

Discovery of a New Lucanid Genus Allied to the Genus *Lucanus*
(Coleoptera, Lucanidae) from the High Mountains in
Northern Myanmar

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Abstract A very peculiar lucanid beetle allied to the genus *Lucanus* is described from the high mountains in northern Myanmar under the name of *Noseolucanus rugosus* gen. et sp. nov. This new species appear to be a relict having been isolated on the high mountains of Myanmar–China border and retaining the ancestral character states in the tribe Lucanini.

Through the courtesy of Mr. Y. NOSE, we recently had an opportunity to examine one damaged carcass of a strange male lucanid beetle collected in the high mountain area of northern Myanmar. Unfortunately, this specimen was so damaged that we were unable to examine its genital organs nor antennae, both of which could be quite useful for determining systematic position of this strange lucanid beetle. In general appearance, this strange beetle somewhat resembles the members of the genus *Lucanus* SCOPOLI, 1763, especially to the subgenus *Pseudolucanus* HOPE et WESTWOOD, 1845 whose size is relatively small and sexual dimorphism is not so distinct within the genus. However, the strange lucanid beetle in question shows very peculiar morphological characteristics such as head and prothorax with dense and transverse wrinkles, which are not shared at all by any known genera of the family Lucanidae. Besides this, the collection site of this interesting material is located in the high mountain area of northern Myanmar close to the Chinese border, and it must be quite difficult to obtain additional specimens. Though the damaged single male specimen now at our hands is not sufficient for determining its true systematic position, we have decided to describe it in the present paper provisionally under a new genus, in view of its importance in many respects both taxonomically and zoogeographically.

Fourteen body measurements were taken based on ARAYA (1992). These are: 1)

BL – body length without mandibles; 2) BT – body thickness; 3) HL – head length; 4) HW – head width at widest part including eyes; 5) CHW – head width measured between tips of canthis; 6) ML – mandible length; 7) DBT – distance from mandibular base to inner tooth; 8) PL – pronotum length; 9) PW – pronotum width at widest part; 10) EL – elytra length measured along the mid-line; 11) EW – elytra width at widest part; 12) PTL – protibia length; 13) PTW – protibia width; 14) HWL – hind wing length. All measurements are in mm.

Genus *Noseolucanus* ARAYA et TANAKA, nov.

Type species: *Noseolucanus rugosus* ARAYA et TANAKA, sp. nov.

Allied to the genus *Lucanus*, especially to the subgenus *Pseudolucanus*, but differs from it in the following characteristics: size smaller; body shorter and broader, oval in dorsal view, much depressed in lateral view, dull brownish black in color, dorsal and ventral surfaces opaque, almost naked; head and prothorax relatively large to elytra; posterior part of head with dense and transverse wrinkles; eye much smaller, almost completely divided by triangularly projected canthus; mandible short, very strongly and regularly rounded from the base, outer margin strongly concave at base; mentum trapezoidal, apical part not rounded; prothorax with dense and transverse wrinkles; elytra much shorter and broader, with an anteriorly projected angle on each shoulder, dorsal part with shallow but distinct striae; scutellum large; intercoxal process of prosternum much developed, expanding posteriorly; metasternum and abdomