA and Takashi SUZUKI as well as to Miss Mariko KONNO, all of the Nature Conservation College, Tokyo, for their cooperation in the field research.

This study is a part of the results of the biological survey of Isumi-machi made by the Japan Wildlife Research Center, Tokyo.

Pterostichus* (*Nialoe*) *isumiensis sp. nov.

[Japanese name: Isumi-nagagomimushi]

(Figs. 1–3)

Description. Length (measured from apex of labrum to apices of elytra) 17.9–20.0 mm; width 6.2–6.9 mm. Body stout, black and shiny, labrum, mandibles and appendages dark reddish brown.

Head gently convex; eyes convex, more or less prominent; postgenae shorter than eyes, oblique and gently swollen; apices of both labrum and clypeus gently emarginate; clypeal suture distinct; frontal furrows deep and smooth, linearly impressed at the bottoms, parallel to each other in apical halves, then divergent posteriad in posterior halves and extending to the mid-eye level; supraorbital areas convex; lateral grooves deep, extending to a little behind the post-eye level; surface smooth, though very minutely and sparsely punctate on frons; microsculpture partially and faintly visible, formed by very fine isodiametric meshes; antennae moderately long, reaching the basal third of elytra; relative lengths of scape and segments 2–6 as follows:— 1 : 0.6 : 0.9 : 1 : 0.95 : 0.95; segment 2 plurisetose at apex.

Pronotum cordate, convex, widest at apical third, ca. 1.3 times as wide as head (PW/HW 1.29–1.36, mean 1.33), ca. 1.5 times as wide as base (PW/PBW 1.47–1.55, mean 1.51), ca. 1.35 times as wide as long (PW/PL 1.26–1.38, mean 1.35); lateral margins well arcuate and strongly convergent posteriad, then gently sinuate before base; apical margin gently emarginate, finely bordered on each side, apical angles somewhat produced, rounded at the tips; basal margin narrower than the apical, weakly emarginate at median part, bordered on each side, basal angles rectangular, more or less produced laterad; median line deep; basal foveae deep and smooth, linearly impressed at the bottoms, divergent anteriad in apical halves; both apical and basal transverse impressions shallow; surface smooth, though the basal part bears transverse wrinkles; microsculpture faintly visible, formed by very fine transverse meshes.

Apterous. Elytra elliptical, convex, widest at about middle, ca. 1.2 times as wide as pronotum (EW/PW 1.18–1.25, mean 1.21), ca. 2.6 times as long as pronotum (EL/PL 2.55–2.79, mean 2.62), ca. 1.6 times as wide as base (EW/EBW 1.55–1.68,

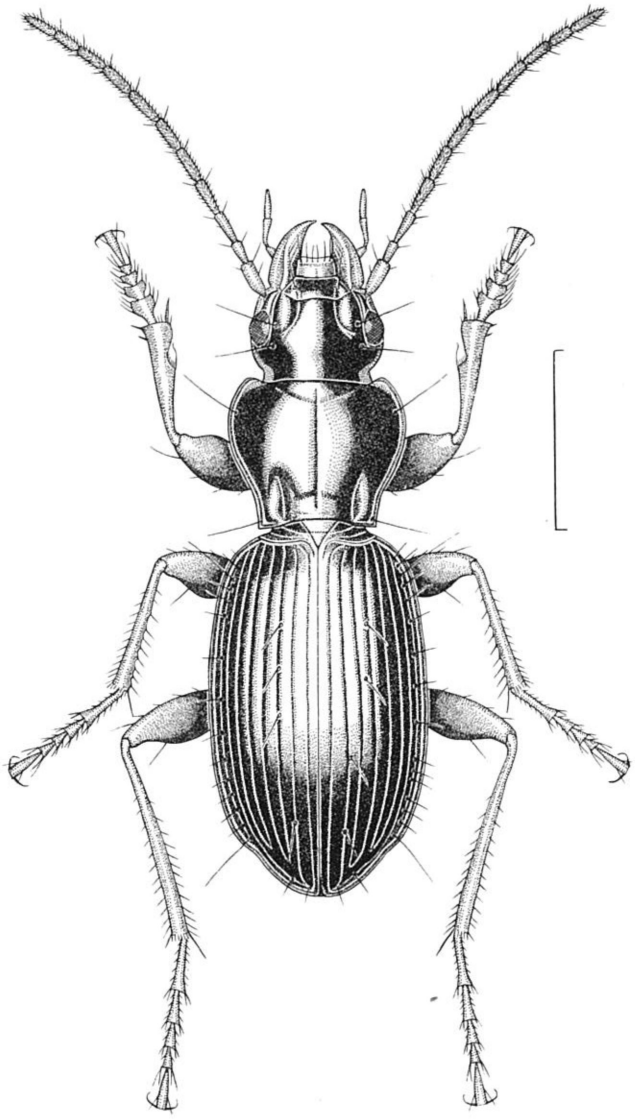

Fig. 1. *Pterostichus* (*Nialoe*) *isumiensis* sp. nov., ♂, from Isumi-machi in Chiba Pref. Scale 5 mm.

mean 1.62), as long as wide in almost the same proportion (EL/EW 1.59–1.69, mean 1.63); basal border complete, gently curved, and obliquely extending to shoulder and joining lateral border at an obtuse but distinct angle; shoulders oblique and widely rounded; lateral margins gently divergent from behind shoulders to the widest level, then roundly convergent posteriad, preapical emarginations rather distinct, apices

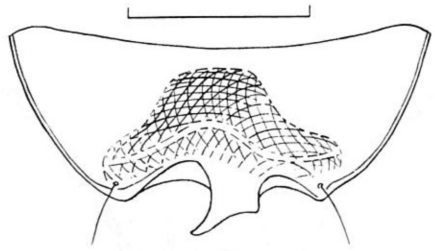

Fig. 2. Terminal sternite in the male of *Pterostichus* (*Nialoe*) *isumiensis* sp. nov., from Isumi-machi in Chiba Pref. Scale 2 mm.

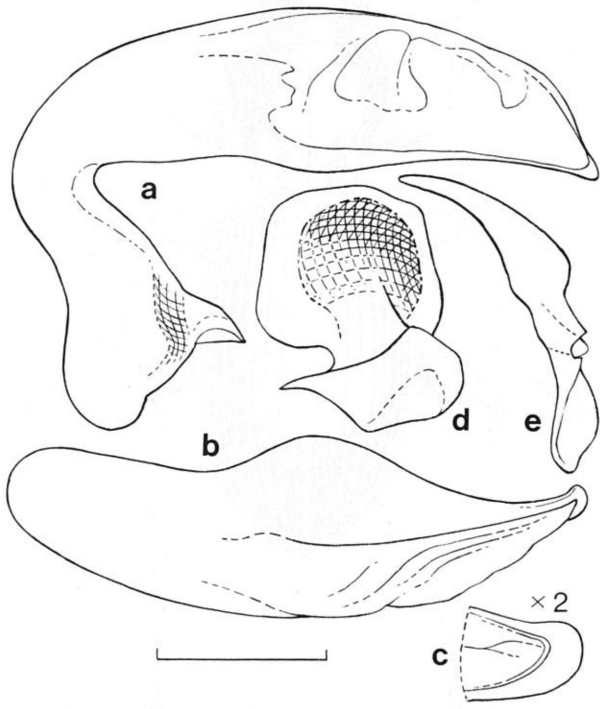

Fig. 3. Male genitalia of *Pterostichus* (*Nialoe*) *isumiensis* sp. nov., from Isumi-machi in Chiba Pref.; a, aedeagus, left lateral view; b, same, dorsal view; c, apical part of the same in dorsal view; d, left paramere; e, right paramere. Scale 1 mm.

rounded, sutural angles obtuse, blunt at the tips; scutellar striole very short, lying on interval 1, and connected with basal border; striae fine and deeply impressed throughout, smooth; intervals gently convex; interval 3 generally with four to five, sometimes with six to seven dorsal pores, anterior one or two, rarely three, adjoining stria 3 at basal fourth to before the middle, the remainings adjoining stria 2, irregularly arranged



Fig. 4. A habitat of *Pterostichus* (*Nialoe*) *isumiensis* sp. nov. in a cryptomeria plantation on Mangi Hill of Isumi-machi, Chiba Prefecture.

from the middle to the preapical part; marginal series of pores 17–18 in number, widely spaced at middle; surface smooth; microsculpture faintly visible, formed by very fine transverse meshes.

Legs slender, basal three segments of meso- and metatarsi externally sulcate. Venter moderately shiny, almost smooth; prosternal process furrowed at middle; in the male, terminal sternite deeply and trapezoidally excavated at middle, apical margin deeply emarginate, and with an asymmetrical projection, whose left angle is very acutely produced latero-posteriad in ventral view.

Aedeagus strongly bent at more than 90 degrees at basal third, then almost straightly extending to apex in lateral view, widely and distinctly tumid at apical third on the right side in dorsal view, apical lobe twice as wide as long, widely rounded at the apex; left paramere wide, square in apical half; right paramere slender, gently arcuate, tapered towards apex.

Type series. Holotype: ♂, Mangi, Isumi-machi, Chiba Pref., 28–IX–1996, S. SAITO *et al.* leg. [NSMT]. Paratypes: 6 ♂♂, 2 ♀♀ [incl. 2 ♂♂, 2 ♀♀ CBM–ZI 72826–72829], same data as for the holotype; 2 ♂♂, 5 ♀♀, same locality, 17–VIII–1996, S. SAITO *et al.* leg.; 1 ♂, same locality, 23–VIII–1996, S. SAITO *et al.* leg.; 1 ♂, 1 ♀, same locality, 14–IX–1995, S. SAITO *et al.* leg.

Notes. The present new species resembles *P.* (*N.*) *yokohamae* NAKANE et STRANEO in general appearance, but is easily discriminated from the latter by smaller body and different configuration of the male genitalia, especially more strongly bent aede-

agus, with the apical lobe more widely rounded at the apex. It is also similar in certain respects to *P.* (*N.*) *nishiyamai* KASAHARA, but is evidently distinguished from the latter by larger body and differently shaped terminal sternite and genitalia in the male. It seems strictly localized to a small hill of the Bôsô Peninsula and can be regarded as a relict. Its occurrence is of considerable zoogeographical importance and poses an interesting problem for future investigations.

要　約

笠原須磨生・斉藤秀生：千葉県房総半島で発見されたナガゴミムシ属の1新種．—— 千葉県の房総半島では，これまで狭義のナガゴミムシ類の記録はなく，半島中央部が低標高の丘陵状山地であり，大部分が杉の植林地や常緑広葉樹林でおおわれていて，ナガゴミムシ類の生息環境に乏しいことから，狭義のナガゴミムシ類は分布していないものと考えられてきた．しかし，1995年夏から翌年の秋にかけて，夷隅川右岸の標高80 m前後の丘陵地で発見採集された一連の個体は，明らかに*Nialoe*亜属に属するナガゴミムシで，新種と認められるので，これをイスミナガゴミムシ*Pterostichus* (*Nialoe*) *isumiensis*と命名記載した．

本種は，神奈川県の鶴見川に生息するヨコハマナガゴミムシ*P.* (*N.*) *yokohamae* NAKANE et STRANEOに近縁で，阿武隈山地に広く分布するアブクマナガゴミムシ*P.* (*N.*) *nishiyamai* KASAHARAとの類縁関係も想定される．とくに，その生息環境は，ヨコハマナガゴミムシとともに，本亜属の種としてはきわめて異例であり，寒冷期の数少ない遺存種のひとつであろうと考えられる．

なお，この研究に用いた資料は，千葉県夷隅町の委託による自然資源調査によって得られたものである．

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New Trechine Beetles (Coleoptera, Trechinae) from the Gaoligong Shan Mountains in Western Yunnan[1)]

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Abstract Three new species of trechine beetles are described from the Gaoligong Shan Mountains near the Myanmar borders of western Yunnan, Southwest China. One of them is tentatively placed in the genus *Stevensius*, though different in certain respects from the typical Himalayan species. The other two are regarded as aberrant derivatives of the *hingstoni* group of *Trechus*, being characterized by reduction in the number of setiferous dorsal pores on the third elytral stria. The new names given are: *Stevensius minutus*, *Trechus asetosus* and *T. unisetiger*.

The Gaoligong Shan Mountains lie at the western end of Yunnan, stretching from north to south for more than 300 km along the western side of the Nu Jiang River, which is the upper course of the Thanlwin (Salween). They are higher in the north on the Myanmar borders, attaining to a height of more than 5,000 m, and mostly exceed 3,000 m in altitude even in the south. Because of their geographical situation, these mountains were closed to foreign scientists until recently, and therefore, their fauna was very poorly known to science except for vertebrate animals.

In the autumn of 1996, a team of zoologists from China and Japan had an opportunity to visit the southern part of this mountain range under my leadership. The expedition was planned as a part of the Sino-Japanese cooperative study on the soil fauna of Southwest China, and covered many places in Baoshan Xian and Tengchong Xian. Unfortunately, however, we were able to climb up to the *Rhododendron* zone of the mountain range only at three points, mainly because of very steep topography and of difficulty in following uncertain trails through impenetrable forests. Contrary to our expectation, our collection cannot be said very rich, but contains very interesting things in many groups of soil-living animals. For instance, the new trechine beetles to be described in the present paper are considerably different from their relatives occurring in the neighbouring areas, and can be regarded as peculiar offshoots of two phylogenetic groups isolated at the southern part of the Gaoligong Shans.

The abbreviations used herein are the same as those explained in previous papers

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of mine. The type specimens to be designated are preserved in the collections of the Shanghai Institute of Entomology, Academia Sinica, Shanghai, and the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, and partly in the Institute of Zoology, Academia Sinica, Beijing.

Before going into further details, I wish to express my heartfelt thanks to Professor YIN Wen-ying and Professor ZHANG Han Yun for their kindness extended to me in the course of this study. Hearty thanks are also due to all the members of the expedition, above all to Dr. Shûhei NOMURA and Mr. ZHAO Lijun, without whose kind help this study could never have been completed.

Stevensius minutus S. UÉNO, sp. nov.

(Fig. 1)

Length: 2.60–2.80 mm (from apical margin of clypeus to apices of elytra).

Recognized at first sight on its small size, presence of two setiferous dorsal pores on elytra whose humeral borders are complete, and absence of external groove on each protibia. Body constricted between prothorax and hind body, fore body small, hind one semispherical. Fore body pitchy black, partially somewhat brownish, polished, with dark brown labrum and mandibles and yellowish brown maxillae and palpi; hind body dark brown, also polished, partially infuscated on venter; antennae brown, becoming paler towards apices; legs yellowish brown. Apterous. Microsculpture evanescent altogether.

Head large, transverse, and depressed above, with deep frontal furrows not angulate at middle and widely divergent posteriad; frons and supraorbital areas moderately convex, the latter bearing a foveole at the root of each supraorbital seta; two pair of supraorbital setae lying on lines divergent posteriad; eyes small but fairly protrudent, more or less longer than genae, which are gently convex, completely glabrous, and five-sevenths to seven-eighths as long as eyes; neck very wide, neck constriction distinct at the sides though shallow; labrum transverse, with the apical margin shallowly but widely emarginate; mandibles short and stout, feebly arcuate in apical halves, and obtusely bidentate; mentum fused with submentum, labial suture partially traceable though incomplete, mentum tooth porrect, slightly emarginate at the tip; submentum sexsetose; palpi short and thick, with apical segments subulate in apical halves; antennae short and fairly stout, filiform, reaching basal third of elytra or extending slightly beyond that level, scape thick, shorter but obviously broader than terminal segment, segments 2 and 5–10 subequal in length, each subcylindrical and fully twice as long as wide, segment 3 slightly longer than the neighbouring ones and about five-sevenths as long as the terminal, which is the longest.

Pronotum cordate, wider than head, wider than long, widest at about five-sevenths from base, and more gradually but strongly contracted towards base than towards apex, with the sides narrowly but entirely bordered; PW/HW 1.21–1.25 (M 1.23), PW/PL 1.21–1.35 (M 1.28), PW/PA 1.43–1.49 (M 1.46), PW/PB 1.73–1.77 (M 1.75); sides

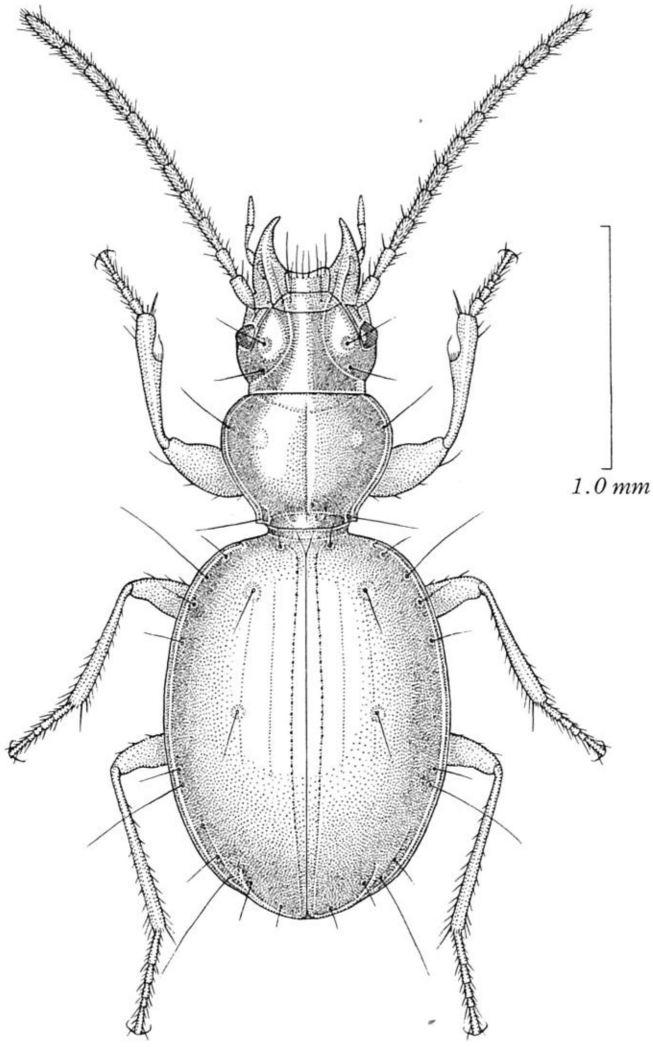


Fig. 1. *Stevensius minutus* S. UÉNO, sp. nov., ♀, from Dabei on the Gaoligong Shan Mountains.

strongly rounded near the widest part, rather gently so behind middle, and briefly but deeply sinuate at about basal eighth or a little before that level, with two pair of marginal setae, of which the anterior one lies just before the widest part and the posterior one on hind angles; apex either slightly arcuate or nearly straight, with front angles very obtuse; base much narrower than apex, PA/PB 1.16–1.22 (M 1.20), slightly arcuate, and briefly and obliquely emarginate on each side just inside hind angle; hind angles nearly rectangular though more or less obtuse at the tips, usually somewhat produced laterad; dorsum well convex, smooth, with sharply impressed median line reach-

ing base and usually with a small round depression on each side at the level of the widest part; apical transverse impression shallow but distinct, usually uneven; basal transverse impression continuous, laterally joining basal foveae, which are small and narrow; basal area narrow and smooth.

Elytra oval, short and broad, widest at about four-ninths from bases, and equally narrowed towards bases and towards apices; EW/PW 1.65–1.68 (M 1.67), EL/EW 1.29–1.36 (M 1.30); shoulders rounded and indistinct; sides entirely bordered, rather strongly arcuate in basal third, less so in median parts, and conjointly rounded at apices, each margin forming a distinct terminal point at the humeral part; dorsum very strongly convex, with a small depression on each side just behind scutellum; striae vestigial except stria 1, which is always sharply impressed throughout and sometimes obviously punctate, striae 2–3 usually traceable on the disc though very shallow, stria 8 impressed only behind the middle set of marginal umbilicate pores; scutellar striole not clearly defined; apical striole short but distinct, divergent anteriorly, and free at the anterior end; apical carina very obtuse; two setiferous dorsal pores, usually foveolate, present on the site of stria 3 at 1/8–1/6 and about 2/5 from base, respectively; no preapical pore; humeral set of marginal umbilicate pores nearly regular though not perfectly equidistant.

Ventral surface smooth and glabrous; anal sternite with two pair of setae in ♀. Legs short but fairly slender; protibiae nearly straight, moderately dilated towards apices, entirely pubescent, and not externally grooved; tarsi fairly thin.

Male unknown.

Type series. Holotype: ♀, paratypes: 5 ♀♀, 11–X–1996, S. UÉNO & S. NOMURA leg.

Type locality. Dabei, 2,430–2,440 m [2,430 m] in altitude, on the Gaoligong Shan Mountains, in Tengchong Xian, western Yunnan, Southwest China.

Notes. This remarkable species is tentatively placed in the genus *Stevensius*, though differing from the Himalayan members in several critical points. It cannot be keyed to a known genus by my key to the genera of the *Agonotrechus* series (cf. UÉNO, 1987, pp. 334–335), and though three more genera of the same series have been described since then (*Queinnectrechus* DEUVE, 1992, *Junnanotrechus* S. UÉNO et YIN, 1993, and *Deuveotrechus* S. UÉNO, 1995), none of them seem to have a direct relationship to the present species. On the other hand, the known Himalayan species of *Stevensius* form a compact group within the *Agonotrechus* series. The six species hitherto described are closely related to one another (cf. UÉNO, 1977 b; DEUVE, 1987, 1988; DEUVE & HODEBERT, 1991), and share all the diagnostic characters delineated in my revision (UÉNO, 1977 b, pp. 246–247). I have collected hundreds of specimens of *Stevensius* at many localities in eastern Nepal, West Bengal and Sikkim, and though this collection contains all but one of the described species and several new forms, I have been unable to set up a satisfactory classification of the Himalayan species as yet, mainly because of close similarity of the species involved and geographical variability of certain species.

In general appearance, the present species looks like a miniature of certain Himalayan *Stevensius* and also resembles *Taiwanotrechus subglobosus* S. UÉNO (1987, p. 338, figs. 1–3). From the latter, it is evidently different in the complete side borders of the pronotum and elytra, the presence of the postangular pair of marginal setae on the pronotum, and the fused labium, a combination of which can be said radical, or generic. From the former, it differs in the elytral chaetotaxy, the complete humeral borders of the elytra, and absence of the external groove on the protibia, the differences that could be found within the same genus. Besides, the character states exhibited by the Yunnanese species seem plesiomorphic and could be regarded as representing an ancestral state of *Stevensius*. Unfortunately, we were unable to obtain any males of the Yunnanese species in spite of painstaking efforts. Under this situation, I prefer to regard it, for the time being at least, as an archaic form of *Stevensius*, leaving a final conclusion for future investigations.

The six specimens of the type series of *Stevensius minutus* were obtained by sifting moist dead leaves accumulated in a thick *Rhododendron* forest together with many specimens of *Trechus asetosus* to be described below. They were recognized on the spot on their small size and rather leisurely manner of locomotion as compared with the larger trechine beetle.

Trechus (s. str.) ***asetosus*** S. UÉNO, sp. nov.

(Figs. 2–4)

Length: 2.85–3.45 mm (from apical margin of clypeus to apices of elytra).

Rather a variable species most probably derived from the *hingstoni* group, recognized at first sight on the total absence of setiferous dorsal pores on the 3rd elytral stria.

Body usually short and broad, but sometimes more elongate due to narrower hind body; apterous. Colour dark brown to blackish brown, shiny, faintly iridescent on elytra, head usually infuscated except for clypeus; buccal appendages, antennae, epipleura and legs yellowish brown to light brown, more or less lighter than body.

Head small, transverse, and depressed above, with deep frontal furrows not angulate at middle and widely divergent posteriad; frons and supraorbital areas moderately convex, the latter bearing a foveole at the root of each anterior supraorbital seta; microsculpture distinct, mostly formed by wide meshes; eyes small and flat, variable in size but not protrudent beyond the contour of genae, which are tumid, usually about two-thirds as long as eyes but sometimes shorter than that (about three-fifths as long as eyes) and rarely longer than eyes (about 1.2 times as long as eyes); neck wide, neck constriction sharply marked at the sides; labrum shallowly emarginate at apex; mandibles stout, right mandible with a small premolar tooth; mentum tooth broad and simple; palpi short and stout; antennae short, usually reaching basal fifth of elytra though variable in length, segment 2 only a little shorter than each of segments 3–5, segments 6–10 each subcylindrical, less than twice as long as wide, and slightly

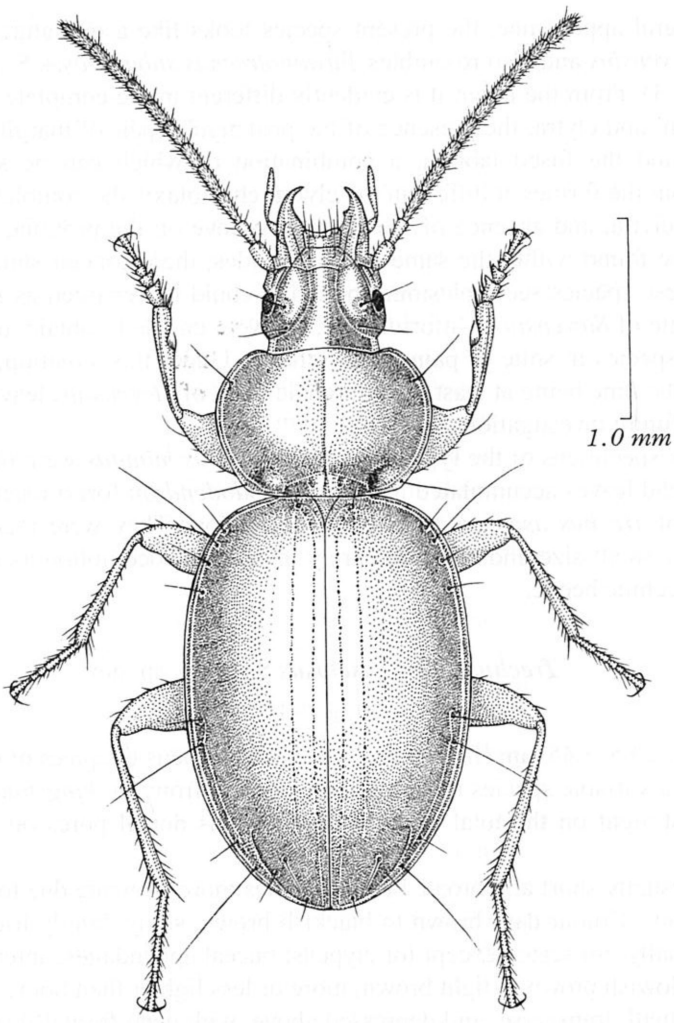


Fig. 2. *Trechus* (s. str.) *asetosus* S. UÉNO, sp. nov., ♂, from Dabei on the Gaoligong Shan Mountains.

shorter than segment 5, terminal segment slightly longer but narrower than scape.

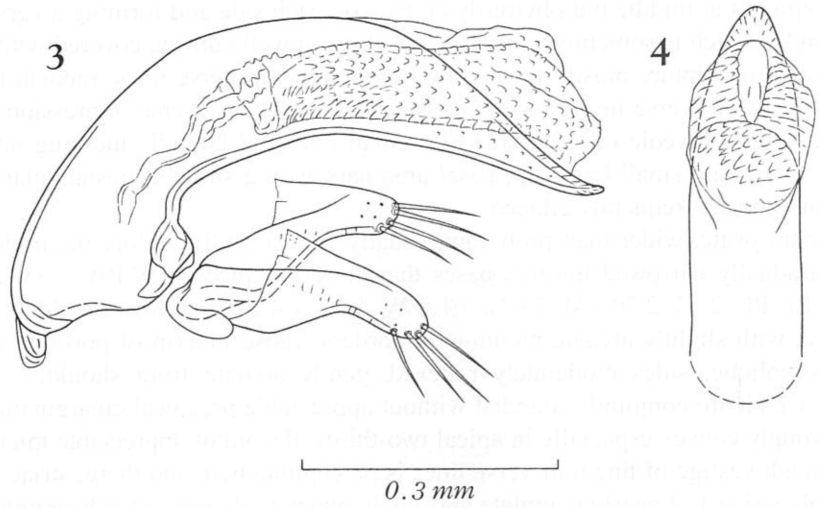
Pronotum large, transverse, much wider than head, wider than long, usually widest at about three-fifths from base, and a little more gradually narrowed towards base than towards apex; PW/HW 1.52–1.69 (M 1.59), PW/PL 1.32–1.49 (M 1.39), PW/PA 1.51–1.68 (M 1.60), PW/PB 1.26–1.42 (M 1.33); sides rounded from apex to base without ante-basal sinuation and narrowly bordered throughout, the curvature being stronger in front than behind, with two pair of marginal setae, the posterior one of which lies on hind angles; apex slightly bisinuate, narrower than base, PB/PA 1.08–1.30 (M 1.20), with front angles very obtuse and rounded, though still discernible; base

nearly straight at middle but obviously arcuate on each side and forming a very obtuse hind angle, which is sometimes rounded off; dorsum well convex, covered with degenerative microsculpture mostly formed by irregularly transverse lines; median line distinct; apical transverse impression usually vague; basal transverse impression narrow, arcuate, with a foveole on each side of median line, and laterally merging into basal foveae, which are small but deep; basal area narrow and smooth; postangular carinae short and obtuse, frequently effaced.

Elytra ovate, wider than pronotum, usually widest a little before the middle, and more gradually narrowed towards bases than towards apices; EW/PW 1.33–1.41 (M 1.37), EL/PL 2.43–2.79 (M 2.62), EL/EW 1.32–1.43 (M 1.38); shoulders widely rounded, with slightly arcuate prehumeral borders whose innermost portions are very slightly oblique; sides moderately reflexed, gently arcuate from shoulders to near apices, which are conjointly rounded without appreciable preapical emargination; dorsum strongly convex especially in apical two-thirds, devoid of appreciable microsculpture though vestige of fine transverse lines is perceptible here and there; striae superficial, only striae 1–2 nearly complete and finely punctate though often becoming obsolete on apical declivity, stria 3 usually traceable on the disc, 4 very slight and fragmentary, 8 impressed behind the middle set of marginal umbilicate pores and often interrupted, others effaced; scutellar striole short but sharply impressed; apical striole clearly impressed though shallow, weakly curved, and free at the anterior end though seemingly directed to the site of stria 7; intervals flat even near suture, apical carina very narrow but distinct; setiferous dorsal pores totally absent; preapical pore unusually close to apex, lying considerably behind the level of the terminus of apical striole, and much nearer to apical striole than to suture; humeral set of marginal umbilicate pores perfectly aggregated.

Ventral surface smooth; anal sternite provided with a pair of marginal setae in ♂, with two pair of the setae in ♀. Legs short and fairly stout; protibiae nearly straight, moderately dilated towards apices, and deeply grooved on the external faces; tarsi fairly thin, segment 1 about as long as segments 2–3 together in mesotarsus, longer than segments 2–3 together but shorter than segments 2–4 together in metatarsus, segment 4 provided with a long ventral apophysis in pro- and mesotarsi; in ♂, two proximal segments of each protarsus widely dilated, stoutly produced inwards at apices, and furnished beneath with sexual adhesive appendages.

Male genital organ rather lightly sclerotized. Aedeagus about three-eighths as long as elytra, arcuate, lightly compressed, with the dorsal margin semicircularly rounded in profile; basal part gently curved ventrad, rather small, with small basal orifice whose sides are shallowly emarginate; sagittal aileron small but heavily sclerotized, narrowly produced ventrad; viewed laterally, apical part rather rapidly attenuate towards short apical lobe, which is slightly reflexed and almost pointed at the extremity; viewed dorsally, apical lobe rather narrow, subtriangular, and narrowly rounded at the extremity; ventral margin widely emarginate at middle in profile. Inner sac wholly covered with scales, which are moderately sclerotized in proximal half; no differenti-



Figs. 3–4. Male genitalia of *Trechus* (s. str.) *asetosus* S. UÉNO, sp. nov., from Dabei on the Gaoligong Shan Mountains; left lateral view (3), and apical part of aedeagus, dorso-apical view (4).

ated copulatory piece. Styles short and broad; left style longer than the right, with short ventral apophysis; each style provided with four short setae at the apex.

Type series. Holotype: ♂, allotype: ♀, paratypes: 31 ♂♂, 33 ♀♀ [incl. teneral 1 ♂, 4 ♀♀], 11–X–1996, S. UÉNO, S. NOMURA & ZHAO L. leg.

Type locality. Dabei, 2,430–2,440 m in altitude, on the Gaoligong Shan Mountains, in Tengchong Xian, western Yunnan, Southwest China.

Notes. This remarkable species is regarded as a peculiar offshoot of the *hingstoni* group (cf. JEANNEL, 1928, pp. 288–289, 1935, pp. 276–279; UÉNO, 1965, 1967, 1977 a, etc.), mainly because of the similarity of aedeagal conformation. It is true that the new species is unique in many respects: remarkably convex dorsum, obliteration of microsculpture, degeneration of elytral striae, outwardly directed apical striole, postero-laterally translocated preapical pore, and above all, total absence of setiferous dorsal pores. The last character state is quite exceptional for a species of *Trechus*, and has hitherto been known, so far as I am aware, only in a Nepalese species, *Trechus impunctus* CASALE (1979, p. 187, figs. 1–3). The Nepalese species was originally placed in the *indicus* group, but was later removed to the side of *T. thibetanus* (CASALE & LANEYRIE, 1982, pp. 131–133). I have collected this interesting species by myself (2 ♂♂, 1 ♀, Siwapuri Dara, 2,380 m alt., Kathmandu Valley, E. Nepal, 8–X–1981, S. UÉNO & M. SAKAI leg.; NSMT), and confirmed the accuracy of CASALE's later opinion. This means that the loss of elytral dorsal pores has taken place independently in two different phyletic groups of the genus.

As will be shown on later pages, a close relative of *T. asetosus*, also occurring on the Gaoligong Shan Mountains, bears a single (second) dorsal pore on the third elytral

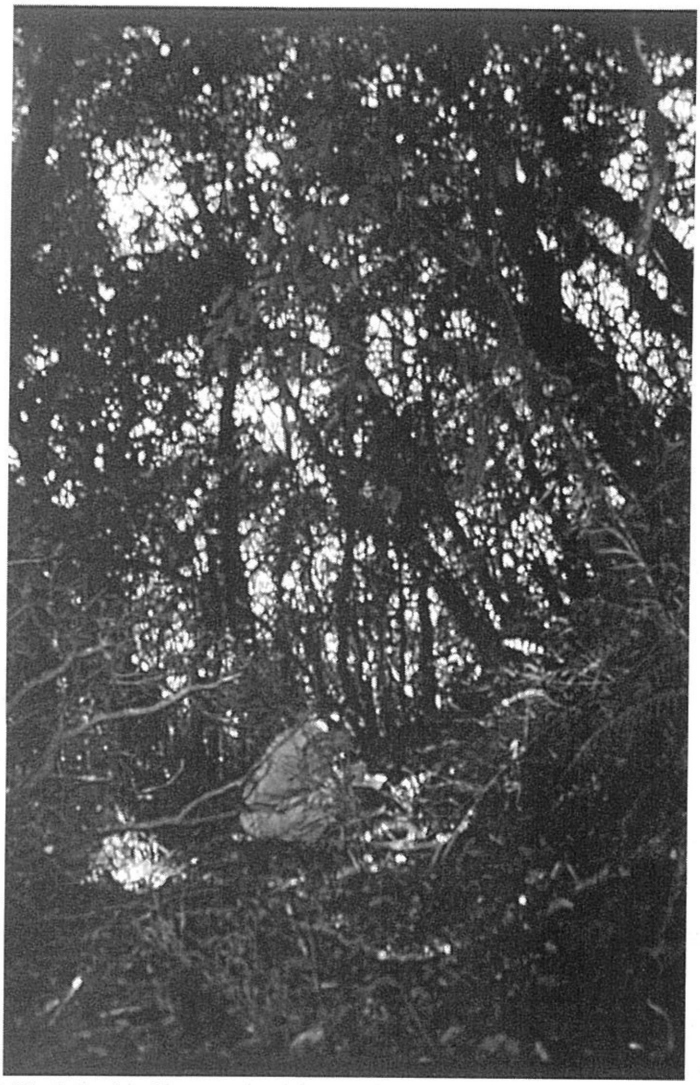


Fig. 5. A dark *Rhododendron* forest at Dabei (2,440 mm in altitude) on the Gaoligong Shan Mountains in western Yunnan, one of the habitats of *Trechus* (s. str.) *asetosus* S. UÉNO, sp. nov. ZHAO Lijun is sifting the beetle out from a heap of dead leaves.

stria. It can be regarded as a missing link, suggesting an ancestral state of *T. asetosus*. The common ancestor of these species may have reached the Gaoligong Shans from the north, since the ordinary members of the *hingstoni* group are widely distributed from the Himalayas to Tibet and Sichuan, and have their relatives on the high mountains of Luzon, the Philippines (cf. UÉNO, 1992, p. 194).

The type specimens of *T. asetosus* were collected at three stations in the *Rhododendron* zone of Dabei at the southern part of the Gaoligong Shan Mountains. They were sifted out from heaps of dead leaves accumulated in humid places, and seemed to

assemble in certain particular spots. For instance, they were abundant in an area of 20 m^2 or so, but were never found outside that area even within the same *Rhododendron* forest. In one of the three habitats at a height of 2,430 m, which is not far from the headspring of a narrow stream, *T. asetosus* was found in coexistence with *Stevensius minutus*.

Trechus (s. str.) ***unisetiger*** S. UÉNO, sp. nov.

Length: 3.25–3.50 mm (from apical margin of clypeus to apices of elytra).

Closely allied to *T. asetosus*, but recognized at first sight on the presence of a setiferous dorsal pore on the third elytral stria. Also different from the latter species in the shape of prothorax and elytra.

Colour dark reddish brown with infuscated elytra (at least partly), shiny, faintly iridescent on elytra; palpi pale; propleura, epipleura, legs, and apical and lateral parts of sternites light brown to brown.

Head as in *T. asetosus*, but the eyes are smaller, shorter than genae (five-sixths as long as genae); antennae barely reaching basal sixth of elytra. Pronotum widest at four-sevenths from base, with the sides more strongly and evenly arcuate than in *T. asetosus*; PW/HW 1.56 in the holotype (H) and 1.57 in the paratype (P), PW/PL 1.40 (H) and 1.34 (P), PW/PA 1.64 (H) and 1.58 (P), PW/PB 1.34 (H) and 1.36 (P); base less oblique on each side inside hind angle, which is very obtuse but still more apparent than in *T. asetosus*, PB/PA 1.22 (H) and 1.16 (P). Elytra broader than in *T. asetosus* and relatively short, more strongly convex on dorsum; EW/PW 1.43 (H) and 1.46 (P), EL/PL 2.64 (H) and 2.57 (P), EL/EW 1.32 (H) and 1.31 (P); shoulders more widely rounded and sides more strongly and evenly arcuate than in *T. asetosus*; striae deeper and more clearly punctate on the disc, vestige of striae 4–7 perceptible in basal two-thirds though evanescent in basal area, stria 8 clearly impressed behind the middle set of marginal umbilicate pores; scutellar and apical strioles as in *T. asetosus*; stria 3 with one setiferous dorsal pore at about basal 1/3; preapical pore unusually close to apex and apical striole as in *T. asetosus*. Ventral surface and legs as in *T. asetosus*.

Male unknown.

Type series. Holotype: ♀, paratype: 1 ♀, 25–IV–1996, XIAO N.-n. leg.

Type locality. Hongxinshu, 2,700 m in altitude, on the Gaoligong Shan Mountains, in Baoshan Xian, western Yunnan, Southwest China.

Notes. Though males are unknown, this new species is a close relative of *T. asetosus* beyond all doubt, as is readily understood from close similarity of diagnostic characters including the peculiar position of the preapical pore on the elytra. The presence of a setiferous dorsal pore seems to indicate that both *T. asetosus* and *T. unisetiger* have been derived from an ancestor in which the internal series of the elytra consisted of two pores, as is seen in most species of the grand genus *Trechus*. It is to be hoped that future investigations will clarify the trechine fauna of the northern part of the Gaoligong Shan Mountains on the borders of Yunnan and Myanmar, which

might contain certain species exhibiting a closer affinity to the ordinary species of the *hingstoni* group.

The two specimens of the type series of *T. unisetiger* were sorted out from soil samples taken in a forest of *Lithocarpus variolosus*. I climbed up the mountain from Baihualing towards Hongxinshu, but failed in finding out any additional specimens of this trechine beetle.

要　約

上野俊一：中国云南省高黎贡山で採集されたチビゴミムシ類の新種．—— 云南省西部のミャンマー国境から南に延びる高黎贡山山脈からは，これまでチビゴミムシ類が知られていなかった．1996年の秋に実施した調査と同年春の予備調査で，この山脈の南部から3種のチビゴミムシが発見された．そのうちの2種は雄が未知で，とくにハバビロチビゴミムシ群の1種は所属に問題が残るが，分類学上の特異性と地理的な重要性を考慮して，*Stevensius minutus*, *Trechus* (s. str.) *asetosus* および *T.* (s. str.) *unisetiger* という新名を与え，この論文で記載した．近隣地域に生息する同系統の種に比べて，母集団からの断絶の顕著な点が特筆に値する．

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Elytra, Tokyo, **25** (1): 192, May 15, 1997

新 刊 紹 介

Opredelitel' Nasekomykh Dal'nego Vostoka Rossii v Shesti Tomakh. Tom 3. Zhestkokrylye, Ili Zhuki. Chast' 3. [Определитель Насекомых Дальнего Востока России в Шести Томах. Том 3. Жесткокрылые, Или Жуки. Часть 3]. Ed. P. A. LER [П. А. ЛЕР]. 556 pp. 1996. Dal'nauka, Vladivostok.

刊行を待たれていたロシア極東地方の昆虫分類検索のうち，第3巻第3部がこのほど上梓されて，甲虫類の部分はいちおう完結した．この本から，“Key to the insects of Russian Far East”という英文の副題がつき，発行地もウラジオストクに変わった．

第3部には，カミキリモドキ科 (N. B. NIKITSKY)，アリモドキ科 (G. Sh. LAFER)，ツチハンミョウ科 (S. I. AKSENTJEV)，カミキリムシ科 (A. I. CHEREPANOV)，マメゾウムシ科 (A. B. EGOROV) の5科とゾウムシ上科の11科 (A. B. EGOROV, V. V. ZHERIKHIN, B. A. KOROTYAEV および G. O. KRIVOLUTSKAYA) が含まれ，合わせてネジレバネ目の4科 (A. S. LELEJ) がまとめられている．また，後ろの3分の一が3部を通じての補遺に当てられ，オサムシ科，ゲンゴロウ科，コガネムシ科などが扱われているが，なんといっても重要なのは86ページを占めるゾウムシ科で，本篇の63ページよりも補遺の方が大きい．

注目に値するのは，ナガヒラタムシ亜目の新科が記載されたことで，新属新種の *Sikhotealinia zhiltzovae* LAFER に基づいて，Sikhotealiniidae と命名された．佐藤正孝教授とわたしは，雌の正基準標本のみが知られているこの甲虫を，ウラジオストクで実見したが，ほかにはどこもやり場のない奇妙なものだった．ロシアからは，ナガヒラタムシ亜目の甲虫化石が多数みつかっているが，それらの絶滅種のなかに，この新科の類縁関係が求められるかも知れない．後翅がよく発達しているので，北日本のどこかで，同じ仲間の甲虫が発見される可能性も考えられる．

ひとつ残念なのは，この分類検索からハネカクシ類が欠落していることである．ハネカクシ科を担当できる執筆者がなく，とくにヒゲブトハネカクシ亜科はほとんど手つかずのまま残されている，という事情を仄聞したが，重要な大きい科であるだけに，シリーズが完成するまでにはだれかの手で補完されることを期待したい．

（上野俊一）

Elytra, *Tokyo*, **25** (1): 193–199, May 15, 1997

Notes on *Duvalioblemus sichuanicus* (Coleoptera, Trechinae), with Special Reference to its Habitat[1)]

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Abstract A brief supplementary note is given on the endogean anophthalmic trechine beetle, *Duvalioblemus sichuanicus* DEUVE, 1995. Its type locality is corrected to Mt. Wahui Shan, and the original account of its habitat is also revised.

Duvalioblemus sichuanicus is a small trechine beetle described from western Sichuan, Southwest China. It is the first endogean anophthalmic species known from China, and was carefully described by DEUVE (1995), who considered it to have certain remote relationship to *Aepiblemus caeculus* BELOUSOV et KABAK (1993) from Kazakhstan.

Early in the autumn of 1996, the authors had an opportunity to visit the type locality of this species and succeeded in obtaining a series of its topotypical specimens. A close examination of this material has revealed that DEUVE's original description is good in many respects, and there are only some morphometrical data that have to be supplemented. On the other hand, his account of the type locality is completely erroneous and misleading. It is obvious that DEUVE is not primarily responsible for this misdirection; he must have cited an incorrect memorandum of the anonymous collector.

In the present paper, the authors are going to give some supplementary accounts of this interesting species, and then to clarify the exact location of its habitat and the condition of existence. To supply such an information seems indispensable for future investigations of the endogean fauna of China, since endogean anophthalmic trechines were never discovered before in spite of careful searches made in various parts of the

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country. The abbreviations used herein are the same as those explained in the first author's previous papers.

The authors wish to thank Dr. Masataka SATÔ, Dr. Shûhei NOMURA and Mr. FAN Ting, without whose support in the field, this study could never be made. UÉNO's thanks are also due to Dr. Igor A. BELOUSOV for his kindness in giving him a paratype of *Aepiblemus caeculus*.

Duvalioblemus sichuanicus DEUVE, 1995

Duvalioblemus sichuanicus DEUVE, 1995, Revue fr. Ent., (N. S.), **17**, p. 16, figs. 3, 19–20; type locality: Mt. Wahui Shan [originally "col à 40 km au nord de Jiulong", "route entre Sabde et Jiulong"].

Length: 2.50–2.95 mm (from apical margin of clypeus to apices of elytra).

A small anophthalmic trechine beetle of elongate body form, with large head, small prothorax and elongated oval hind body; appendages short and stout. In fully mature specimens, body wholly reddish brown, shiny and translucent, with palpi, apical segments of antennae, and four posterior legs somewhat lighter than the other parts. In younger specimens, head and prothorax light reddish brown, hind body and legs yellowish brown, particularly on the ventral side. Microsculpture sharply impressed on head, consisting of polygonal meshes which are mostly wide but partially isodiametric; that on pronotum composed of fine, irregularly transverse lines partially forming transverse meshes; that on elytra mostly obliterated, though vestiges of fine transverse lines are perceptible here and there.

Head large, only a little shorter than pronotum, with convex genae which are sparsely covered with short pubescence; antennae short and stout, only reaching basal fourth of elytra, segments 6–9 each ovoid and about 1.5 times as long as wide, terminal segment the largest. Elytra elongate, feebly arcuate at the sides, with strongly rounded shoulders and distinct prehumeral borders; apices usually forming a re-entrant angle at suture, which is sometimes large and clearly separates one from the other; striae 1–3 distinct and punctate on the disc but more or less obsolete in basal area, stria 4 traceable though fragmentary, stria 8 impressed only near the middle and apical sets of marginal umbilicate pores; scutellar striole vestigial though perceptible; apical striole short but clearly impressed, only feebly curved anteriad, and free at the anterior end though seemingly directed to the site of stria 5. Aedeagus very small, only one-fourth as long as elytra, slender and lightly arcuate, with small basal bulb bearing a distinct sagittal aileron and blunt apex very slightly curved ventrad; copulatory piece anisotopic, spatulate, scaly on the surface, and acutely produced at the apex; styles narrow and rather short, each bearing four long setae at the apex. Other features as described by DEUVE.

Standard ratios of body parts in 16 mature specimens (excluding 2 teneral ones) are as follows: PW/HW 1.16–1.22 (M 1.18), PW/PL 1.21–1.30 (M 1.25), PW/PA 1.27–1.33 (M 1.29), PW/PB 1.41–1.56 (M 1.47), PB/PA 0.84–0.92 (M 0.88) [PA/PB 1.09–1.19 (M 1.14)], EW/PW 1.51–1.61 (M 1.56), EL/PL 2.78–3.05 (M 2.91), EL/EW

1.46–1.55 (M 1.50).

Specimens examined. 1 ♂, 27–IX–1996, M. SATÔ leg.; 4 ♂♂, 5 ♀♀ (incl. teneral 1 ♂, 1 ♀), 28–IX–1996, S. UÉNO, M. SATÔ, S. NOMURA & ZHAO L. leg.; 5 ♂♂, 3 ♀♀, 29–IX–1996, S. UÉNO, M. SATÔ & ZHAO L. leg.

Type locality. Mt. Wahui Shan, 3,930–3,940 m in altitude, of the Dichi Shan Mountains, in Jiulong Xian of western Sichuan, Southwest China.

Notes. DEUVE (*op. cit.*, p. 17) compared his *Duvalioblemus* with *Duvalius* in the belief that they should share isotopy of the copulatory piece. Actually, however, the sclerite is anisotopic in *Duvalioblemus* and is similar in basic conformation to those of *Kurasawatrechus*, *Stygiotrechus* and their relatives. In such archaic groups as the *Trechiama* series and the *Trechoblemus* series, the sclerite often takes ventral position by torsion of the inner sac without changing its conformation, and looks like an isotopic piece. On the other hand, DEUVE is certainly right in comparing his Chinese genus with *Oroblemites* and *Aepiblemus* of Central Asia, and in pointing out its remote affinity to the latter genus.

In describing *Aepiblemus*, BELOUSOV and KABAK (1993, pp. 139–141) made detailed comparison between their new genus and the then known genera belonging to the *Trechoblemus* complex and the subtribe Aepina. Their view is wrong in considering that the aedeagus of *Aepiblemus caeculus* shows a remarkable resemblance to those of *Aepus gracilicornis* WOLLASTON and *Thalassobius testaceus* SOLIER, but is otherwise thorough and convincing. It is above all interesting in pointing out close resemblance between *Aepiblemus caeculus* and *Daiconotrechus iwatai* (S. UÉNO) (1970, p. 610, figs. 4–6, 1971, p. 183, fig. 1) and genitalic similarity between the Central Asian species and *Gotoblemus ii* S. UÉNO (1970, p. 619, fig. 11).

The first author of the present paper (UÉNO) has examined all the known genera of these two groups, and has concluded that *Aepiblemus* may be a remote descendant of an *Oroblemites*-like ancestor, and that it may be the nearest known relative of *Duvalioblemus*. These genera are considerably different in details, but resemble each other in general appearance as well as in the elytral chaetotaxy and striation. Actually, they are very similar to each other, though a comparison of fig. 3 in DEUVE's paper (1995, p. 6) with fig. 9 in BELOUSOV and KABAK's (1993, p. 138) gives quite a different impression. Besides, DEUVE's illustration is misleading in showing denticulate pronotal hind angles and unusually broad oval elytra with the apical striole turning towards the third stria at the anterior end, though his description is correct as regards these points. Incidentally, the male genitalia are very small in all the genera under consideration, above all in *Aepiblemus*, in which the aedeagus is only about one-fifth as long as the elytra.

The conclusion that *Duvalioblemus* may be a remote relative of *Aepiblemus* naturally leads us to consider that *Duvalioblemus* may also be related to *Oroblemites* S. UÉNO et PAWŁOWSKI (1981, p. 148). The latter genus contains a single known species, *O. medvedevi* (JEANNEL) (1962, pp. 95, 96) from Tianshan, and is different from the Sichuan genus in many diagnostic features, including the presence of completely

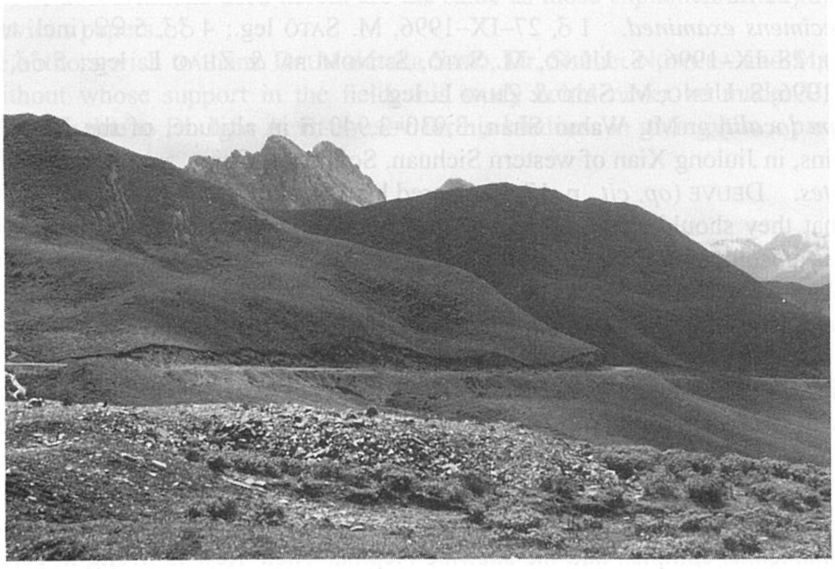


Fig. 1. Alpine grassland at the pass Wahuishan Shankou, Jiulong Xian, western Sichuan.

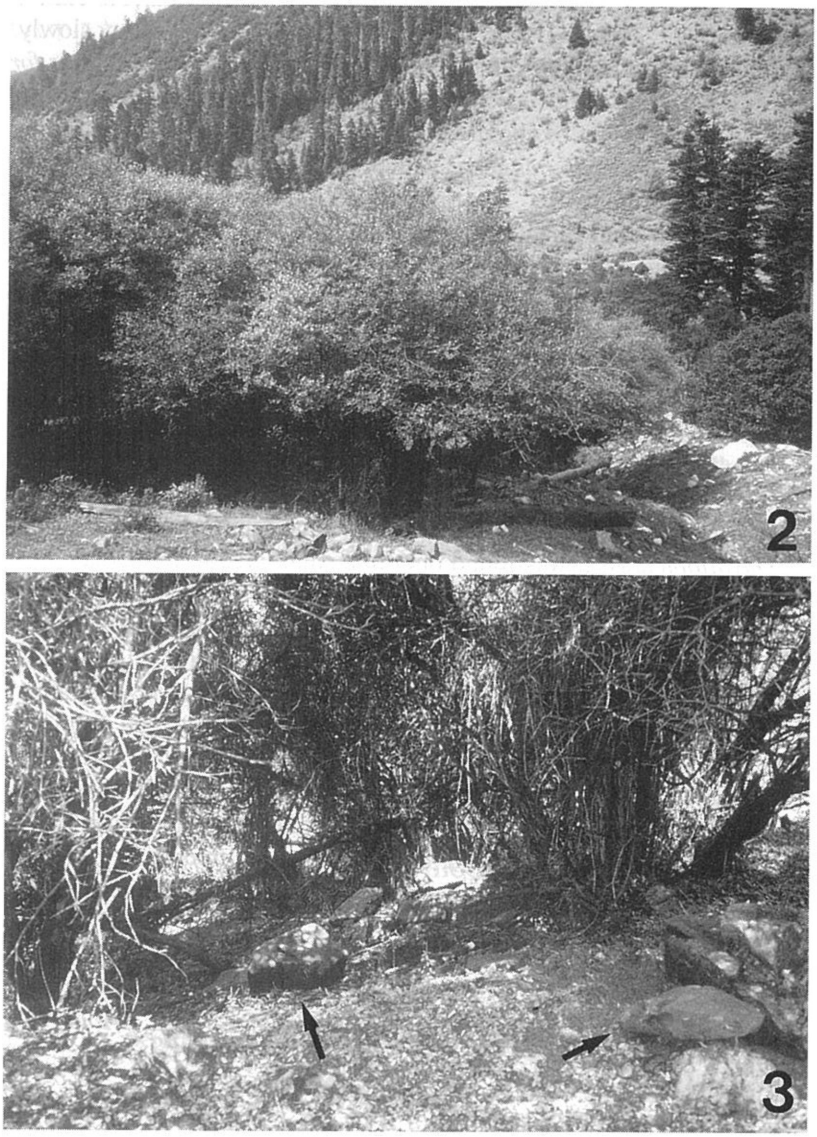
faceted eyes which are minutely pubescent. However, they are identical in the chaetotaxy and striation (though much reduced in *Duvalioblemus*) of the elytra, and also share very peculiar mode of pubescence on the dorsum, which is restricted to the humeral areas of the elytra. At the present moment, we are unaware of specific variation within respective genera, since all the three are monotypical. When other species of these or related genera are found in the wide intervening area, which is more than 2,500 km long in a bee-line, we shall be able to understand their phylogenetic relationship on a sounder basis.

Locality and Habitat

Duvalioblemus sichuanicus was described from "Chine, Sichuan, route entre Sabde et Jiulong, col à 40 km au nord de Jiulong, env. 3000 mètres, forêt de *Picea*." This account is, however, inaccurate in many respects, as was already pointed out in the introduction of this paper.

In the first place, the road leading from Sabde (now called Shade) to Jiulong is the highest at the pass called the Wahuishan Shankou on the borders of Kangding Xian and Jiulong Xian, which attains to a height of 4,350 m. It is situated about 38 km north of Ka'er, the central town of Jiulong, so that it must be the "col à 40 km au nord de Jiulong." However, it stands in an alpine grassland well above the timber-limit, where no anophthalmic trechines can be expected (cf. Fig. 1).

The town of Ka'er lies about 2,900 m above sea-level, and the 3,000 m point on



Figs. 2–3. Habitat of *Duvalioblemus sichuanicus* DEUVE on Mt. Wahui Shan in Jiulong Xian, western Sichuan. —— 2. A *Salix* thicket along the upper stream of the Jiulong He River, with small *Abies* forests at the back. —— 3. Ground under the *Salix* thicket; *Duvalioblemus* was found from beneath the large stones indicated by arrows.

the northward road along the Jiulong He River is marked in a narrow cultivated field surrounded by pine trees just outside the town. Vegetation in the valley slowly changes towards the north, and the sparse pine forest is replaced by a forest of *Abies forrestii* C. C. ROGERS at a height of about 3,700 m. It goes up for about 300 m in altitude and is abruptly replaced at a height of about 4,000 m by a low *Salix* thicket intermingled with *Rosa omeiensis* and *Quercus pannosa*, which extends for a short distance along the upper course of the Jiulong He. The timber-limit is at the bottom of a cirque at the western side of Mt. Wahui Shan. A beautiful picture of this place is shown on pages 116–117 of the "Nature Reserves in Sichuan Province" (ed. by HU Tieqing; 1991), since establishment of a new nature reserve to be called "Mt. Wahui Shan Nature Reserve" was planned by the Sichuan Forestry Department and the Chinese Academy of Sciences. Unfortunately, many of the *Abies* trees shown in the picture were recently cut down before protection by law, but they should have been there when the types of *Duvalioblemus sichuanicus* were collected, since this beautiful *Abies* forest must be the "forêt de *Picea*" noted in its original account.

Near the end of September, 1996, four entomologists from Japan and China made a three-day investigation in the Jiulong He drainage, and succeeded in locating the habitat of *Duvalioblemus*. It was found only in a small area in immediate proximity to the timber-limit of Mt. Wahui Shan, both in the *Abies* forest and in the *Salix* thicket. In the latter, which is nearer to the narrow stream of the Jiulong He, the trechine beetle was taken from beneath large stones embedded in the ground (cf. Fig. 3). It was invariably found on the soil, not on the surfaces of upturned stones, and was rather sluggish when exposed. This may be the usual mode of life for the trechine species, since the ground was humid everywhere under the thicket. In the *Abies* forest, which had been largely cleared, *Duvalioblemus* was mostly found from beneath abandoned logs, and a specimen was taken even from under a bark on the underside of a log. Since the ground in the clearances became dried, the anophthalmic trechine must have been attracted to the humid environment under large logs and survived there at least for the moment.

From what is explained above, it is evident that the collecting data of the type series of *Duvalioblemus sichuanicus* should be emended as follows: "Chine, Sichuan, entre Shade et Jiulong, mont Wahui Shan, env. 4,000 mètres, forêt d'*Abies*."

要　　約

上野俊一・赵　立軍：中国産地中性メクラチビゴミムシの一種 *Duvalioblemus sichuanicus* DEUVE，とくにその生息場所について．—— *Duvalioblemus sichuanicus* は，現時点で中国から知られる唯一の地中性メクラチビゴミムシで，四川省九龙县の瓦灰山で発見された．原記載は要をえたもので，この種の特性をよく表しているが，計測値がほとんど示されていないうえに，補足ないし修正を要する点もいくつかある．また，その基準産地については，"沙德と九龙のあいだで，九龙の北方40 kmにある峠，標高約 3,000 m，エゾマツ林" と記されているが，これにはいくつもの誤りがあり，そのためにわたしたちも生息地の特定に苦労した．実際の生息場

所は，圏谷の底にあるシラビソ類の森林限界付近で，標高は4,000 mに近く，大きい石や倒木の下の地中にすんでいる．峠自体（瓦灰山山口という）は森林限界よりかなり上に位置し，乾燥した高山の草地で，盲目地中性のチビゴミムシがすみうるような環境ではない．この論文では，原記載の不備を補うとともに，生息地を特定してその概況を説明し，基準産地も“瓦灰山”に改めた．

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Host Records of Two Species of Anobiidae (Coleoptera), and a Brief Note on the Egg-laying Behavior of *Oligomerus explanatus* SAKAI[1)]

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In the course of cerambycid research, we were unexpectedly able to confirm the host plants of two Japanese anobiids, *Holcobius japonicus* (PIC, 1903) and *Oligomerus explanatus* SAKAI, 1982.

Holcobius japonicus (PIC) is rather a common species in lowland forests of western Japan. Although the oak, *Quercus glauca* THUNBERG, was the only previously known host of this beetle (SAKAI, 1975), the junior author, M. SHIRAISHI, found some newly emerged adults in a dead branch of the Locust-tree, *Robinia Pseudo-acacia* LINN. (Jpn. name: Nise-akashia) on 31–XII–1992, on Mt. Chikami-yama, Imabari City, Ehime Prefecture. This tree is an exotic plant of the Leguminosae introduced artificially. This seems to suggest two possibilities. One is that this species has wide food-habits as are well known in the Anobiidae, and the other is that the beetle usually overwinters in pupal cell in the adult-stage.

On the contrary, *Oligomerus explanatus* SAKAI is one of the rarest species in the Japanese anobiid fauna. A single female specimen designated as the holotype has been known up to the present. Naturally, host record and other biological information has been lacking for this species. From middle to late August in 1995 and 1996, the junior author observed some individuals of this species at Jôjusha (1,600 m alt.) located on the northern side of Mt. Ishizuchi, Ehime Prefecture. In the daytime (from 10 A. M. to 2 P. M.), at least two females vigorously went in and out some new escape holes of the cerambycid, *Necydalis odai* HAYASHI, which were bored into a dead branch of living *Quercus mongolica* var. *grosseserrata* REHD. et WILS. (Jpn. name: Mizunara). The beetle sometimes stayed in the hole for about 5 minutes, and they never entered old escape holes bored one year ago. By careful observation, the junior author confirmed that the peculiar movement of the beetles was connected with their egg-laying behavior.

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1) Studies on the Anobiidae (Coleoptera) from Japan and Neighboring Countries XV.

Elytra, *Tokyo*, **25** (1): 201–220, May 15, 1997

Additions to the Knowledge of the Genus *Elaphrus* FABRICIUS, 1775 (Coleoptera, Carabidae)

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Abstract Taxonomic, faunistic and bionomic data on the species of the genus *Elaphrus*, particularly from the People's Republic of China, are given. *Elaphrus* (*Elaphrus*) *citharus* is described as new from specimens from the province of Gansu and adults are compared with those of other species of *Elaphrus* s. str. The available bionomic data are given and the pertinent couplets in the key by GOULET (1983) are modified to accomodate the new species.

The *E. trossulus* species-group is characterized and keyed out; within this group, *Elaphrus* (*Elaphrus*) *parviceps* VAN DYKE, 1925 is placed in synonymy with *E.* (*Elaphrus*) *trossulus* SEMENOV, 1904 (new synonymy), and a new key to separate *E. trossulus* from *E.* (*Elaphrus*) *tibetanus* SEMENOV, 1904 is presented. The variability in adults of *E. tibetanus* is discussed and available distributional and bionomic data for the species are given.

Two names used for colour forms of adults of *Elaphrus* (*Arctelaphrus*) *lapponicus* GYLLENHAL, 1810: v. *violaceus* LUTSHNIK, 1936 and a. *viridis* JEDLIČKA, 1956 are formally placed in synonymy with this species (new synonymies) and an updated formal synonymy of *E. lapponicus* is given. Information is given on the holotype of *E.* (*Elaphroterus*) *purpurans* HAUSEN, 1891.

A third instar larva of *Elaphrus viridis* HORN is described and the pertinent couplets in the key in GOULET (1983) are modified.

Adults of *Elaphrus* (*Neoelaphrus*) *sugai* NAKANE, 1987 and *Elaphrus* (*Elaphrus*) *weissi* DOSTAL, 1996 are characterized and the pertinent couplets in the key by GOULET (1983) are modified.

Introduction

In systematic research, even upon completion of a revision, unsolved problems may remain, due to lack of specimens in difficult species complexes, or for numerous other reasons, such as newly acquired information on types, that have not been seen and/or located. Finally, new taxa or immatures of known species may be discovered.

GOULET (1983) revised the world fauna of the genus *Elaphrus* FABRICIUS, 1775. Since the publication of this revision, the author has been gathering new information. Following the significant recent discoveries of *Elaphrus* specimens by A. SMETANA and other coleopterists, it was felt a paper was due to make the new information on the

genus available.

Following the discovery of numerous specimens of *E. tibetanus* SEMENOV, 1904 in China in the past few years, it is now possible to characterize this species and those closely related to it. In addition, there is a new and rather distinct species from the People's Republic of China. The keys by GOULET (1983) have been modified to include this new species, and revised couplets for the treated taxa of the *tibetanus* complex are added. A third instar larva of *E. viridis* HORN is described. Adults of *Elaphrus* (*Neoelaphrus*) *sugai* NAKANE, 1987 and *Elaphrus* (*Elaphrus*) *weissi* DOSTAL, 1996 are characterized, and brief nomenclatorial, synonymical and distribution notes are given.

The *Elaphrus tibetanus* Complex

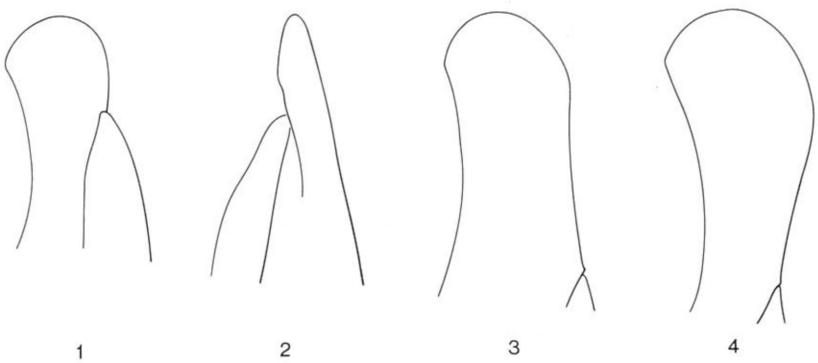
Adults in this complex are characterized as follows: lateral beaded margin of pronotum lacking in sinuation, or reduced to a fold in sinuation, lateral margin not explanate near middle; lateral margin of elytron hardly sinuate in basal third; metafemur in dorsal view with a few short (25 to 80 microns) setae; accessory setae extended at least to edge of fifth visible abdominal sternum; lateral surface of third visible abdominal sternum with less than 40 punctures (Fig. 21); microsculpture on last three sterna, outside ambulatory setae and punctate lateral surface, without pointed and scale-like sculpticells but with flat, partly isodiametric and transversely fused sculpticells (Fig. 23). Two species are at present included in this complex: *E. tibetanus* and *E. trossulus* SEMENOV, 1904 (referred as to *E. parviceps* VAN DYKE, 1925 in GOULET, 1983; see synonymic discussion below).

Couplet 12 in GOULET (1983, 286) is modified as follows to allow easier separation of this complex of species.

12 (11′) Third visible abdominal sternum with less than 40 punctures between ambulatory setae and lateral margin (Fig. 21). Microsculpture on last three sterna outside ambulatory setae and punctate lateral surface without pointed scale-like sculpticells, but with flat, isodiametric and transversely fused sculpticells (Fig. 23). Most specimens with one or more accessory setae on disc of pronotum (Fig. 8). Punctures in pits separated by two to four rows of sculpticells (Fig. 17–18). 14

— Third visible abdominal sternum with 40 to 80 punctures between ambulatory setae and lateral margin (Fig. 22). Microsculpture on last three sterna outside ambulatory setae and punctate lateral surface with pointed scale-like sculpticells in at least basal third, and with flat and convex isodiametric sculpticells, rarely with sculpticells transversely fused at apical margin of visible sternum 5 and 6 (Fig. 24). Almost all specimens without accessory setae on disc of pronotum (as in Fig. 9). Punctures in pits separated by one to three rows of sculpticells. 13

Elaphrus trossulus is known from northwestern Québec (Povungnituk in northwestern Québec, first mention east of Hudson Bay) westward across the continent to



Figs. 1–4. Apex of median lobe. —— 1–2, *Elaphrus citharus*: 1, lateral view; 2, ventral view. —— 3, *Elaprhus sugai*, lateral view. —— 4, *E. japonicus*, lateral view.

northeastern Siberia in the southern tundra ecotone (GOULET, 1983, 320, and specimens correctly identified by KRYZHANOVSKIJ), and isolated in forested mountainous regions of northern Mongolia and neighbouring Russia west and south of Lake Baikal (SEMENOV, 1904, and specimens provided by KRYZHANOVSKIJ). *Elaphrus tibetanus* is known from several localities in Gansu, Qinghai and Sichuan provinces east of Tibet.

Elaphrus trossulus, was previously synonymized by GOULET (1983, 314) with *E. riparius* (LINNÉ, 1758) and by SHILENKOV (1995) with *E. tuberculatus* MÄKLIN, 1878. We have not seen the type of *E. trossulus*, studied by both KRYZHANOVSKIJ and SHILENKOV. However, four specimens, identified as *E. trossulus* and compared with the holotype by KRYZHANOVSKIJ, are distinct from *E. riparius* and *E. tuberculatus*. We are confident in KRYZHANOVSKIJ's interpretation based on correct identifications of specimens of species notoriously difficult to segregate (e.g. *E. riparius* from Kamchatka, *E. tuberculatus*, *E. parviceps*, *E. hypocrita* SEMENOV, 1926 and *E. comatus* GOULET, 1983).

Elaphrus trossulus is a problem species within the *tibetanus* complex. Based on only four available specimens, this species cannot be separated from *E. parviceps*. The distributional range of *E. trossulus* is widely isolated from that of the northeastern Siberian *E. parviceps*. SHILENKOV (1995), in his analysis of the southern Siberian ground beetle fauna, also mentions several species with ranges in the tundra ecotone. LAFONTAINE (pers. comm.), a lepidopterists, and SHILENKOV (pers. comm.), a ground beetle expert, are familiar with the region, and both confirm that several species with tundra ranges also occur in south Siberian mountains. The known localities of *E. trossulus* are not recorded from alpine sites, but from boreal sites. However, we believe that their tundra ancestors adapted to lower ecozone in similar habitats, following the last glacial retreat. Therefore, we believe that both species are synonymous. The proposed synonymy is as follows:

Elaphrus (Elaphrus) trossulus SEMENOV

Elaphrus trossulus SEMENOV, 1904, 21. Type area: Western Mongolia; type not seen.
Elaphrus parviceps VAN DYKE, 1925, 112. Type locality: Seward Peninsula, Alaska; type seen by GOULET (1983) in California Academy of Sciences, San Francisco. *New Synonymy.*
Elaphrus riparius: LINDROTH, 1961, 116 (*ex parte*) (nec LINNÉ, 1758).
Elaphrus americanus JUDD, 1967, 51 (nec DEJEAN, 1831).

GOULET (1983, 320) attempted to separate *E. tibetanus* from *E. parviceps* (now *E. trossulus*). The only character mentioned, that still works, is the size of punctures in the first pit of elytral interval 3, other characters are unreliable.The following key is expanded to insure accuracy in identification, and to complement the description of *E. trossulus*, given by GOULET (1983, 286).

14 (12) Overall punctation of elytra fine (Figs. 11, 17, 19); largest diameters of most punctures in first elytral pit near suture between 20–25 μm (Fig. 17). Most setae on last abdominal sternum less than 150 μm long; setae on dorsal surface in apical fourth of metafemur 25–50 μm long. First mirror near base of elytron anterior to first pit in interval 5 (second row of pits) quite clearly outlined, at most with a few small punctures (Fig. 11). Irregular striation on middle of frons prominent, interstitial punctures markedly reduced (Fig. 5). Interval 4 just outside largest mirror in interval 3 usually with elongate purple or green spot similar to nearby pit colour pattern. . . . . *E. tibetanus* SEMENOV

— Overall punctation of elytra distinctly coarser (Figs. 12, 18, 20): largest diameters of most punctures in first elytral pit near suture between 25–30 μm (Fig. 18). Most setae on last abdominal sternum more than 150 μm long; setae on dorsal surface in apical fourth of metafemur 50–80 μm long. First mirror anterior to first pit in interval 5 (second row of pits) indistinctly outlined and covered with punctures of diameters of 25 μm (Fig. 12). Irregular striation on middle of frons less prominent, interstitial punctures slightly reduced (Fig. 6). Interval 4 just outside largest mirror in interval 3 rarely with purple spot similar to nearby pit colour pattern. . . . . *E. trossuslus* SEMENOV

Notes on *Elaphrus (Elaphrus) tibetanus*

Variation, measurements and proportions. The colour variation in *E. tibetanus* is unusual, as three distinct colour forms were discovered. We know only two other species with 3 colour forms occurring together: *E. olivaceus* LECONTE, 1863 and *E. angusticollis angusticollis* R. F. SAHLBERG, 1844. Moreover, there seems to be a geographical difference in the distribution of the colour form with green body and green pits. This form is known to us only from southwestern Gansu and the neighbouring areas in Sichuan.

The three colours are characterized as follows. In the green form with purple pits

Table 1. Descriptive statistics for *E. tibetanus*, based on ten males and ten females from Lingke Riv., 5 km SSW Luqu, Gansu, China.

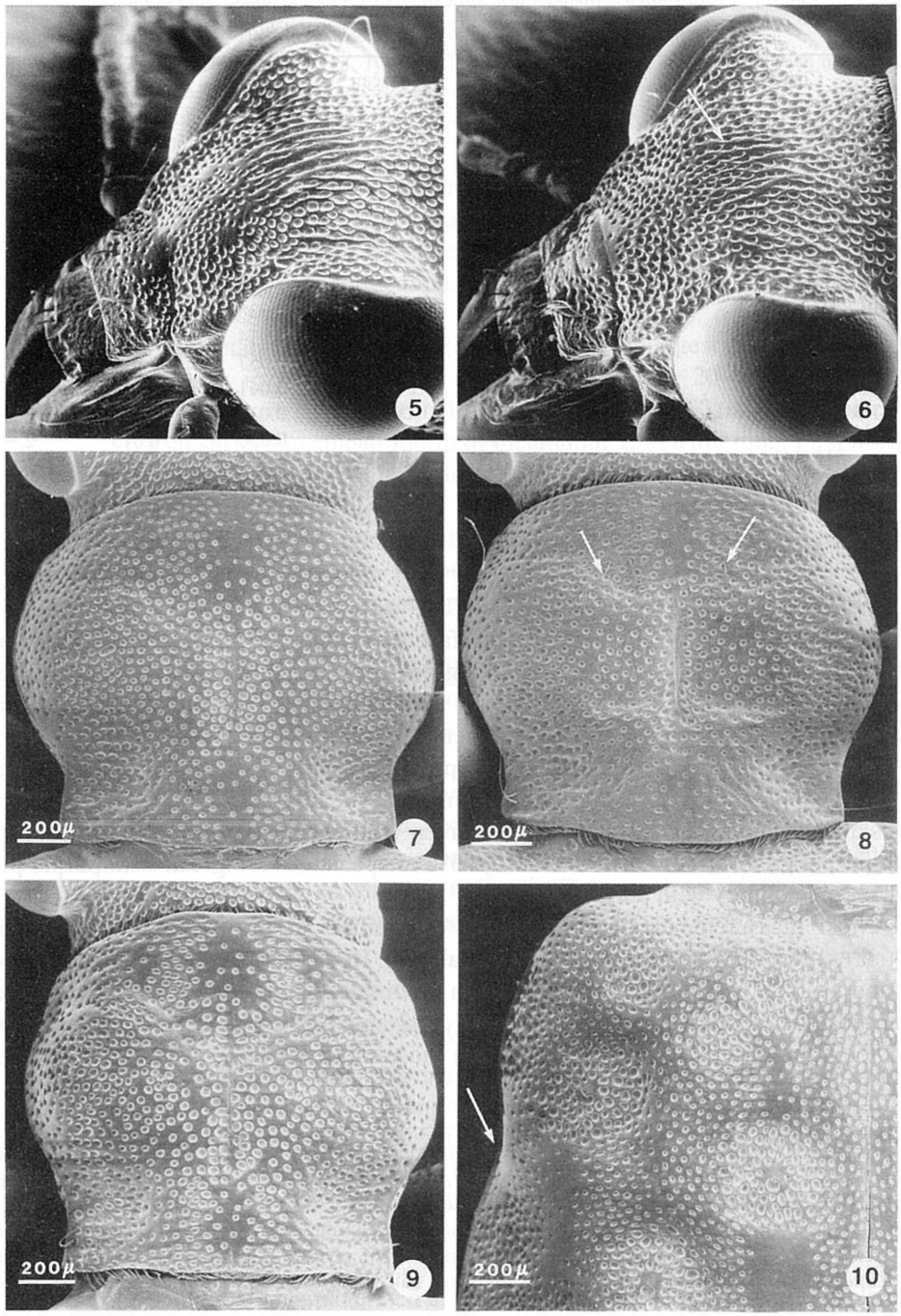
Character	Range	Mean	1.5 SD	2 SE	CV (%)
A. Measurements in mm					
Pronotum length=PL	1.20–1.48	1.31	0.093	0.031	4.3
Pronotum width=PW	1.37–1.67	1.52	0.121	0.036	5.3
Elytral length=EL	3.30–3.90	3.57	0.234	0.070	4.4
Elytral width=EW	1.17–1.40	1.32	0.102	0.030	5.2
Head width=HW	1.35–1.62	1.55	0.100	0.031	4.3
B. Proportions					
PL/PW	0.828–0.918	0.867	0.038	0.011	2.9
PL/EL	0.347–0.383	0.368	0.014	0.004	2.5
PL/EW	0.893–1.000	0.998	0.057	0.017	3.8
PL/HW	0.806–0.919	0.851	0.041	0.012	3.3
PW/EL	0.403–0.446	0.424	0.017	0.005	2.6
PW/EW	1.036–1.200	1.150	0.050	0.015	2.9
PW/HW	0.935–1.037	0.981	0.042	0.013	2.9
EL/EW	2.571–2.821	2.708	0.091	0.027	2.3
EL/HW	2.236–2.444	2.310	0.082	0.024	2.4
EW/HW	0.828–0.903	0.853	0.029	0.009	3.0

(68% of studied specimens), the dorsal surface (excluding the purple pit areas) is dark copper and the punctures are green. In the green form with green pits (16% of studied specimens), the surface is mainly coppery with some green (on pronotum and head) and the punctures are green. In the coppery form with purple pits (16% of studied specimens), the surface (excluding the purple pit areas) is dark copper and the punctures are coppery. In southwestern Gansu and adjacent areas of Sichuan, 37% of specimens are green with green pits, 39% are green with purple pits and 24% are coppery with purple pits. Farther north in Gansu, 93% of specimens are green with purple pits and 7% are coppery with purple pits.

Most measurements of *E. tibetanus* are similar to those of *E. trossulus* (in GOULET, 1983, 319, under *E. parviceps*) (Table 1). However, in the width (EW) of elytra and head (HW) they distinctly differ. In *E. trossulus* the measurements are longer than those of *E. tibetanus*: EW is between 1.42 and 1.60 mm and HW between 1.60 and 1.75 mm, and the ratio is smaller than those of *E. tibetanus*: PW/EL is between

Figs. 5–10 (on page 206). —— 5–6, Posterodorsal view of head: 5, *Elaphrus tibetanus*; 6, *E. trossulus*. —— 7–9, Dorsal view of pronotum: 7, *Elaphrus tibetanus*; 8, *E. trossulus*; 9, *E. citharus*. —— 10, Basal half of elytron of *Elaphrus citharus*.

Figs. 11–16 (on page 207). —— 11–12, Basal half of elytron: 11, *Elaphrus tibetanus*; 12, *E. trossulus*. —— 13–14, Dorsal view of central portion of elytron: 13, *Elaphrus tibetanus*; 14, *E. citharus*. —— 15–16, Dorso-lateral view of outer half of elytron: 15, *Elaphrus trossulus*; 16, *E. citharus*.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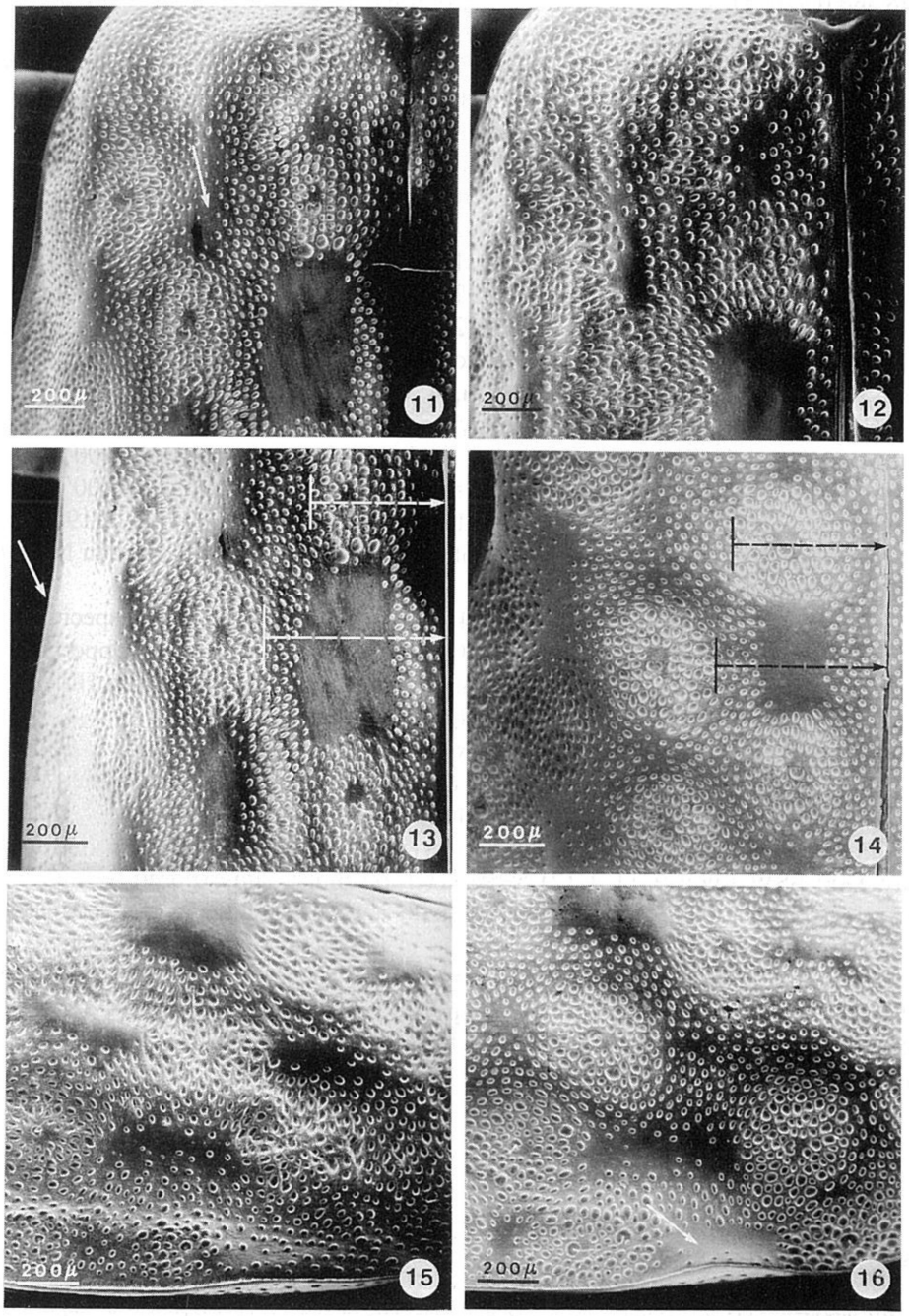
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0.346 and 0.420. Most specimens of *E. tibetanus* have the value of PW/EL greater than 0.410, and in most specimens of *E. trossulus* this value is 0.410 or less.

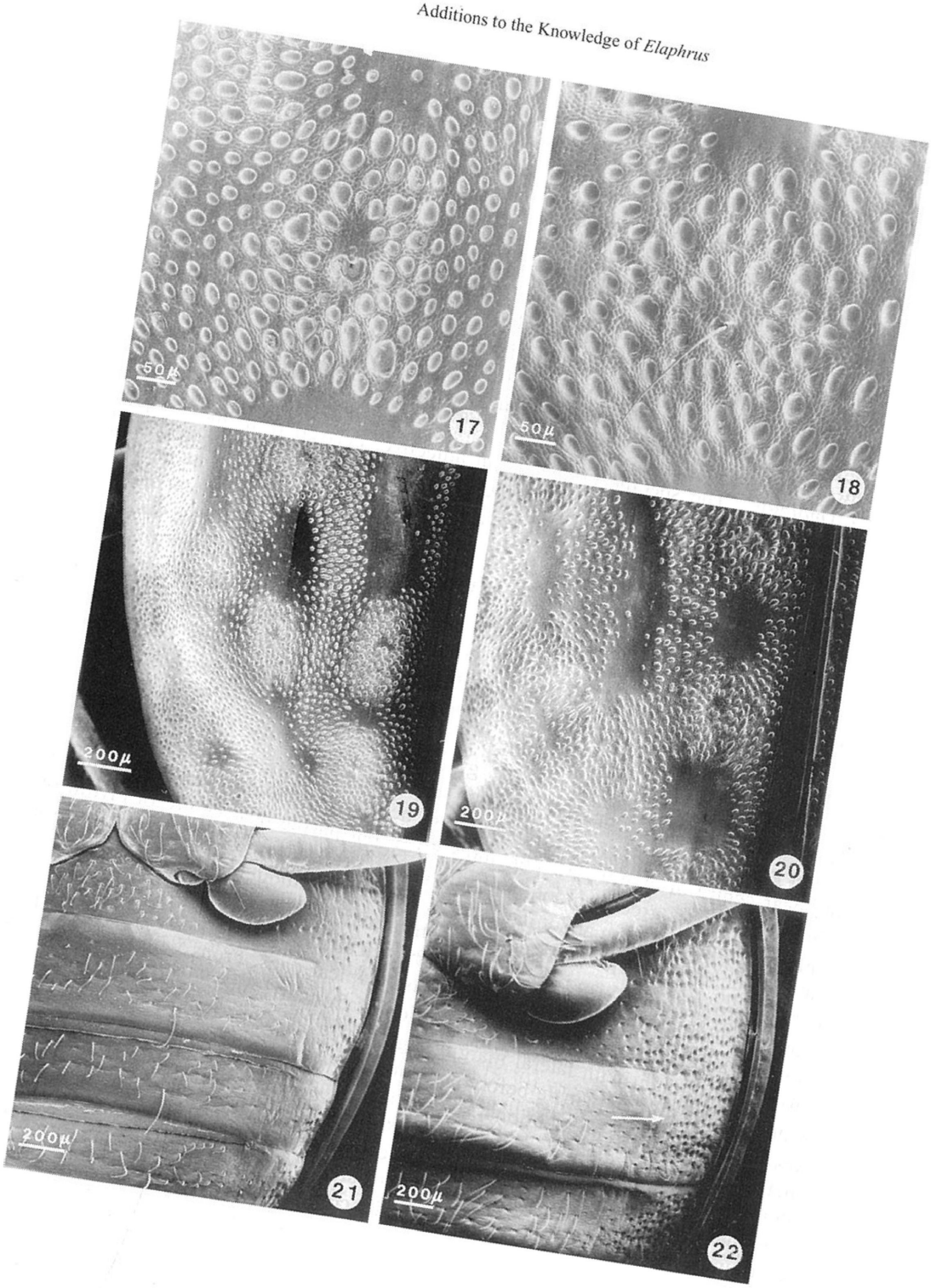
Material studied (37 ♂♂, 50 ♀♀). China: [Gansu]: Labrang-Umg. (=Xiahe) VI. 92, 3000 m, RICHTER leg., 2 ♀♀, Canadian National Collection, collection HEINZ. — "Hua-er-Ge, Lingke Riv., 5 km SSW Luqu, 3400 m, 12. VII. 1994 A. SMETANA [C11]", 5 ♂♂, 5 ♀♀, Canadian National Collection; or two different spellings of same locality: "ca. 5 km sw. Luqu (loc. Hua-er-Ge/Lin Ke river) — 3400 m 12/13. VII. 1994 HEINZ leg.", 5 ♂♂, 8 ♀♀, Collection HEINZ; "Hua-er-Ge 5 km SSW Luqu 3400 m, 13. VII. 1994 A. SMETANA [C12]", 6 ♂♂, 8 ♀♀, Canadian National Collection; "road Luqu–Waxu, km 5, 3300 m 12.–13. VII. 1994 leg. K.-W. ANTON", 2 ♂♂, 1 ♀, Collection ANTON. — "Mts. 10 km S Xiahe, 3100–3200 m, 4. VIII. 1994 A. SMETANA [C29]", 11 ♂♂, 16 ♀♀, Canadian National Collection; or different spelling of same locality: "road SW of Xiahe, valley, 3200–3450 m, 4. VIII. 1994, Leg. K.-W. ANTON", 6 ♂♂, 8 ♀♀, Collection ANTON. [Sichuan]: "Hongyuan m 4200 21. VII. 1991 Málek", 1 ♂, 1 ♀, Canadian National Collection. — "Bass. Golub. r.: r. Dza-chiu. 11.000'. Sred. IV. 1901. Exp. Kozlova" (label in Cyrillic=Dsa-tshu River 31°46′N 100°00′E), 1 ♀, Canadian National Collection. [Qinghai]: "Lv. prit. r. By-chiu. 14.000'. VII. 1900 Exp. Kozlova" (label in Cyrillic=left tributary of the river By-chiu, 1 ♂, Canadian National Collection.

Addditional records. SEMENOV (1904) reports 55 specimens of this species from the following localities in the province of Qinghai: Upper Huang-he [=Upper Yellow River]; Amnen-kor Mts. [=Anyêmaqên Shan]; Orin-nur Lake [=Ngoring Hu]; Serg-tshu Riv. [=one of the rivers feeding lake Ngoring Hu].

Geographical distribution. *Elaphrus tibetanus* is at present known from the provinces of Qinghai (mainly from the area around the sources of Huang-he [Yellow River], western Gansu and northern Sichuan (Fig. 27).

Bionomics. The specimens collected by SMETANA, HEINZ and ANTON at the locality 5 km SSW Luqu (C11, C12), were taken on moist, sun-exposed, loamy-sandy flats with sparse low vegetation, together with a species of the genus *Asaphidion*. Specimens collected by SMETANA and ANTON in the mountains 10 km S Xiahe (C29) were taken in a pasture formation on a sun-exposed wet seepage flat with very dense and thick, low grass (Figs. 25, 26). The specimens were difficult to spot among the dense blades of grass. It should be noted that these two habitats of *E. tibetanus* are drastically different.

Figs. 17–22. —— 17–18, Dorsal view of pit in first row in front of main mirror along mirror: 17, *Elaphrus tibetanus*; 18, *E. trossulus*. —— 19–20, Apical half of elytron: 19, *Elaphrus tibetanus*; 20, *E. trossulus*. —— 21–22, Ventral view of abdominal sterna 1 to 4: 21, *Elaphrus tibetanus*; 22, *E. tuberculatus*.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A New Species of *Elaphrus* from China

Elaphrus (*Elaphrus*) *citharus* sp. nov.

(Figs. 1–2, 9–10, 14, 16)

Type material. Holotype (male) labelled: "(CHINA: Gansu) Xinlongshan b. Yuzhong (loc. Yangzhai) 3000 m 7/9. VIII. 1994 HEINZ leg.". In the Canadian National Collection, Ottawa, Ontario, Canada. Condition: perfect, aedoeagus extracted, but still attached to apex of abdomen. Paratypes: China: [Gansu]: Xinlongshan b. Yuzhong (loc. Yangzhai), 3000 m, 7/9. VIII. 1994, HEINZ leg., 2 ♂♂, 2 ♀♀, Collection HEINZ and the National Science Museum (Natural History), Tokyo. — Dalijia Shan, 46 km W Linxia, 2980, 10. VII. 1994, A. SMETANA [C5], 1 ♀. — Mts. 25 km E Xiahe, 3000 m, 5. VIII. 1994, A. SMETANA, [C30], 1 ♀;. both specimens in the Canadian National Collection, Ottawa.

Etymology. The specific epithet is an adjective, derived from the Latin noun *cithara*, *-ae*, f. (guitar). It refers to the shape of the elytra that to some extent resembles a guitar, due to the distinct sinuation of the lateral margins).

Adults

Diagnostic combination. Elaphrus citharus differs from the adults of all other species of the subgenus with markedly constricted lateral margin of elytra in basal third, by the large punctures (diameters of 40–50 microns) in elytral pits, on the pronotum and proepisternum, by the accessory setae laterally on visible sterna 4 and 5, and by the lack of setae on metepisternum.

Description. One colour form: green with purple pits. Microsculptured and smooth surfaces dark coppery on elytron except in pits, bright coppery over half and bright green or blue green over remainder of head and pronotum, and red or blue purple near centre of elytral pits; punctures green but purple near centre of elytral pits. Ventral punctures green; smooth and microsculptured surfaces dark copper on pleura and green and copper on abdominal sterna. Interval 4 without purple spot (looking as a pit without setigerous puncture at middle) near main mirror; femora metallic green and reddish brown at base, and tibiae reddish brown and metallic green at base and apex. Antennomere 3 without accessory setae, only apical ones. Frons without medial impression and accessory setae; central portion of frons irregularly and not prominently striated. Pronotum with lateral margin slightly convex, obliterated and not beaded in sinuation, and not explanate before sinuation; disc with one pair of very shallow submedial impressions; no additional setae beside long seta at posterolateral angle; maximal width of pronotum narrower than maximal width of head with eyes (Fig. 9). Abdominal sterna with moderate number of setae in both sexes, mostly at side on last abdominal sternum; setae extended to edge of sterna 5 and 6. Setae lacking on metepisternum. Lateral margin of elytron markedly constricted in basal third (Fig. 10). Main

mirror of elytron rectangular and sharply outlined, mirror in second row indistinctly outlined (Fig. 10), those of third row quite clearly outlined, and mirror near lateral sinuation clearly outlined and bright copper (Fig. 16, compare with Fig. 15). Elytral pits wide: distance from suture to lateral margin of pit in front of main mirror in interval 3 subequal to distance from suture to medial margin of pit nearest to main mirror in interval 5; pits deeply impressed (Fig. 14). Dorso-subapical surface of metafemur with one to four short (40–60 μm long) setae.

Integument sculpture. Punctures 30–40 μm in diameter on head, along outer half of elytral pits, pronotum, proepisternum and metepisternum. Punctures 20–30 μm apart on elytral intervals 4, 6 and 8 (Figs. 10, 14), 20–40 μm apart on proepisternum and abdominal sterna 3–4, 30–50 μm apart anterolaterally on pronotum (Fig. 9); mainly adjacent submedially on pronotum (Fig. 9), head, elytral pits, on mesopleuron and metapleuron. First sutural pit of elytron with 3 to 4 concentric rows of punctures (Fig. 14). Third visible abdominal sternum with less than 50 punctures (less than in Fig. 22).

Microsculpture convex over most of dorsal body surface and thoracic pleura, flat transverse and without points on visible abdominal sterna 4 to 6 between ambulatory setae and lateral punctate area (as in Fig. 23).

Male genitalia. Apex of median lobe in ventral view thin-edged and slightly twisted, in lateral view spatulate with clearly defined angle ventrally (Figs. 1, 2); base of lobe along ventral angular bend widely sclerotized, ventral membrane not visible in lateral view. Setae of parameres long.

Measurements and proportions. Based on six specimens. PL, 1.32 –1.330– 1.35 mm; PW, 1.47 –1.508– 1.52 mm; EL, 3.25 –3.492– 3.60 mm; EW, 1.22 –1.273– 1.32 mm; HW, 1.62 –1.680– 1.72 mm; PL/PW, 0.868 –0.882– 0.918; PL/EL, 0.367 – 0.381– 0.406; PL/EW, 1.015 –1.045– 1.107; PL/HW, 0.767 –0.792– 0.815; PW/EL, 0.420 –0.433– 0.468; PW/EW, 1.152 –1.185– 1.216; PW/HW, 0.880 –0.898– 0.938; EL/EW, 2.600 –2.734– 2.869; EL/HW, 1.970 –2.078– 2.160; EW/HW, 0.731 –0.758– 0.772.

Geographical distribution. *Elaphrus citharus* is at present known from 3 localities in the province of Gansu (Fig. 27).

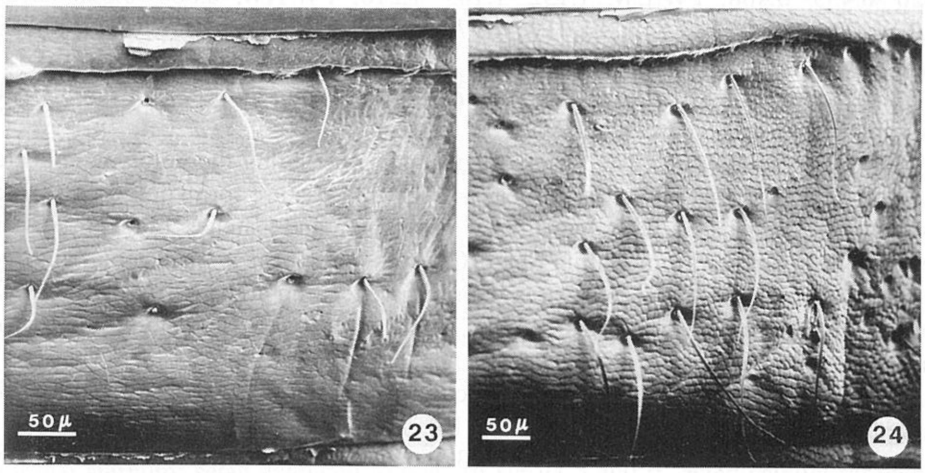
Notes on bionomics. The series of specimens, including the holotype collected by HEINZ in Xinlongshan, was taken near a creek in a pasture formation on a sun-exposed wet seepage area with low grassy vegetation and patches of exposed bare ground. The specimen from Dalijia Shan [C5] was taken near a small mountain river among low grass on a wet seepage area with lush vegetation at the base of a rock wall. The specimen from the mountains 25 km E Xiahe [C30] was taken among dense low grass on a small, sun-exposed, seepage area near a small creek.

Taxonomic notes. Adults of this species are unusual in Eurasia because of the markedly constricted elytral margin (Fig. 10). *Elaphrus citharus* is quite similar to Nearctic *E. californicus* MANNERHEIM, 1843 and *E. ruscarius* SAY, 1830; however, we do not believe that it is related to either of these two species. In Eurasia, only adults of *E. smaragdiceps* SEMENOV, 1889 have such a constriction; however, in *E. smarag-*

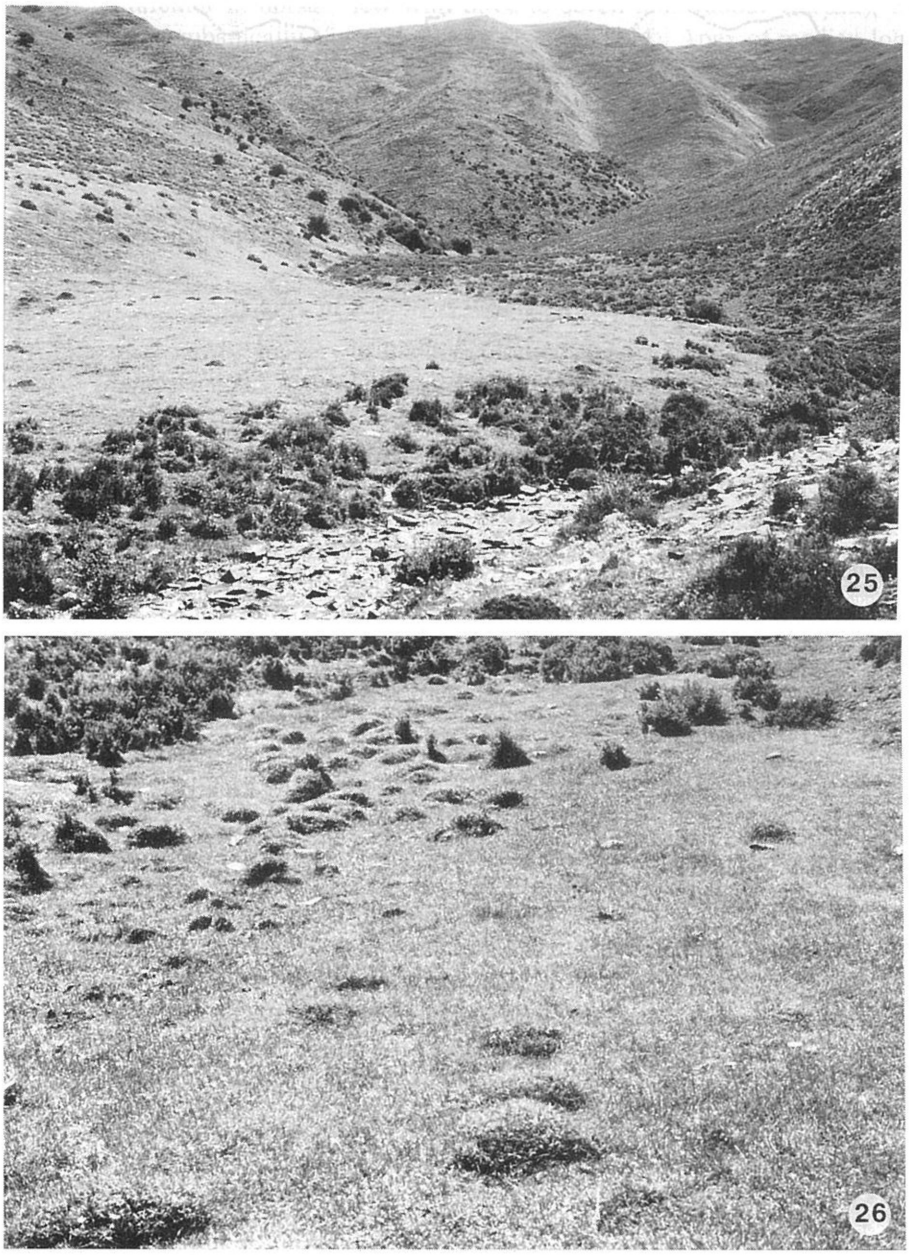
diceps, the head and elytra are very finely punctate (SEMENOV, 1889: "*Elytris...crebre tenuiter punctulatis*"), the head has no coppery patterns, only bright green patterns (SEMENOV, 1889: "*capite toto smaragdino*"), and the pronotum is longer than wide (SEMENOV, 1889: "*Thorace...nullo modo transverso*"). SEMENOV (1904) redescribed this species and added some new information, such as the development of the mirrors at the elytral sinuation and ventral punctation. GOULET (1983) studied the holotype of this species, but notes are not complete enough to key out SEMENOV's species. The relationships of *E. citharus* with those of *Elaphrus* s. str. are not very clear. The setal distribution on last abdominal sterna to lateral edge would support relationships with the lineage comprising *E. comatus* GOULET, 1983, *E. riparius*, *E. tuberculatus*, *E. trossulus* and *E. tibetanus* (see GOULET, 1983). Within this group of species, adults of *E. citharus* are rather distinctive and relationships of this species remain unresolved. Both males of the original series were dissected.

Geographical affinities. The range of this species overlaps with those of *E. sibiricus* MOTSCHULSKY, 1844, *E. tibetanus* and *E. punctatus* MOTSCHULSKY, 1844. A specimen of *E. sibiricus*, or of a species similar to it, was found at the type locality of *E. citharus*. The following key is modified from GOULET (1983, 286) to include *E. citharus* and a geographical variant of *E. finitimus* CASEY, 1920, found recently in northeastern California and in adjacent Oregon:

11 (5) Frons and disc of pronotum with numerous setae..... *E. finitimus* CASEY
— Frons and pronotum glabrous, or only pronotum with a few setae..... A
A (11) Metepisternum without setae; punctures large (30–40 μm in diameter). Lateral margin of elytron markedly sinuate in basal third; surface at sinuation with clearly outlined mirror (Fig. 10). Elytral pits large: distance from suture to outer margin of pit in front of main mirror in interval 3 subequal to



Figs. 23–24. Sublateral view of abdominal sternum 4 showing the microsculpture pattern: 23, *Elaphrus tibetanus*; 24, *E. tuberculatus*.



Figs. 25–26. Habitat of *Elaphrus tibetanus*: Gansu, Mts. 10 km S Xiahe, 3,200 m, 4–VIII–94: 25, general view; 26, close up of actual habitat showing a flat wet seepage area with dense and thick low grasses.



Fig. 27. Distribution of *Elaphrus tibetanus* (square) and *E. citharus* (triangle).

distance from suture to inner margin of pit nearest to main mirror in interval 5 (Fig. 14). . . . . *E. citharus* sp. nov.

— Metepisternum with numerous setae; punctures small (20–30 μm in diameter). Lateral margin of elytron little sinuate in basal third; surface at sinuation without mirror, or mirror no more than suggested (Fig. 15). Elytral pits small: distance from suture to outer margin of pit in front of main mirror in interval 3 clearly shorter than distance from suture to inner margin of pit nearest to main mirror in interval 5 (Fig. 13). . . . . B

B (A′) Metafemur in dorsal view with three to seven long (about 150 µm), white setae subapically (fig. 35 in GOULET, 1983, 344). Apex of median lobe of male truncate (fig. 63 b in GOULET, 1983, 348). [Specimen from northeastern China, Russian Far East (Primorskij Kraj) (KRYZHANOVSKIJ *et al.*, 1995), or Japan] ..... *E. comatus* GOULET

— Metafemur in dorsal view with one to three short (25–100 µm long), white setae subapically (fig. 34 in GOULET, 1983). Apex of median lobe of male rounded (fig. 61 a in GOULET, 1983)..... 12

Larva of *Elaphrus viridis* HORN, 1878

Adults of *E. viridis* are very brilliantly coloured and stand out from those of other species of *Elaphrus* s. str. A third instar larva, collected in California, Solano county, 19 km south of Dixon, on February 20, 1982 by J. K. LIEBHERR is keyed and described below. Unfortunately, the two first instar larvae sent on loan by Dr. D. H. KAVANAUGH (California Academy of Sciences, San Francisco, California) were accidentally lost upon arrival. The larva is typical of those associated with the species of the genus *Elaphrus*. The instar was determined based on the number of accessory setae found on the epipleuron, hypopleuron, the sternite and inner poststernite of terga 2 to 7.

The following is a modification of the key to third instar larvae in GOULET (1983, 288):

A Terga 1 to 8 with 4 to 8 accessory setae. Mesonotum and metanotum smooth, without sculpticells; terga 1 to 8 smooth on disc, without pointed sculpticells. ..... *E. viridis* HORN

— Terga 1 to 8 with 16 to 20 accessory setae. Mesonotum and metanotum with well developed meshes of microsculpture. Terga 1 to 8 with pointed sculpticells on disc. 1

A brief diagnostic descripiton of the third instar larva of *E. viridis* follows (for setal code see fig. 76 in GOULET, 1983, 352):

Epicranial suture 0.6 as long as antennomere 1. Setae AIM and AII of nota long; seta PII–P of nota 40 to 80 µm in length. Seta AIM on terga 1 to 8 long. Laterodorsal seta of abdominal epipleura 1 to 5 short, longer than those on terga 1 and 8.

Notes on *Elaphrus sugai* NAKANE, 1987

NAKANE (1987, 171) described a new species *E. sugai* from Japan. This species, belonging to the subgenus *Neoelaphrus* HATCH, 1951, is similar to *E. japonicus* UÉNO, 1954. In his brief description of *E. sugai*, NAKANE emphasized the puncture size on elytral intervals and the darker colour pattern relative to *E. japonicus*. Dr. S.-I. UÉNO kindly gave us a pair of *E. sugai* and our comments are based on these two specimens. *Elaphrus sugai* is a clearly distinct species, probably related to *E. japonicus*. Unlike the latter species, *E. sugai* inhabits lowlands and is surviving only in two marshes of the Toné-gawa drainage on the Kwantô Plain, Central Japan. It is recorded in the offi-

Table 2. Summary of differences observed in character states between *E. sugai* and *E. japonicus*.

Species	*E. sugai*	*E. japonicus*
Colour		
Punctures		
a) Dorsal surface	dark green	copper
b) Abdominal sterna	black or very dark green	dark green
Surface between punctures		
a) Dorsal surface	very dark brown	brown
b) Pleura and elytral epipleuron	very dark copper	dark copper
c) Abdominal sterna	black	dark green
Dorsal surface of tibiae	blue	reddish brown
Puncture size		
Frons	40 to 50 μm	35 to 45 μm
Pronotal disc	40 to 50 μm	10 to 20 μm
Pronotal epipleuron	30 to 40 μm	10 to 15 μm
Proepisternum	70 to 90 μm and very deeply impressed	20 to 25 μm and flush with surface
Prosternum	30 to 50 μm	10 to 15 μm
Elytral intervals 4, 6 and 8	15 to 35 μm (largest at edge of interval)	15 to 25 μm
Metepisternum	40 to 50 μm	20 to 25 μm
Abdominal sternum 1, laterally	40 to 50 μm	20 to 30 μm
Puncture density		
Proepisternum	adjacent	scattered: 1 to 5 puncture diameters apart.
Setal development		
Last abdominal sternum	20 to 30 setae	5 to 10 setae
Median lobe		
Apical region in lateral view	hardly narrowed down near ostium (Fig. 3)	clearly narrowed down near ostium (Fig. 4)

cial red data book of the Japanese Government.

The following is a modification of the key by GOULET (1983, 248):

3 (2′) Punctures 50–150 μm apart on elytral intervals 4, 6 and 8. Lateral ridges of elytral pits wide and convex (fig. 132 in GOULET, 1983, 363). [Known from Japan and adjacent regions of Russia]. . . . . A

— Punctures 30–40 μm apart on elytral intervals 4, 6 and 8. Lateral ridges of elytral pits weakly convex, narrow or absent (figs. 119–120 in GOULET, 1983, 360). 4

A (3) Pronotum with discal punctures large (40–50 μm in diameter) and deeply impressed. Proepisternum with enormous (70–90 μm in diameter), very deeply impressed, and closely packed punctures. Dorsal surface of tibiae dark blue.. . . . . *E. sugai* NAKANE

— Pronotum with discal punctures small (10–20 μm in diameter) and flush with surface. Proepisternum with small (20–25 μm in diameter), flush, and scat-

tered (1 to 5 diameters apart) punctures. Tibiae, except base and apex, reddish brown. . . . . *E. japonicus* UÉNO

In Table 2, we give a summary of several character state differences between *E. japonicus* and *E. sugai*.

Notes on *Elaphrus weissi* DOSTAL

DOSTAL (1996) described a new species, *E. weissi*, from Greece, based on seven males and four females. Based on DOSTAL's description and illustration of an adult, he correctly associated this species with those of *Elaphrus* s. str. We did not see specimens of *E. weissi*, but based on his description, we agree with DOSTAL that adults key out to the *E. hypocrita*/*E. ruscarius* couplet in GOULET (1983, 285). *Elaphrus weissi* is most similar to *E. hypocrita* SEMENOV, 1926. We agree that it is a distinct species, as shown by the characterization given below.

Adults of this species are characterized as follows: lateral margin of pronotum not beaded in sinuation, not explanate near middle; punctures of pronotum twice as dense submedially as anterolaterally; disc of pronotum with deep and clearly defined impression submedially, in lateral view flattened, and with many white setae; abdominal sterna with setae not extended to lateral edge, setae numerous (more than 20, based on fig. 3 a in DOSTAL, 1996) on last abdominal sternum.

Adults of *Elaphrus weissi* are easily distinguished from those of *E. ruscarius* SAY, 1830 by the small proepisternal punctures (28–45 μm) and the setose pronotum, and from those of *E. hypocrita* by the setose pronotum, and by the deep and clearly outlined submedial impression.

The pertinent couplets in the key by GOULET (1983, 285) are modified as follows to include *E. weissi*:

7 (6) Punctures on proepisternum large (50–60 μm in diameter), surface around punctures widely depressed (fig. 109 in GOULET, 1986). Surface of proepisternum almost black: microsculptured surface dark coppery, punctures dark blue green. [Eastern Nearctic region]. . . . . *E. ruscarius* SAY

— Punctures on proepisternum small (30–45 μm in diameter), surface around punctures hardly, or not depressed. Surface of proepisternum bright metallic blue-green or bronze-gold. [Palaearctic region]. . . . . A

A (7) Pronotum with many white setae on disc; submedial impression deep and clearly outlined; pronotum wide: ratio pronotum length / pronotum width= 0.83–0.90. Last abdominal sternum with 20 or more setae (based on fig. 3 a in DOSTAL, 1996). . . . . *E. weissi* DOSTAL

— Pronotum without accessory white setae on disc; submedial impression shallow and obscurely outlined; pronotum narrow: ratio pronotum length/ pronotum width=0.92–0.93 (based on only six specimens – GOULET, 1986, 293). Last abdominal sternum with 15 or less setae. . . . . *E. hypocrita* SEMENOV

Synonymic Notes

LUTSHNIK (1936) named a new variety of *Elaphrus* as *E. lapponicus* var. *violaceus*, informally described by SPARRE-SCHNEIDER as *E. lapponicus* var e. JEDLIČKA (1956) added another variety as *E. lapponicus* ab. *viridis*. *Elaphrus lapponicus* is extremely variable in colour. Young adults are brightly coloured and older ones are mat. In general, the adults are green or coppery, dark bluish-purple specimens were also seen. Both names are considered here as junior synonyms of *E. lapponicus lapponicus* GYLLENHAL, 1810. The synonymy is as follows:

Elaphrus lapponicus lapponicus GYLLENHAL

Elaphrus lapponicus GYLLENHAL, 1810, 8. Type area: Lappland, subsequently restricted to Abisko, Sweden (LINDROTH, 1961); type in Göteborg Museum; type seen by LINDROTH (1961).

Elaphrus elongatus FISCHER VON WALDHEIM, 1828, 266. Type area: Kamchatka, Russia; type in Zoological Museum, University of Helsinki, Finland; type seen by LINDROTH (1961).

Elaphrus obscurior KIRBY, 1837, 63. Type area: Latitude 65°, according to LINDROTH (1961) near Great Bear Lake, N.W.T.; type in British Museum (Natural History), London; type seen by LINDROTH (1961). This name was attributed to J. SAHLBERG by SPARRE-SCHNEIDER (1888) as a variety. It is simply a change in status of KIRBY's name.

Elaphrus lapponicus var. *viridis* SPARRE-SCHNEIDER, 1888, 99. Name incorrectly established by SPARRE-SCHNEIDER due to improper reading of the name of a variety of *Elaphrus lapponicus* in C. R. SAHLBERG (1834, 188): "var. b. *Viridis*..." as "var. *viridis*".

Elaphrus lapponicus var. *elongatus*: JAKOBSON, 1906, 267.

Elaphrus lapponicus var. *violaceus* LUTSHNIK, 1936, 176. Name proposed for *E. lapponicus* var. e of SPARRE-SCHNEIDER (1888, 99).

Elaphrus lapponicus ab. *viridis* JEDLIČKA, 1956, 391. Type area: Saltdal (Norway); type in the Hungarian Natural History Museum, Budapest, Hungary; type not seen.

Holotype of *Elaphrus purpurans* HAUSEN

The holotype of *E. purpurans* HAUSEN, 1891 is deposited in the collection of MacDonald College, Ste Anne de Bellevue, Québec, Canada. The specimen is labelled as follows: "Br. Columbia Coll by Dr A.R.C. Selwyn /6/ Coll. Nat. Hist. Soc./207/ Type Elaphrus purpurans n. var. (?)". Condition of the specimen: abdomen and hind legs (excluding left metacoxa and metatrochanter), left antenna (excluding scape and pedicel) are missing.

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Mr. Go SATO, Eastern Cereal and Oilseed Research Centre, Ottawa, carefully finished all line drawings and Mr. A. DAVIES, from the same institution, provided the SEM photomicrographs. Our colleagues, Mr. A. DAVIES, Drs. Y. BOUSQUET and D. E. BRIGHT read the original draft of the manuscript and their comments eventually led to its improvement.

要　　約

H. GOULET·A. SMETANA：ハンミョウモドキ属に関する知見の追補．—— ハンミョウモドキ属の種，とくに中国産の種について新しい知見を追加し，甘粛省から1新種 *Elaphrns citharus* GOULET et SMETANA を記載するとともに，*trossulus* 種群の種に関する改変ならびに記録の追補を行った．また，*E. lapponicns* の色彩変異にあたえられた名称を整理し，*E. sugai* および *E. weissi* の正確な標徴をまとめて，1983年に公表した第一著者による種の検索表を改変した．

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A Second Representative of *Pseudocoptolabrus* (Coleoptera, Carabidae) Discovered in Southern Sichuan, China

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Abstract A new species of the genus *Carabus* (s. lat.) belonging to the subgenus *Pseudocoptolabrus* is described from the Daliang Shan Mountains of southern Sichuan, Southwest China, under the name of *C.* (*P.*) *armiger* nov.

Pseudocoptolabrus is a unique component of the genus *Carabus* (s. lat.), which is regarded as one of the subgenera belonging to the subdivision Procrustimorphi of the division Multistriati (cf. IMURA, 1996, pp. 5–12). It was originally established by REITTER (1896, p. 95) for a single Chinese species, as one of the thirteen subgenera belonging to the division "Carabi Multisetosi" of the grand genus *Carabus*. Though once synonymized by BREUNING (1932–'37) with the "Sectio" *Megodontus* of the subgenus *Procrustes*, and often treated as a member of the "subgenus" *Megodontus*, it is now widely accepted as a distinct subgenus.

The type species, *Carabus taliensis*, was described by FAIRMAIRE (1886, p. 223) as a member of the genus *Coptolabrus* from "Yunnan", without further detailed data, and there was a long blank in our knowledge until IMURA and KEZUKA (1989, pp. 3–7) recorded the same species from "near Tali (=Dali)" in western Yunnan under the name "*Protodamaster aesculapius*", which is now regarded as a mere local race of FAIRMAIRE's species. With the recent advancement of general knowledge about the Chinese carabid fauna, ten more subspecies have subsequently been described, namely, *atentsensis* DEUVE (1990 a, p. 26) from "Atentse (=Dêqên)" at the northwestern tip of Yunnan, *yulongxuensis* DEUVE (1990 b, p. 2) from Mt. Yulongxue Shan (4,100 m) in Northwest Yunnan, *lijiangensis* DEUVE (1990 b, p. 2) from the Ganhaizi Pass (3,000–3,500 m) of the same mountain range, *kezukai* DEUVE et IMURA (1991, p. 148) from Mt. Baimaxue Shan (4,300 m) near the northwestern tip of Yunnan, *weibaoensis* DEUVE (1992, p. 58) from "Weibao, 3,000 m" (without indication of the exact locality) of Yunnan, *xueshanicola* DEUVE (1992 b, p. 59) from Habaxue Shan (4,600 m) in Northwest Yunnan, *wengshuiensis* DEUVE (1994, p. 468) from the "route entre Xiangcheng et Wengshui, col à 35 km au sud de Xiangcheng et 15 km au nord de Wengshui, 3,500 m" near the borders between Northwest Yunnan and Southwest Sichuan, *mulianus* DEUVE (1995, p. 31) from "30 km au nord-ouest de Muli, en forêt, env. 3,500 m"

near the southwestern end of Sichuan, *stupaensis* CAVAZZUTI (1996, p. 232) from the "Passo fra Yanyuan e Muli, 3,300 m" near the southwestern end of Sichuan, *cangshanensis* DEUVE (1996, p. 87) from the "Cang Mts., 4,000 m" in Northwest Yunnan, and *yanmenensis* DEUVE (1996, p. 87) from "Hengduan mts-part MEILI, 3,700 m" in Northwest Yunnan. Though considerably variable both in external and genitalic features, all these taxa can be unified from morphological viewpoint into a single polytypical species, and no other representative of the same subgenus differentiated to the species level has been known within the Chinese territory up to the present.

Late in the summer of 1996, I received from Mr. Wakô KITAWAKI a short series of insect specimens consisting mainly of the genera *Carabus* and *Cychrus* collected from the high altitudinal area of the Daliang Shan Mountains situated between the Rivers Jinsha Jiang and Dadu He in the southern part of Sichuan. The collection contained a strange species obviously belonging to the subgenus *Pseudocoptolabrus*. At the first glance, it seemed to represent a local race of *C.* (*P.*) *taliensis*, but after a careful comparative study of all the known subspecies of the latter, I have realised that the Daliang Shan species definitely differs from FAIRMAIRE's one mainly in the shape of the pronotum, the condition of the elytral sculpture and the shape of the male foretarsus, as well as in the conformation of the male genital organ. It will be described as a new species in the following lines.

Before going into further details, I wish to express my deep indebtedness to Dr. Shun-Ichi UÉNO of the National Science Museum, Tokyo, for revising the manuscript of this paper. Hearty thanks are also due to Messrs. Wakô KITAWAKI and Kiyoyuki MIZUSAWA for their kind consideration in giving me an opportunity to examine such an interesting species.

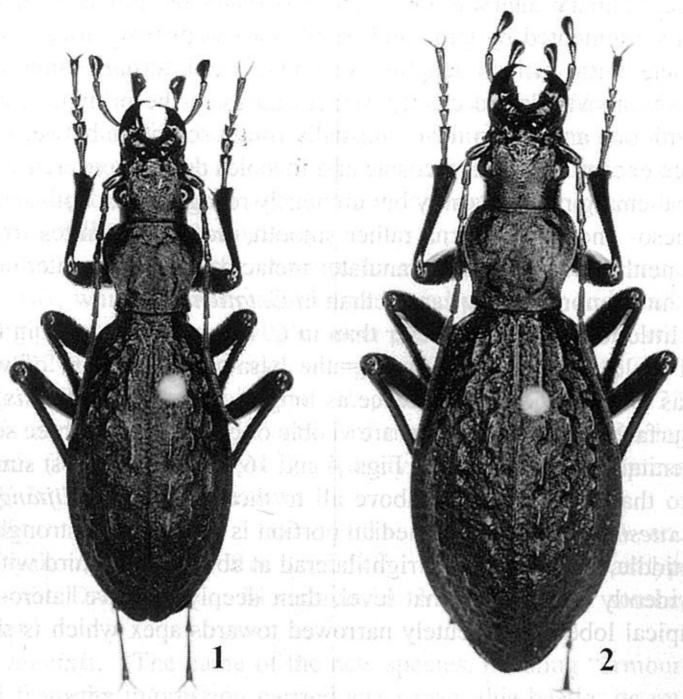
Carabus* (*Pseudocoptolabrus*) *armiger IMURA, sp. nov.

(Figs. 1, 2, 4, 16)

Length: 28.6–33.8 mm (including mandibles). Entirely black and mat.

Medium-sized species with the external features similar to those of *C.* (*P.*) *taliensis* FAIRMAIRE, but definitely different from that species in much more rugged dorsal surface of body, characteristically shaped pronotum and much more strongly prominent primary intervals of elytra, as well as differently shaped male genital organ.

Head as in *C. taliensis*, but the apical margin of labrum more deeply emarginate, frontal furrows more deeply guttered and the dorsal surface more roughly and conspicuously rugulose; two teeth of right mandibular retinaculum variable in lengths according to individuals — they are almost of the same length in two of the four type specimens, but the anterior tooth is longer than the posterior in one specimen, and the anterior is shorter than the posterior in the remaining one; antennae a little longer than in *C. taliensis*, barely reaching the middle of elytra in male and extending beyond the basal third in female; terminal segments of palpi in male a little more widely divergent than those of *C. taliensis*; penultimate segments of labial palpus multisetose, with four



Figs. 1–2. *Carabus* (*Pseudocoptolabrus*) *armiger* IMURA, sp. nov., from Dafengding of the Daliang Shan Mountains in southern Sichuan; 1, ♂ (holotype); 2, ♀ (allotype).

to eight setae on each side; median tooth of mentum wider at the basal part, less sharply pointed or sometimes even slightly bifid at the tip, and much less remarkably protrudent ventrad than in *C. taliensis*.

Pronotum considerably different in shape from that of *C. taliensis*, which is more strongly cordate, widest at about apical fourth, and much more strongly narrowed towards base than towards apex; PW/HW 1.22–1.27 (M 1.25), PW/PL 1.10–1.14 (M 1.12), PW/PAW 1.43–1.58 (M 1.51), PW/PBW 1.29–1.37 (M 1.33), PBW/PAW 1.05–1.18 (M 1.14); front angles obtuse and hardly produced anteriad; sides rather strongly arcuate in front, distinctly sinuate at basal fifth or a little behind that level, and then obviously divergent towards hind angles which are obtuse, only slightly produced posteriad and obliquely bent ventrad; disc flatter as a whole than in *C. taliensis*, but the surface is much more rugged and more roughly rugoso-scabrous, with a butterfly-shaped convexity widely occupying the central portion; basal foveae not deeply carved with the margins not clearly outlined; median longitudinal line very weakly and shallowly impressed, and partly becoming unclear; marginal setae completely absent.

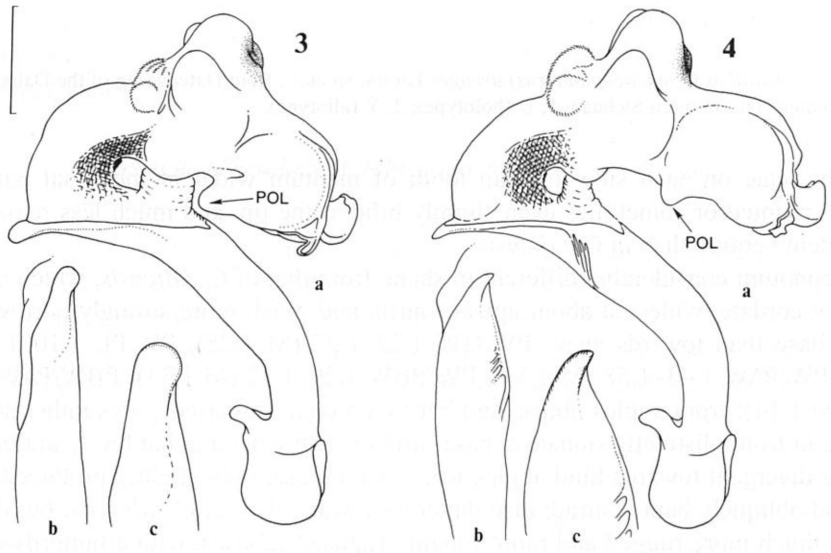
Elytra a little robuster than in *C. taliensis*, with much more roughly sculptured

discal surface. Primary intervals much more strongly prominent than in *C. taliensis* and irregularly segmented by large and deeply carved primary foveoles to form rows of wide costae with various lengths; secondary and tertiary intervals much less strongly convex above, not so clearly recognised as in the primaries, and irregularly connected with one another to form unusually rough sculpture between the primaries; elytral surface except for primary costae and foveoles densely covered with large granules; preapical emargination weakly but obviously recognised in both sexes.

Pro-, meso- and metepisterna rather smooth, sides of sternites irregularly rugulose though neither punctate nor granulate; metacoxa bisetose, anterior setae absent; sternal sulci much more weakly carved than in *C. taliensis*.

Legs a little longer and slenderer than in *C. taliensis*, above all in the basal three segments of male foretarsus, the first (=the basalmost) segment of which is about three times as long as wide (about twice as long as wide in *C. taliensis*); hair pads on the ventral surface of male foretarsus are visible only in the basal three segments.

Male genital organ as shown in Figs. 4 and 16; aedeagus almost similar in general proportion to that of *C. taliensis*, above all to those of subspp. *lijiangensis*, *yulongxuensis* and *xueshanicola*, but the median portion is a little more strongly inflated ventrad at the middle, evidently tumid right laterad at about apical third with the right lateral wall evidently rugulose at that level, then deeply concave latero-ventrad at the right side; apical lobe rather acutely narrowed towards apex which is sharply pointed



Figs. 3–4. Male genital organ of *Carabus* (*Pseudocoptolabrus*) spp. —— 3, *Carabus* (*Pseudocoptolabrus*) *taliensis lijiangensis* DEUVE (paratype), from Ganhaizi of Lijiang district in northwestern Yunnan; 4, *C.* (*P.*) *armiger* IMURA, sp. nov. (holotype), from Dafengding of the Daliang Shan Mountains in southern Sichuan; a, aedeagus with fully everted endophallus in right lateral view; b–c, apical part of aedeagus in ventral view; POL, podian lobe. Scale: 2 mm for a and b, 1 mm for c.

both in lateral and ventral views, and rather strongly bent right laterad; viewed ventrally, apical third of aedeagus not conspicuously emarginate left laterad as in *C. taliensis* but roundly arcuate throughout, as shown in Fig. 4 b; ostium lobe narrower and smaller than in *C. taliensis*; endophallus a little longer and slenderer especially in the apical half; prepraeputial lobes larger, and a pair of subtriangularly shaped membraneous inflation situated on the ventral side at about apical third to fourth (I call it "podian lobe", a term newly proposed here) smaller and not directed to the base of endophallus as in *C. taliensis* in fully everted condition.

Female genital organ with the outer plate of ligular apophysis much slenderer than in *C. taliensis*, which is rather acutely narrowed posteriad and markedly sclerotized with strong pigmentation as a whole; inner plate a little more transverse than that of *C. taliensis*, 1.12–1.23 times as wide as long.

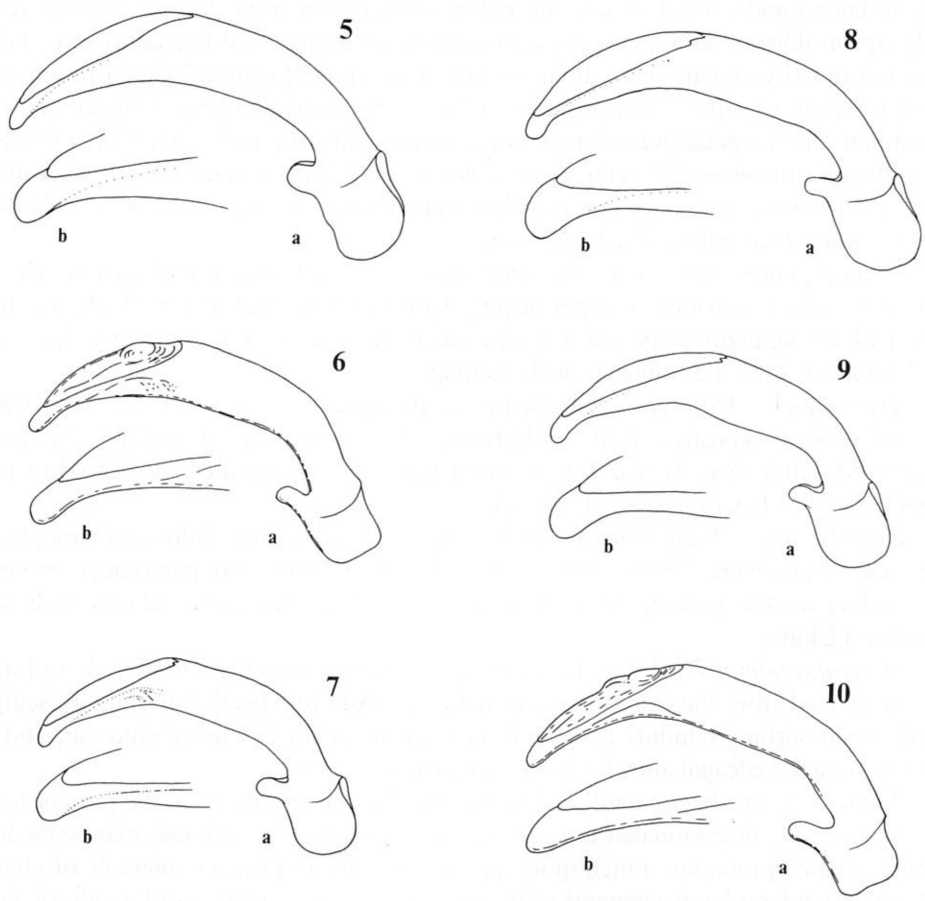
Type series. Holotype: ♂, allotype: ♀, paratypes: 1 ♂, 1 ♀, 19~22–VII–1996. The holotype is deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes are separately preserved in the collections of Y. IMURA and K. MIZUSAWA.

Type locality. Near Wahou, 2,600–2,700 m (1 ♂, 1 ♀ incl. holo- and paratypes) and near Yizi-yakou, 2,900–3,000 m (1 ♂, 1 ♀ incl. allo- and paratypes), around Dafengding on the Daliang Shan Mountains, in Meigu Xian of southern Sichuan, Southwest China.

Derivatio nominis. The name of the new species, meaning "armoured" in English, is derived from the impression carried away from this beetle; its roughly sculptured dorsal surface reminds us of certain kind of armoured car or dinosaur, and a sharply pointed aedeagal apex looks like a sickle- or spearhead.

Notes. As has been mentioned in the introduction and the text, the present new species is readily discriminated from all the known forms of *C. taliensis* mainly by differently shaped pronotum, much more strongly prominent primary intervals of elytra and much slenderer basal segments of the male foretarsus, as well as differently shaped male genital organ. It is also characteristic in lacking marginal setae of the pronotum, which is preserved in all the known forms of *C. taliensis*. The hair pads on the ventral surface of the male foretarsus are visible only in the basal three segments in the new species under consideration, while it is rather exceptional for *C. taliensis* whose male foretarsus is hairy in the basal four segments except in such subspecies as *mulianus* and *cangshanensis*. These differences seem to give the beetle a taxonomic status not at the new subspecies level within *C. taliensis* but at the level specifically different from the latter. It is considered to be a unique second representative of the subgenus *Pseudocoptolabrus* in the Chinese territory. The occurrence of the members of this subgenus is rather sporadical, but its whole range seems to be restricted to an area from the northwestern part of Yunnan to the southern or southwestern end of Sichuan near the Yunnanese borders (*vid*. Fig. 17).

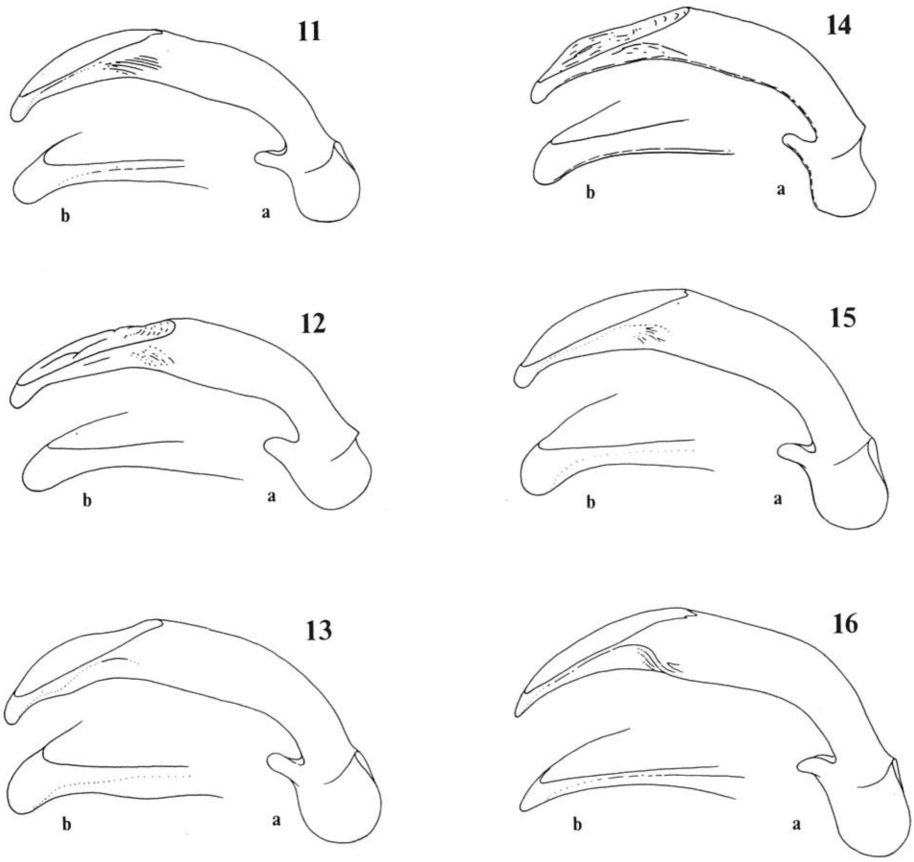
There is, however, one more species most presumably belonging to the same subgenus, namely, *Carabus burmanensis* BREUNING. It is known so far only from the



Figs. 5–10. Male genital organ of *Carabus* (*Pseudocoptolabrus*) *taliensis* subspp. —— 5, *C.* (*P.*) *taliensis aesculapius* (holotype), from "near Tali (=Dali)"; 6, *C.* (*P.*) *t. weibaoensis* (holotype), from "Weibao, 3,000 m" (redrawn after DEUVE, 1992); 7, *C.* (*P.*) *t. cangshanensis* (holotype), from "Cang Mts., 4,000 m"; 8, *C.* (*P.*) *t. lijiangensis* (paratype), from "Ganhaizi pass, 3,000–3,500 m, Yulongshan Mts."; 9, *C.* (*P.*) *t. yulongxuensis*, from "Yulongshan Mts., 4,100 m"; 10, *C.* (*P.*) *t. xueshanicola* (holotype), from "Habaxue Shan, 4,600 m" (redrawn after DEUVE, 1992); a, aedeagus in right lateral view; b, apical part of aedeagus in the same view.

mountainous region of the northernmost part of Myanmar, and is doubtless related to the above two Chinese species. DEUVE (1991, p. 18) erected a new subgenus *Nigracoptolabrus* for the Myanmar species, but I prefer to regard it as a member of REITTER's subgenus based upon the external and the genitalic findings I have taken from the female holotype now preserved in the Natural History Museum, London.

Morphologically, *Pseudocoptolabrus* should be placed near the *Damaster–Coptolabrus–Acoptolabrus* lineage or at the side of the *Megodontus* lineage of the subdivi-



Figs. 11–16. Male genital organ of *Carabus* (*Pseudocoptolabrus*) spp. —— 11, *C.* (*P.*) *taliensis kezukai* (holotype), from "Mt. Baimaxue Shan, 4,300 m"; 12, *C.* (*P.*) *t. atentsensis* (holotype), from "Atentse (=Dêqên)" (redrawn after DEUVE & IMURA, 1991, p. 147); 13, *C.* (*P.*) *t. yanmenensis* (holotype), from "Hengduan mts-part MEILI, 3,700 m"; 14, *C.* (*P.*) *t. wengshuiensis* (holotype), from "route entre Xiangcheng et Wengshui, col à 35 km au sud de Xiangcheng et 15 km au nord de Wengshui, 3,500 m" (redrawn after DEUVE, 1994, p. 468); 15, *C.* (*P.*) *t. mulianus* (holotype), from "30 km NW Muli/Bowa, ca. 3,500 m"; 16, *C.* (*P.*) *armiger* nov. (holotype) from near Wahou, 2,600–2,700 m, around Dafengding on the Daliang Shan Mts.; a, aedeagus in right lateral view; b, apical part of aedeagus in the same view.

sion Procrustimorphi, together with such Chinese subgenera as *Pagocarabus* (*sensu* IMURA, 1996), *Megodontoides* (ibid.), *Aristocarabus*, *Eccoptolabrus*, *Lasiocoptolabrus*, *Pseudocranion* and *Shunichiocarabus*. From the phylogenetical viewpoint, however, there is a possibility that this unique subgenus may have been derived from *Neoplesius* (*sensu* IMURA, 1996) or its relatives, whose distributional range overlaps, at least partly, that of *Pseudocoptolabrus* in the mountainous regions of Southwest China.

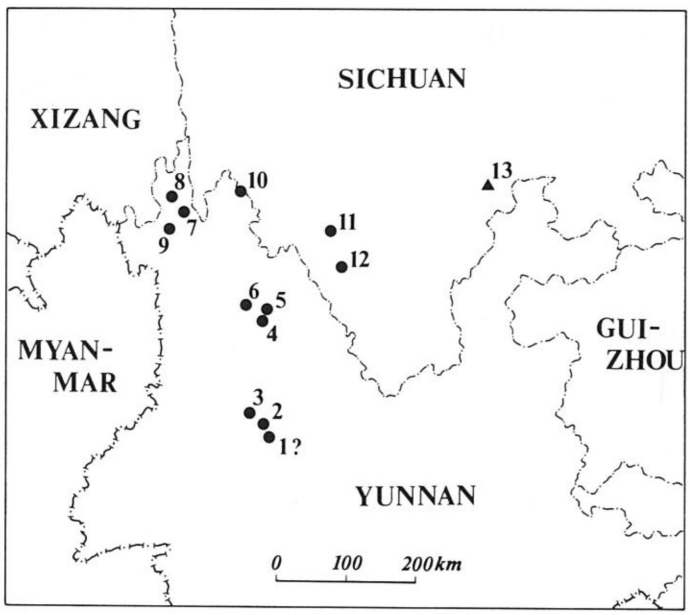


Fig. 17. Map showing the known localities of *Carabus* (*Pseudocoptolabrus*) spp. in Southwest China. Black circles: *C.* (*P.*) *taliensis*. Black triangle: *C.* (*P.*) *armiger* nov. —— 1, *C.* (*P.*) *taliensis taliensis* ("Yunnan", probably near Dali); 2, *C.* (*P.*) *t. aesculapius* (near Dali); 3, *C.* (*P.*) *t. cangshanensis* (Mt. Cang Shan); 4, *C.* (*P.*) *t. lijiangensis* (Mt. Yulongxue Shan); 5, *C.* (*P.*) *t. yulongxuensis* (Mt. Yulongxue Shan); 6, *C.* (*P.*) *t. xueshanicola* (Mt. Habaxue Shan); 7, *C.* (*P.*) *t. kezukai* (Mt. Baimaxue Shan); 8, *C.* (*P.*) *t. atentsensis* (Dêqên); 9, *C.* (*P.*) *t. yanmenensis* (near Yanmen on the Hengduanshan Mts.); 10, *C.* (*P.*) *t. wengshuiensis* (Wengshui – Xiangcheng); 11, *C.* (*P.*) *t. mulianus* (30 km NW from Muli); 12, *C.* (*P.*) *t. stupaensis* (Pass between Yanyuan and Muli); 13, *C.* (*P.*) *armiger* nov. (near Dafengding on the Daliang Shan Mts.).

要　約

井村有希：四川省南部から発見された中国産ヌバタマキンオサムシ亜属第2の種．—— ヌバタマキンオサムシ亜属*Pseudocoptolabrus*は，多条オサムシ群のなかのヨロイオサムシ亜群に属する広義のオサムシ属*Carabus* (s. lat.)の一員で，中国国内においては，云南省北西部から四川省南西端にかけての山岳地帯に特産し，顕著な変異を示す基準種のヌバタマキンオサムシ*C.* (*P.*) *taliensis* FAIRMAIREのみが知られていた．筆者は最近，四川省南部の大涼山Daliang Shan高所にある大风顶Dafengding付近から得られた，本亜属の一員と考えられるオサムシを検する機会があり，これまでに知られているヌバタマキンオサムシのすべての亜種と比較検討した結果，前胸背板，上翅彫刻，♂交尾器の形態などに一定の明瞭な相違を認めた．したがって，本論文において，大涼山の種にサムライヌバタマキンオサムシ*C.* (*P.*) *armiger*という名を与え，新種として記載する．本種は，中国産の同亜属のものとしては第2の，また世界的にみれば，ミャンマー北部高地帯からごくわずかな標本が知られているにすぎないビルマヌバタマキンオサムシ*C.* (*P.*) *burmanensis* BREUNINGにつぐ第3の種ということになる．なお，本論文において，♂

交尾器内袋を完全に反転させたときに，その前方1/3から1/4付近の腹側にみられる1対の膜状膨隆部に対して，脚葉podian lobeという名称をあらたに提唱した．

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Elytra, Tokyo, **25** (1): 229–230, May 15, 1997

Description of the Male of *Carabus burmanensis* BREUNING

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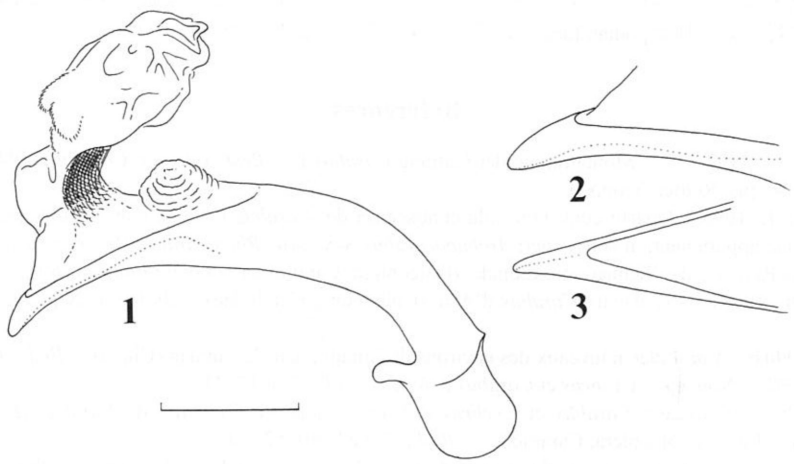
Carabus burmanensis was described by BREUNING (1937, Best.-Tab. eur. Coleopt., (110), pp. 1489–1490) for a single female specimen collected from "Ober-Burma, Seinghku-Tal", as a



Figs. 1–3. Male genitalia of *Carabus* (*Pseudocoptolabrus*) *burmanensis* BREUNING, from N of Putao, near the northern end of Myanmar; 1, aedeagus with incompletely everted endophallus in right lateral view; 2, apical part of aedeagus in the same view; 3, ditto in dorsal view. Scale: 2 mm for 1, 1 mm for 2 and 3.

member of the Sectio *Aristocarabus* of the subgenus *Coptolabrus*. It was DEUVE who took this least known species up to science after a long blank in our knowledge, and he erected a new subgenus, *Nigracoptolabrus* (1991, Bull. Soc. Sci. Nat, (70), p. 18), on the basis of a brief comparative morphology made only with the subgenus *Acoptolabrus*. In my recent work with MIZUSAWA (1996, The *Carabus* of the World, p. 235), I placed it in the subgenus *Pseudocoptolabrus*, based upon the external and female genitalic findings taken by myself from the holotype now preserved in the Natural History Museum, London. Anyway, nothing has been known on the male of this species, though a brief comment was made by BREUNING on the possibility of the presence of a single male specimen at the end of his original description. Very recently, I was able to examine 1 ♂, 2 ♀♀ of this species obtained in the summer of 1995 from N of Putao near the northern end of Myanmar. Here I give the description of the male with the illustration of its genitalia, which furnish no evidence to support independence of *Nigracoptolabrus* from *Pseudocoptolabrus*. I thank Messrs. Yukinobu NOSE and Masahiro TANAKA for kindly giving me the opportunity to examine the specimens.

Description. General proportion almost the same as in female, though antennae a little longer, extending to the middle of elytra. Penultimate segment of labial palpus bi- or trisetose. Foretarsus with hair pads from segment 1 to 4, though very small and vestigial in the fourth segment. Aedeagus as shown in Figs. 1–3; apical part sharply pointed; ostium lobe large, robust and unilobate; endophallus almost agreeing in basic structure with that of the subgenus *Pseudocoptolabrus*, though I was unable to make full eversion because of insufficient preservation of the specimen.

Elytra, *Tokyo*, **25** (1): 231–245, May 15, 1997

Morphology and Molecular Phylogeny of Some Tibetan Ground Beetles Belonging to the Subgenera *Neoplesius* and *Eocechenus* (Coleoptera, Carabidae)

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Abstract Morphological characters are described in detail for some Tibetan carabine beetles belonging to the subgenera *Neoplesius* and *Eocechenus* of the genus *Carabus* (s. lat.). *Carabus* (*Neoplesius*) *markamensis* is raised from the subspecies of *C.* (*N.*) *wagae* to an independent species, with descriptions of two new subspecies under the names *wangdanus* nov. and *rawuensis* nov. A molecular phylogenetic analysis of these beetles indicates that they form a single (monophyletic) cluster that shares a common ancestry with *Damaster* (s. lat.). No phylogenetic evidence is obtained to regard *Eocechenus* as a discrete subgenus from *Neoplesius*.

Neoplesius REITTER (sensu IMURA, 1996, and IMURA & MIZUSAWA, 1996) and *Eocechenus* SEMENOV-TIAN-SHANSKIJ et ZNOJKO are rather poorly known elements of the Chinese Carabina. These subgenera occur mainly on the high mountains of the so-called Tibet regions (western part of China represented by such areas as Xizang, western Sichuan, southeastern Qinghai and northwestern Yunnan). They are treated as two allied subgenera belonging to the subdivision Procrustimorphi in the division Multistriati of the grand genus *Carabus* (IMURA, 1996). Though not a few members of these groups have been newly introduced to science and though our knowledge on their distribution and local variation has been rapidly increasing in recent years, their morphological and phylogenetic evaluations have not been satisfactorily made; even detailed structure of the male genital organ has never been described nor figured for most species, so that the taxonomy of these and allied subgenera is still incomplete.

We had recently an opportunity to examine a series of specimens belonging to these two subgenera collected from several localities in the eastern part of Xizang Zizhiqu. Since morphology and molecular phylogeny are complements each of the other, a phylogenetic tree has been constructed based on the mitochondrial ND5 gene

sequences, and the results have been discussed in conjunction with their morphology, especially of male genital organ.

Materials and Methods

Abbreviations used in the text are the same as those in previous papers by SU *et al.* (1996 c), and the length of the specimens was measured from the apical tip of mandibles to the apices of elytra. The subtribe Carabina is regarded herein as to contain a single genus *Carabus* (s. lat.), as is now adopted by most authors, though it was treated as an assemblage of many distinct genera in the previous papers by SU *et al.* (1996 a–c).

In the present study, total twenty-nine specimens belonging to the genus *Carabus* (s. lat.) obtained from six different localities of the eastern part of Xizang Zizhiqu of West China (Fig. 1) were used. A few examples from each locality were killed and

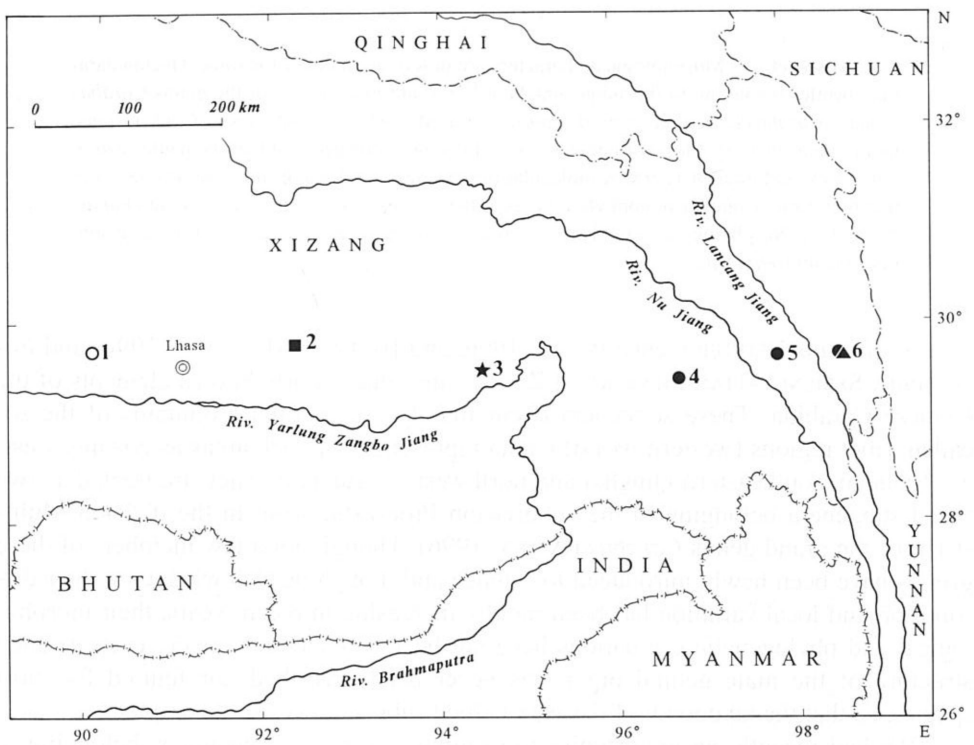


Fig. 1. Map showing the collecting sites of the materials in East Xizang Zizhiqu of West China; ○ – *Carabus* (*Neoplesius*) *wagae*; ● – *C.* (*N.*) *markamensis* subspp.; ■ – *C.* (*N.*) *borodini*; ★ – *C.* (*N.*) *ludmilae*; ▲ – *C.* (*Eocechenus*) *leptoplesioides*. —— 1, Near Margyang (*C. wagae*); 2, Pass Mi La (*C. borodini*); 3, Nyingchi (*C. ludmilae*); 4, Rawu (*C. markamensis rawuensis* nov.); 5, Wangda, SE of Zogang (*C. m. wangdanus* nov.); 6, Markam (*C. m. markamensis* & *C. leptoplesioides*).

stored in 95% ethanol until use to prevent DNA degradation, and the remaining samples were preserved as dried specimens for morphological examination.

A 1083 bp fragment of mitochondrial ND5 gene was amplified, and directly sequenced using a PRISM cycle sequencing kit and an ABI model 377 automated sequencer (Perkin-Elmer, USA). For the details of DNA extraction, PCR amplification and sequencing, see SU *et al.* (1996 a). The DNA sequences were aligned using CLUSTAL V (HIGGINS *et al.*, 1992) for phylogenetic analyses. The resulting data alignment was subsequently used to construct a phylogenetic tree by the neighbour-joining (NJ) method (SAITOU & NEI, 1987). Evolutionary distances were computed by KIMURA's two-parameter method (KIMURA, 1980). The tree was evaluated using bootstrap test based on 1,000 resamplings (FELSENSTEIN, 1985). All these procedures for phylogenetic analyses were carried out using a computer software program, BIORESEARCH/SINCA ver. 3.0 (Fujitsu System Engineering, Japan). For these analyses, the following reported ND5 gene sequences from nineteen Japanese (SU *et al.*,1996 a, b) and two French (SU *et al.*,1996 c) species were used: *Carabus* (*Limnocarabus*) *clathratus* (or *maacki*) *aquatilis* (from Aomori), D50358 (Gen Bank accession number); *C.* (*Euleptocarabus*) *porrecticollis porrecticollis* (from Chino-shi, Nagano) D50352; *C.* (*Hemicarabus*) *tuberculosus* (from Fukui), D50353; *C.* (*Homoeocarabus*) *maeander paludis* (from Hokkaido), D50354; *C.* (*Coptolabrus*) *fruhstorferi*, D50346; *C.* (*Damaster*) *blaptoides rugipennis* (from Hokkaido), D50351; *C.* (*D.*) *b. viridipennis* (from Aomori), D50428; *C.* (*D.*) *b. babaianus* (from Miyagi), D50348; *C.* (*D.*) *b. fortunei* (from Is. Awa-shima), D50426; *C.* (*D.*) *b. capito* (from Is. Sado), D50424; *C.* (*D.*) *b. oxuroides* (so-called "*cyanostola*", from Nagano) D50425; ditto (from Kawasaki), D50350; ditto (from Gifu), D50427; *C.* (*D.*) *b. blaptoides* (from Hiroshima), D50349; ditto (from Is. Shikoku), D50423; ditto (from Is. Fukué-jima of the Goto Islands., off western Kyushu), D50422; *C.* (*Acoptolabrus*) *gehinii radiatocostatus*, D50429; *C.* (*A.*) *g. aereicollis*, D50339; *C.* (*Megodontus*) *kolbei aino* (from the Daisetsu-zan Mts.), D50365; *C.* (*Megodontus*) *violaceus purpurascens* (from Burgundy, France), D86211; *C.* (*Procrustes*) *coriaceus coriaceus* (from Burgundy, France), D86206.

Results

Morphological Identification and Description of the Materials Used

Morphological examinations revealed that the specimens used were classified into seven taxa, i.e., four species consisting of six subspecies belonging to the subgenus *Neoplesius* and a single species to the subgenus *Eocechenus*.

1) ***Carabus* (*Neoplesius*) *wagae*** FAIRMAIRE, 1882

(Figs. 2, 8)

Length: 19.8–20.8 mm. Male genital organ as shown in Fig. 8; aedeagus rather

abruptly curved ventrad at basal third, with the median portion subcylindrical and almost parallel-sided, evidently tumid right laterad at about apical third, then rather deeply concave latero-ventrad at the right side; apical lobe short and subtriangular in shape, with the tip gently rounded and obviously compressed latero-dorsad; ostium lobe short and robust, with the apical part widely bilobate; endophallus with the basic structure almost identical with that of some Chinese subgenera belonging to the subdivision Procrustimorphi; neither paraligula nor basal lateral lobe is recognised, and median lobe also absent; prepraeputial lobes moderately inflated, both the lobes almost symmetrical; parapraeputial lobes well-developed, with the right one larger than the left; praeputial pad rather strongly protrudent dorsad in fully everted condition; podian lobe (cf. IMURA, 1997, p. 225) medium-sized and moderately produced ventrad; aggonoporius not sclerotized but characterized by a mere membraneous peripheral rim of gonopore.

Specimens examined. 5 ♂♂ (1 ♂ for DNA analysis), near Margyang between Pass Shogu La and Pass Dongu La, 4,500 m alt., ca. 100 km distant to the west from Lhasa, central eastern Xizang, China, 15–VII–1996, in coll. Y. IMURA.

Notes. The population from near Margyang almost agrees in morphology with the nominotypical subspecies described from the northern part of India (without indication of exact locality), though the head and pronotum of our specimens seem to be a little more strongly punctate and the elytral costae a little more strongly crenulate.

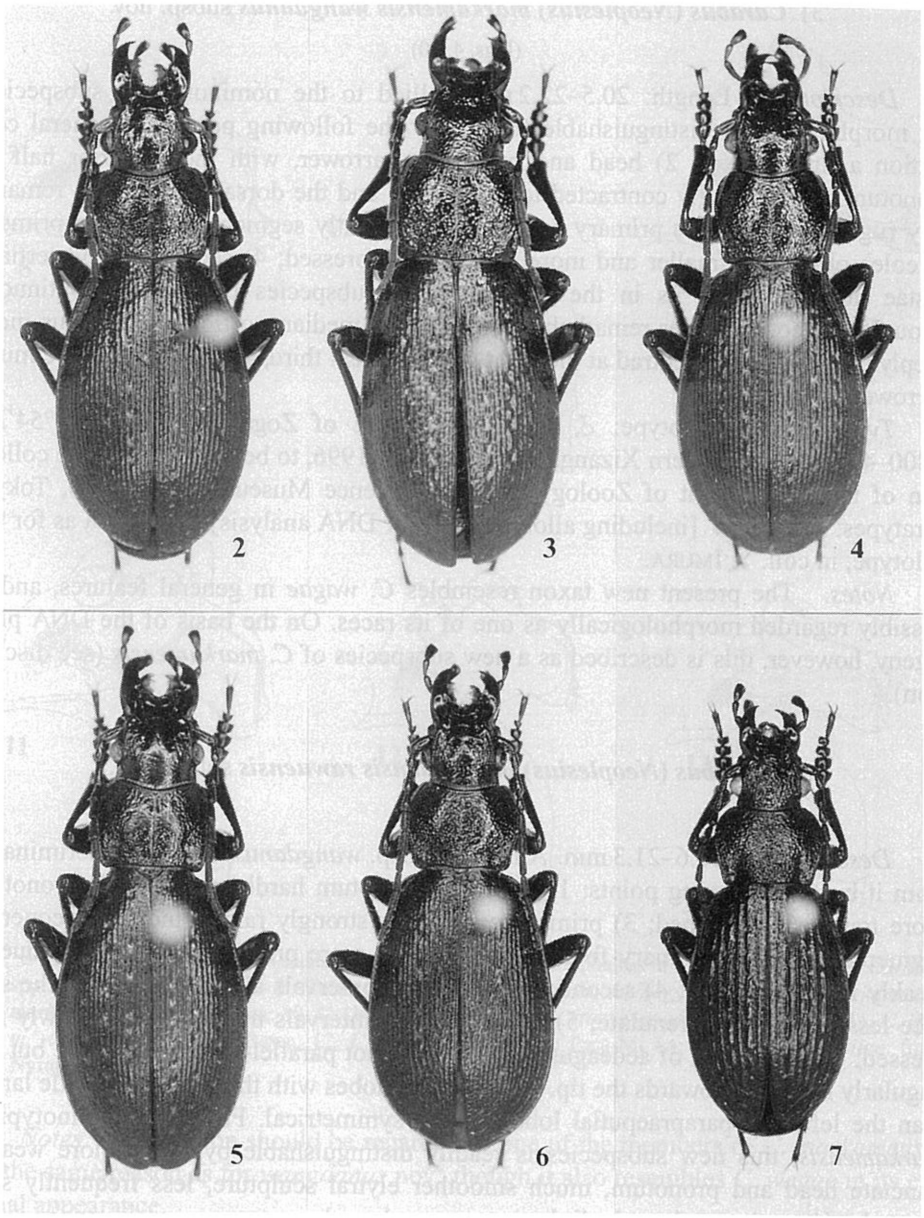
2) ***Carabus (Neoplesius) markamensis*** DEUVE, 1992, stat. nov.

(Figs. 3, 9)

Length: 22.0–22.7 mm. External morphology as described by DEUVE (1992, p. 270, fig. 12). Male genitalia as shown in Fig. 9; basic structure of aedeagus almost identical with that of *C. wagae*, though the apical portion is less strongly arcuate ventrad, its basal part being much more shallowly concave latero-ventrad at the right side, and the apical lobe robuster.

Specimens examined. 2 ♂♂, 1 ♀ (1 ♀ for DNA analysis), Markam env. (29°40′–42′N/98°35′E), 3,800–3,900 m alt., near the eastern end of Xizang, China, 17–VII–1996, in coll. Y. IMURA.

Notes. Since the two male examples examined are more or less teneral, we were unable to show the endophallus of this taxon in a fully everted condition. However, the dissection of its membraneous wall revealed near-identity of the basic structure of endophallus with that of the preceding species. Though originally described as a subspecies of *Carabus wagae*, we regarded it as a distinct species based on the mitochondrial DNA phylogeny (see discussion).



Figs. 2–7. *Carabus* (*Neoplesius*) spp. from East Xizang. —— 2, *Carabus* (*Neoplesius*) *wagae*, ♂, from Margyang; 3, *C.* (*N.*) *markamensis markamensis*, ♂, from Markam; 4, *C.* (*N.*) *m. wangdanus* nov., ♂, holotype, from Wangda, SE of Zogang; 5, *C.* (*N.*) *m. rawuensis* nov., ♂, holotype, from Rawu; 6, *C.* (*N.*) *borodini*, ♂, from Pass Mi La; 7, *C.* (*N.*) *ludmilae*, ♂, from Nyingchi. Scale: 2 mm.

3) *Carabus* (*Neoplesius*) *markamensis wangdanus* subsp. nov.

(Figs. 4, 10)

Description. Length: 20.5–22.2 mm. Allied to the nominotypical subspecies, but morphologically distinguishable from it by the following points: 1) general coloration a little darker; 2) head and pronotum narrower, with the posterior half of pronotum more strongly contracted towards base, and the dorsal surface less remarkably rugoso-punctate; 3) primary costae less frequently segmented, with the primary foveoles obviously smaller and more shallowly impressed; 4) secondary and tertiary costae not segmented as in the nominotypical subspecies but almost continuous throughout, though rather remarkably crenulate; 5) median portion of aedeagus more deeply concave latero-ventrad at the right side in apical third, and the apical lobe much narrower.

Type series. Holotype: ♂, Wangda env., SE of Zogang (29°38′N/97°54′E), 3,800–4,400 m alt., eastern Xizang, China, 14–VII–1996, to be preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. Paratypes: 2 ♂♂, 3 ♀♀ [including allotype (1 ♀) for DNA analysis], same data as for the holotype, in coll. Y. IMURA.

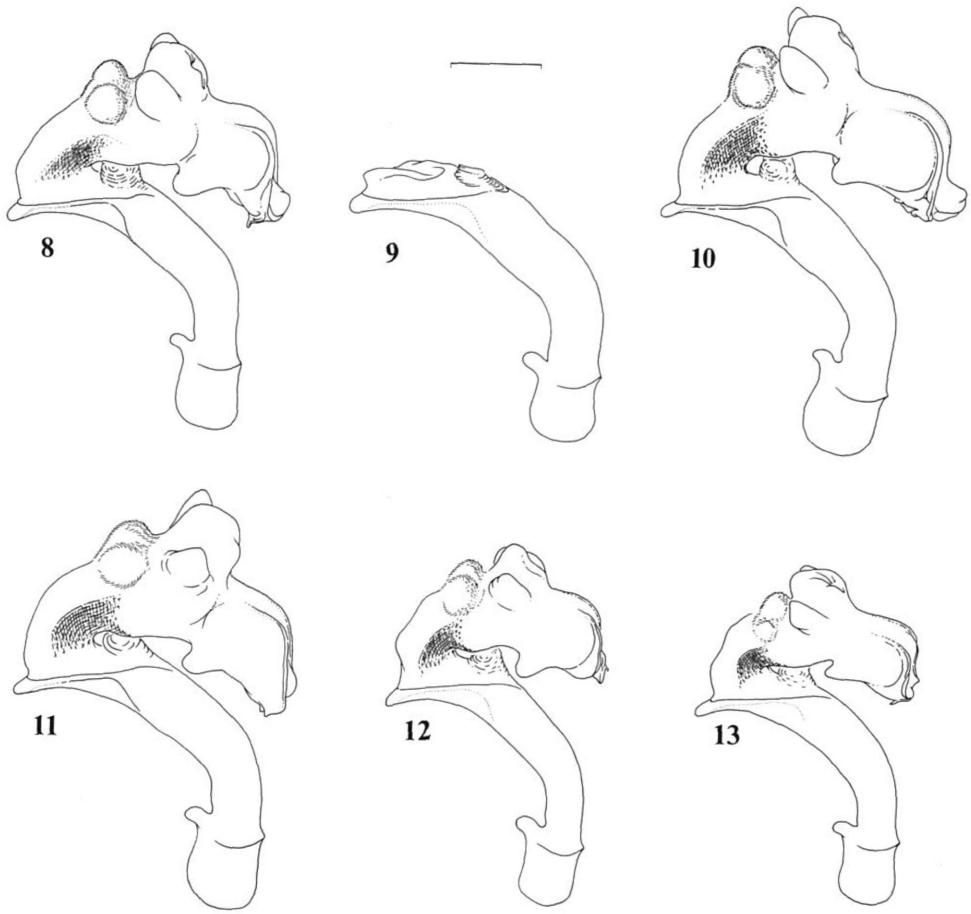
Notes. The present new taxon resembles *C. wagae* in general features, and is possibly regarded morphologically as one of its races. On the basis of the DNA phylogeny, however, this is described as a new subspecies of *C. markamensis* (see discussion).

4) *Carabus* (*Neoplesius*) *markamensis rawuensis* subsp. nov.

(Figs. 5, 11)

Description. 20.6–21.3 mm. Allied to subsp. *wangdanus* nov., but discriminated from it by the following points: 1) head and pronotum hardly punctate; 2) pronotum more transversely shaped; 3) primary costae less strongly raised and less frequently segmented, with the primary foveoles smaller but more prominently observed due to weakly raised intervals; 4) secondary and tertiary intervals also weaker, with the surface less remarkably crenulate; 5) striae between intervals much more shallowly impressed; 6) apical lobe of aedeagus a little wider, not parallel-sided at the base but triangularly narrowed towards the tip. Prepraeputial lobes with the right one a little larger than the left, and parapraeputial lobes almost symmetrical. From the nominotypical *markamensis*, this new subspecies is readily distinguishable by much more weakly punctate head and pronotum, much smoother elytral sculpture, less frequently segmented primary intervals and a little narrower aedeagal apex.

Type series. Holotype: ♂, N of Rawu, (29°33′N/96°47′E), 4,200 m alt., eastern Xizang, China, 11–VII–1996, to be preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. Paratypes: 2 ♂♂, 3 ♀♀ [including allotype (1 ♀) for DNA analysis], same data as for the holotype, in coll. Y. IMURA.



Figs. 8–13. Male genital organ (aedeagus with fully everted endophallus in right lateral view) of *Carabus* spp. from East Xizang. —— 8, *Carabus* (*Neoplesius*) *wagae*, from Margyang; 9, *C.* (*N.*) *markamensis markamensis*, from Markam; 10, *C.* (*N.*) *m. wangdanus* nov., from Wangda, SE of Zogang; 11, *C.* (*N.*) *m. rawuensis* nov., from Rawu; 12, *C.* (*N.*) *borodini*, from Pass Mi La; 13, *C.* (*N.*) *ludmilae*, from Nyingchi. Scale: 2 mm.

Notes. This taxon should be regarded as one of the members of *C. markamensis* for the same reason as for *wangdanus* nov., though it also resembles *C. wagae* in its external appearance.

5) ***Carabus* (*Neoplesius*) *borodini*** HEINZ, 1996

(Figs. 6, 12)

Length: 19.2–21.0 mm. External morphology as fully described and figured by

HEINZ (1996, pp. 20–22, figs. 1–2). Male genitalia as shown in Fig. 12; aedeagus a little smaller in size than in the above two species, hardly concave latero-ventrad at the right side in apical third, with the apex more sharply pointed; basic structure of endophallus not remarkably different from that of *C. wagae* and *C. markamensis*, though somewhat robuster in fully everted condition; apical part of ostium lobe widely bilobed, prepraeputial lobes with the right one a little more strongly produced than the left, and parapraeputial lobes almost symmetrical.

Specimens examined. 3 ♂♂, 2 ♀♀ (1 ♀ for DNA analysis), Pass Mi La (=Pa La) (29°46′N/92°19′E), 4,600 m alt., eastern Xizang, China, 15–VI–1996, in coll. Y. IMURA.

Notes. This is a monotypical species recently described from the Pass Mi La. Our materials came from the type locality, and agree in morphology with the type series.

6) *Carabus* (*Neoplesius*) *ludmilae* DEUVE, 1992

(Figs. 7, 13)

Length: 17.2–20.4 mm. External morphology as described and figured by DEUVE (1992, pp. 268–269, fig. 5) and IMURA & MIZUSAWA (1996, pl. 61, fig. 515). Male genitalia as shown in Fig. 13; aedeagus similar in shape to that of *C. borodini*, but a little robuster as a whole, less acutely curved ventrad at the base, with the median portion gradually divergent towards apex which is slenderer and subparallel-sided in lateral view; endophallus somewhat different in details — prepraeputial lobes with the right one smaller than the left though more strongly produced dorsad, podian lobe triangularly pointed and directed towards base, and apical portion more narrowly elongated.

Specimens examined. 1 ♂, 2 ♀♀ (1 ♀ for DNA analysis), N to NE Nyingchi (29°38′–42′N/94°29′–36′E), 4,300–4,500 m alt., eastern Xizang, China, 21~28–VI–1996, in coll. Y. IMURA.

Notes. This species is also monotypical and is known only from the northern hills of Nyingchi. Our materials were collected in the NNE part of the same village, a few hundreds meters away from the type locality, and are somewhat different in the external features, i.e., a narrower pronotum and a simpler elytral sculpture, etc., which may be regarded as a mere individual variation within the same species.

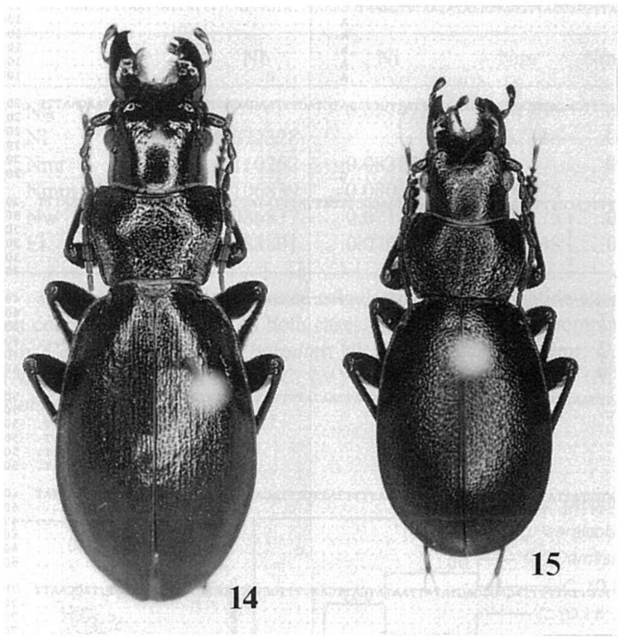
7) *Carabus* (*Eocechenus*) *leptoplesioides* DEUVE, 1992

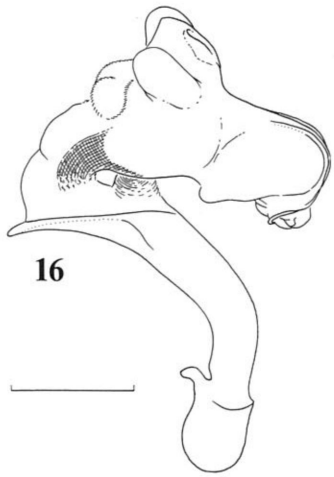
(Fig. 14)

Length: 23.6 mm. External morphology as described and figured by DEUVE, (1992, pp. 270–271, fig. 14) and IMURA & MIZUSAWA (1996, pl. 60, fig. 499).

Specimen examined. 1 ♀ (for DNA analysis), Markam env. (29°40′–42′N/98°35′E), 3,900 m alt., near the eastern end of Xizang, China, 16~17–VII–1996.

Notes. Only two female type specimens of the nominotypical *leptoplesioides* have hitherto been known. Our material becomes the third sample.





Figs. 14–16. *Carabus* (*Eocechenus*) spp. from China. —— 14, *Carabus* (*Eocechenus*) *leptoplesioides*, ♀, holotype, from Markam; 15–16, *C.* (*E.*) *kaznakovi*, ♂, from N of Nangqên, SE Qinghai, 15, imago, 16, aedeagus with fully everted endophallus in right lateral view. Scale: 2 mm.

Molecular Phylogeny Based on the DNA Sequences of the Mitochondrial ND5 Gene

The DNA sequence of a 1083-bp PCR product was determined for the listed 7 Tibetan carabids. The sequence contained a 1069 bp 3′-region of the ND5 gene, 7 bp of noncoding sequence, and a 7 bp 5′-terminus of the Phe-tRNA gene (Fig. 17). No length variations were found in all DNA sequences determined. The G+C contents of the sequenced region were nearly constant (21±1%) throughout the samples. The genetic distances between the Tibetan carabids estimated by KIMURA's two-parameter model of base substitution (KIMURA, 1980) ranged from 0.2 to 4.1% in all sites, and 0.3 to 11.0% in codon third positions (Table 1). A specimen of *Carabus* (*Neoplesius*) *markamensis markamensis* was identical in the DNA sequence with that of *C.* (*N.*) *m. wangdanus*, though they were collected at two different localities and could be morphologically discriminated from each other (see discussion). Of 1,069 sites in the ND5 gene, 80 were variable sites, and most substitutions (mainly transitions) occurred at the codon third positions (Fig. 17). The sequences of the ND5 gene region were used to analyze the phylogenetic relationships of the Tibetan carabids. To know their phylogenetic positions in the Carabina, 21 reported ND5 gene sequences of some carabine

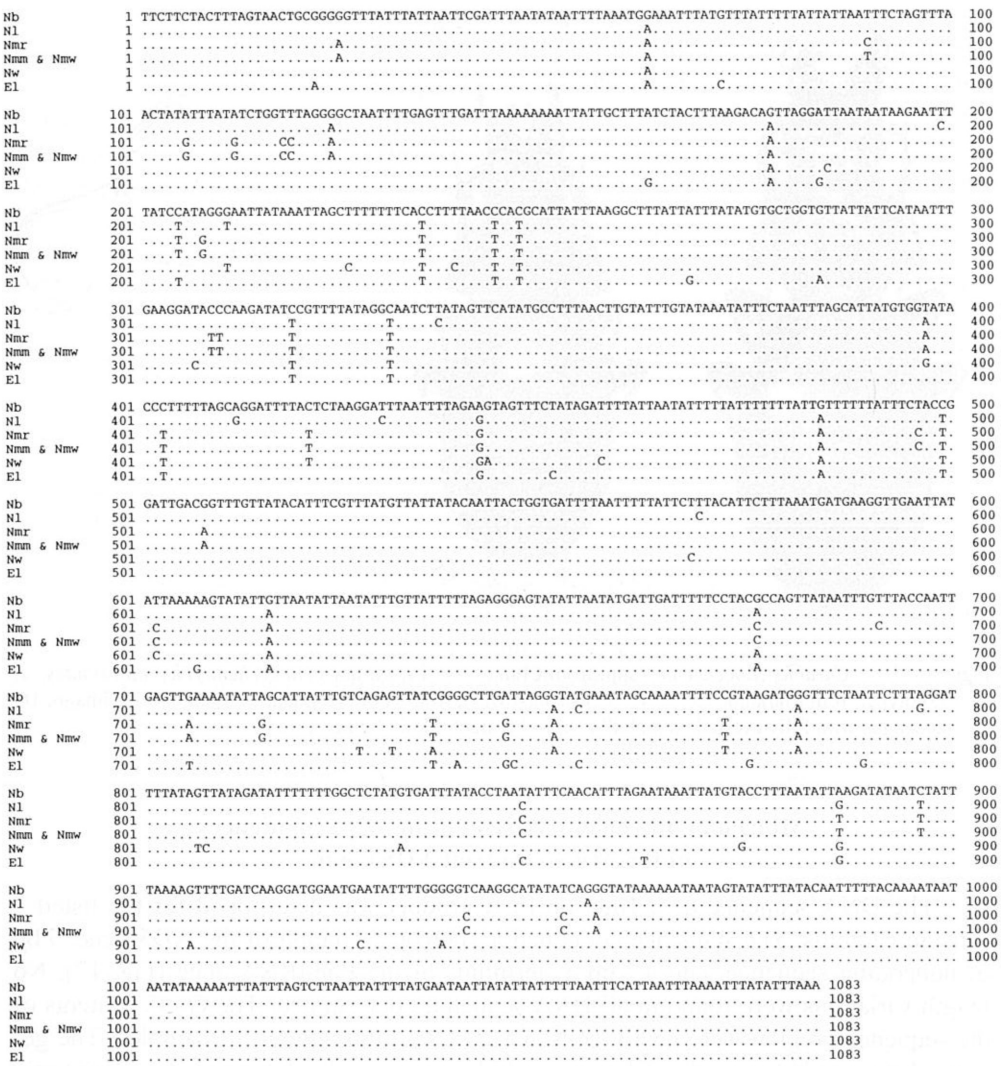


Fig. 17. Nucleotide sequence alignment of 1083 bp amplified from mitochondrial genome of 7 specimens of Tibetan carabids. Position 1–1069: 3′-region of ND5 gene; 1070–1076: flanking sequence; 1077–1083: 5′-terminal sequence of Phe-tRNA gene. For abbreviations of scientific names, see Table 1. Dot indicates identical nucleotide.

species from Japan and France were added to this analysis. A phylogenetic tree constructed by NJ method is shown in Fig. 18. All Tibetan beetles analyzed formed a single cluster, and were clearly monophyletic as supported by a high bootstrap value (100%) (see discussion). This cluster constituted a large group together with the *Coptolabrus–Damaster–Acoptolabrus* lineage that is composed of *C.* (*Coptolabrus*) *fruh-*

Table 1. Distance Matrix.

	Nb	Nl	Nmr	Nmm & Nmw	Nw	El
Nb		0.027472	0.041256	0.039260	0.036195	0.031355
Nl	0.077328		0.032336	0.030376	0.032310	0.028379
Nmr	0.110252	0.083579		0.001850	0.041124	0.039165
Nmm & Nmw	0.106839	0.080343	0.002778		0.039136	0.037183
Nw	0.086837	0.071131	0.093175	0.089886		0.040073
El	0.083801	0.070591	0.092948	0.089669	0.089669	

Upper-right matrix: distance calculated on all nucleotide sites. Lower-left matrix: distance calculated on codon third positions. In both cases, the distances were computed by KIMURA's two-parameter method. Nb: *Carabus* (*Neoplesius*) *borodini*; Nl: *C.* (*N.*) *ludmilae*; Nmr: *C.* (*N.*) *markamensis rawuensis*; Nmm: *C.* (*N.*) *m. markamensis*; Nmw: *C.* (*N.*) *m. wangdanus*; Nw: *C.* (*N.*) *wagae*; El: *C.* (*Eocechenus*) *leptoplesioides*.

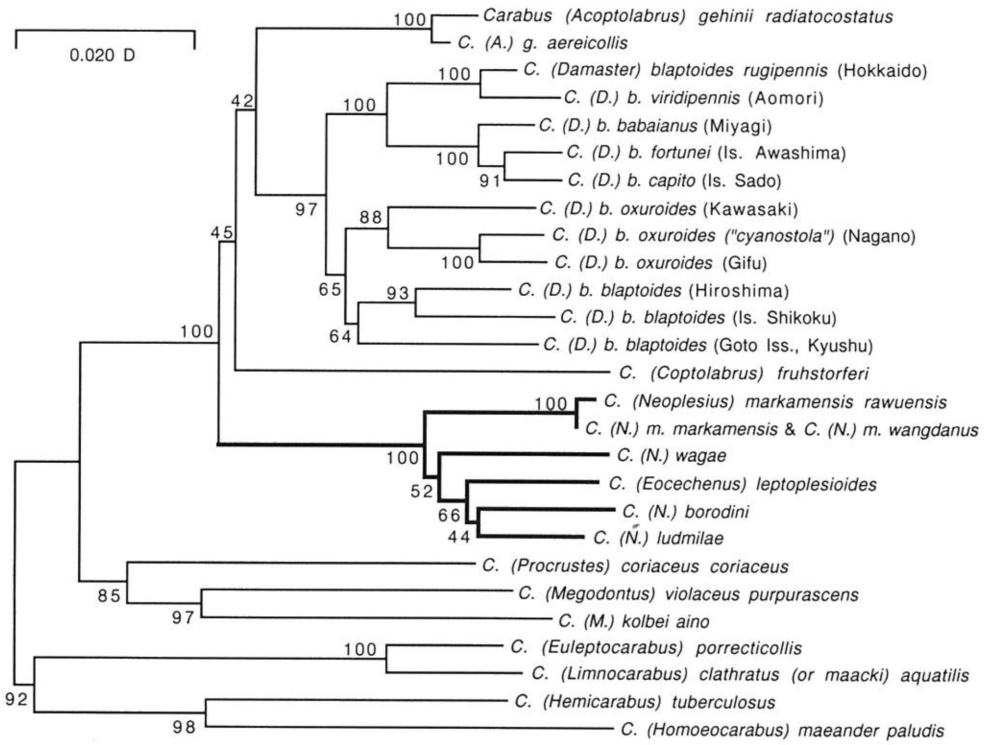


Fig. 18. Neighbour-joining tree based on ND5 gene sequence of 7 Tibetan carabids together with 21 other carabine species from Japan and France. Localities of some specimens are indicated in parentheses following the scientific name. D denotes the evolutionary distance corrected by KIMURA's two-parameter model. The bootstrap confidence level (based on 1,000 resamplings) is shown at each branching point.

storferi, *C.* (*Acoptolabrus*) *gehinii* and all the subspecies of *C.* (*Damaster*) *blaptoides*. The *Procrustes–Megodontus* lineage was the out-group of them. Four Japanese carabine species, *C.* (*Limnocarabus*) *clathratus* (or *maacki*) *aquatilis*, *C.* (*Euleptocarabus*) *porrecticollis*, *C.* (*Hemicarabus*) *tuberculosus* and *C.* (*Homoeocarabus*) *maeander paludis* [as well as other subgenera in the Carabina examined (not shown; see SU *et al.*, 1996 c)] constituted the out-group of all the members mentioned above.

Discussion

One of the remarkable findings is the relationship between the morphology and molecular phylogeny of the species-complex composed of *Carabus* (*Neoplesius*) *wagae* and *C.* (*N.*) *markamensis*. Morphologically, specimens in all the populations from the sites 1, 4, 5 and 6 (Fig. 1) can be unified into a single species, but showing apparent subspecific differentiation linked to their locality. The population from the site 1 and those from the sites 4 to 6 are separated with a rather deep branching point in the ND5 tree. They may be regarded as two distinct groups, and are conventionally treated as two species. On the other hand, though the samples from the sites 4, 5 and 6 (the *markamensis* complex) revealed the locality-dependent morphological variations, their DNA sequences are almost identical. This suggests recent radiation of this complex with a rapid morphological differentiation.

Whether the morphological differences recognized above can be taken as species or subspecies criteria will be debated. In this connection, it should be noted that there are no "objective" morphological criteria to define the species, subspecies or else, and one must sometimes settle the taxonomic rank on the "subjective" criteria. Molecular phylogeny does not give a solution to this problem, because the extent of morphological differentiation does not always run parallel with the time elapsed after emergence (as estimated by the branch length in the phylogenetic tree). The species- or subspecies-rankings in this paper should be considered conventional simply to distinguish the locality-linked and morphologically separable populations.

Also remarkable is the relationship between *Neoplesius* and *Eocechenus* deduced from ND5 phylogenetic tree. Generally, these two higher taxa are treated as two independent subgenera, consisting of some twenty species and nine species, respectively, and they are discriminated from each other by the following morphological key.

Key to the Subgenera

1 (2) Head normal or at most moderately hypertrophic; retinaculum of the right mandible bidentate; submentum asetose; elytral sculpture usually conspicuously carved with heterodynamic intervals; male foretarsus with hair pads in the basal four segments ..... *Neoplesius*.

2 (1) Head unusually hypertrophic with smaller eyes; retinaculum of the right mandible unidentate; submentum setiferous in some species; elytral sculp-

ture very weakly carved with homodynamic intervals; male foretarsus with hair pads only in the basal three segments. . . . . *Eocechenus*.

From the ND5 tree, however, *Carabus* (*Eocechenus*) *leptoplesioides* clearly belongs to a monophyletic cluster to which all the *Neoplesius* species analyzed also belong. Thus, the DNA phylogeny provides no evidence to support the taxonomical independence of *Eocechenus* from *Neoplesius*. This is consistent with the fact that both the subgenera are identical in the basic structure of the male genital organ, especially in the construction of endophallus observed under a fully everted condition.[1)] In other words, endophallic structure of the male genital organ would reflect the reasonable phylogenetic relationship among the higher taxa of the Carabina more than the external features would, at least in the groups treated in this study. The synonymization of *Eocechenus* with *Neoplesius* is awaited until more subgenera related to the above two are examined.

In the previous papers, Su *et al.* (1996 a, b) noted that such three subgenera as *Coptolabrus*, *Damaster* (s. str.) and *Acoptolabrus* form a large cluster, namely, the *Damaster* (s. lat.) cluster, are associated with the *Procrustes–Megodontus* lineage as its sister group. The present results indicate that the *Neoplesius–Eocechenus* complex is more closely related to *Damaster* (s. lat.) than to *Procrustes–Megodontus*. This suggests that these Tibetan carabids may be the direct sister group of *Damaster* (s. lat.), though this relation is supported only by a low bootstrap value (45%), and is therefore unstable. Basic structure of the endophallus is strikingly uniform in all the species belonging to the *Neoplesius–Eocechenus* complex as mentioned above, and the same character is shared also with *Damaster* (s. lat.). To know more detailed phylogenetic relationships of the above mentioned groups, it is highly desirable to examine the DNA sequences of the following Chinese subgenera: *Pseudocranion* (Sichuan, Gansu, Qinghai and Shaanxi), *Shunichiocarabus* (Sichuan), *Pseudocoptolabrus* (Yunnan and Sichuan), *Aristocarabus* (Sichuan and Hubei), *Eccoptolabrus* (Sichuan, Gansu and Shaanxi), *Lasiocoptolabrus* (Shaanxi), *Coptolabrodes* (Shaanxi), *Pagocarabus* (sensu Imura, 1996) (North China), *Megodontoides* (sensu Imura, 1996) (Sichuan), *Imaibiodes* (Yunnan), *Calocarabus* (Sichuan, Qinghai and Gansu), *Cathaicus* (North China), *Acathaicus* (Gansu), *Eupachys* (Nei Menggŭ, Hebei and Shanxi), *Cychrostomus* (Qinghai and Gansu), *Cephalornis* (Gansu and Sichuan), and *Teratocarabus* (Heilongjiang and Liaoning).

Considering the phylogenetic topography and the distributional ranges of the Tibetan and other carabid beetles, we tentatively propose a possible sequence of event:— The common ancestry of the *Neoplesius–Eocechenus* complex and *Damaster* (s. lat.) had inhabited the mountainous regions of West China. The ancestral form of *Damaster* (s. lat.) branched off from that of the *Neoplesius–Eocechenus* complex some 24 Myr

1) Since the male of *C.* (*Eocechenus*) *leptoplesioides* is unknown, we show here the genital organ of *C.* (*E.*) *kaznakovi* Semenov-Tian-Shanskij et Znojko, the type species of the subgenus (Figs. 15, 16).

ago (see below), subsequently evolved to *Coptolabrus*, and then to *Acoptolabrus* along with the expansion of distribution to the eastern periphery of the Eurasian Continent. The proto-Japanese Archipelago was a part of the continent, where the proto-*Damaster* (s. str.) emerged presumably from *Acoptolabrus* (cf. SU *et al.*,1996 b).

Radiation of *C.* (*N.*) *markamensis*, *C.* (*N.*) *wagae*, *C.* (*N.*) *borodini*, *C.* (*N.*) *ludmilae* and *C.* (*E.*) *leptoplesioides* may be estimated to have occurred some 13 Myr ago, provided that the *Damaster* (s. str.) diversification started about 15 Myr ago (SU *et al.*, 1996 b).

Acknowledgments

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要　約

井村有希，蘇　智慧，大澤省三：チベット産オサムシ（チベットオサムシ亜属とタカネオオズオサムシ亜属）の形態と分子系統．—— 中国西蔵自治区東部から得られたチベットオサムシ亜属*Neoplesius*に属する4種6亜種とタカネオオズオサムシ亜属*Eocechenus*に属するマルカムタカネオオズオサムシ*C.* (*E.*) *leptoplesioides*について，ミトコンドリアND5遺伝子のDNA塩基配列を決定し，分子系統樹を作成して，日本とフランスに産するいくつかのオサムシとともに比較検討したところ，以下のような結論が得られた：1）これまでの形態種の概念からは1種とみなされるもののなかに，DNAでみると複数の系統が含まれており，逆に，形態上は亜種分化を示しているとみなしうる集団同志が，DNAの塩基配列においてほぼ同じである場合があって，形態と分子系統の間にかならずしも相関関係はみられなかった；2）形態学的にこれまで独立した亜属とみなされてきた*Neoplesius*と*Eocechenus*は，DNA解析を行うと同一のクラスターに納まり，分子系統上，これらを区分することはできなかった；3）この*Neoplesius–Eocechenus*群は，広義の*Damaster*としてまとめられるカブリモドキ，狭義のマイマイカブリ，クビナガオサムシの3亜属と祖先を共有する直接の姉妹関係にあることが示唆された．なお，本論文において，*C.* (*N.*) *wagae*の亜種として記載された*markamensis*を独立種に昇格し，同種の名のもとに*wangdanus*と*rawuensis*の2新亜種を記載した．

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A New Subspecies of *Carabus* (*Eucarabus*) *nitididorsus* from South Korea

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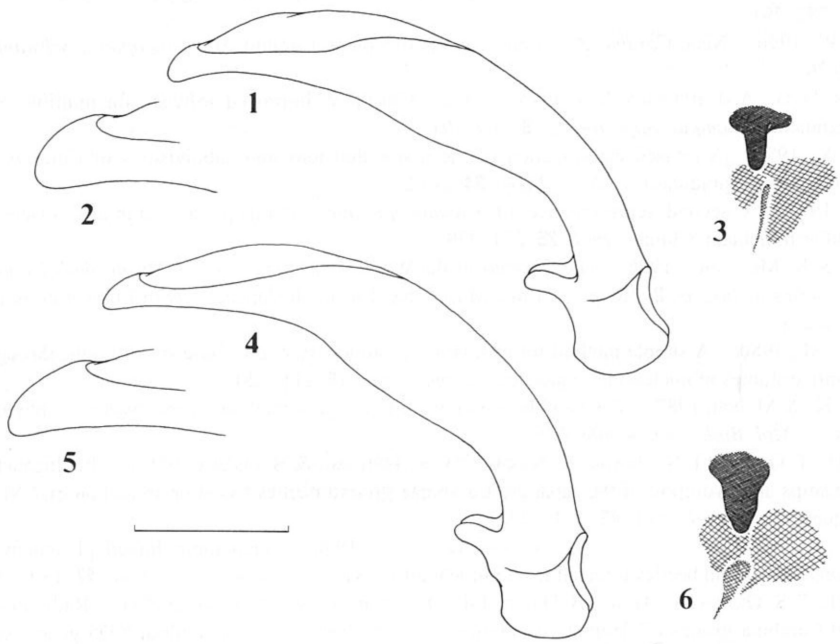
Carabus nitididorsus ISHIKAWA et KIM, 1983 has been known monotypical, distributed only on the Chiri-san Mountains near the southern end of the Korean Peninsula. Early in the summer of 1994, I made a short collecting trip to Mt. Paegun-san, about 20 km distant to the south from the centre of the Chiri-san Mountains, and succeeded in obtaining the same species. The Paegun-san population is definitely different from the nominotypical *nitididorsus* in detailed structure of the male genital organ, and I will describe it as a new subspecies.



Figs. 1–6. Male genitalia of *Carabus* (*Eucarabus*) *nitididorsus* subspp.; 1–3, subsp. *nitididorsus* from the Chiri-san Mts.; 4–6, subsp. *paegunsanus* from Mt. Paegun-san; 1, 4, aedeagus in right lateral view; 2, 5, apical part of aedeagus in the same view; 3, 6, digitulus and ligulum in dorsal view. Scale: 2 mm for 1 & 4, 1 mm for 2, 3, 5, 6.

Carabus (*Eucarabus*) *nitididorsus paegunsanus* IMURA, subsp. nov.

Carabus (*Eucarabus*) *nitididorsus*: IMURA & MIZUSAWA, 1996, Mushi-Sha's Icon. Ser. Ins., **2**, pl. 4, fig. 34–3.

Description. 22.0–27.8 mm (including mandibles). Colour variation poorer than in the nominotypical subspecies: of the total 136 specimens examined, 112 are reddish coppery often with weak greenish tinge, and the remaining 24 are black with green-bluish or blue-purplish lustre. External appearance almost identical with that of the nominotypical subspecies, but clearly distinguishable from it by the genitalic features as follows: aedeagus a little more deeply concave ventrad at about apical third, its apical lobe longer and slenderer with the tip more sharply pointed; digitulus wider and robuster, which is the most noticeable character of the new subspecies, and ligulum also wider.

Type series. Holotype: ♂, Mt. Paegun-san, 900–1,200 m alt., in Kwang-yang-gun of eastern Chŏllanam-do, South Korea, 9–VI–1994, to be preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. Paratypes: 72 ♂♂, 63 ♀♀ (including allotype), same data as for the holotype, in coll. Y. IMURA.

Notes. The present new subspecies is sympatric with such species as *Carabus* (*Tomocarabus*) *fraterculus jirisanensis* ISHIKAWA et KIM, *C.* (*Coptolabrus*) *jankowskii obtusipennis* ISHIKAWA et KIM and *C.* (*C.*) *smaragdinus branickii* TACZANOWSKI.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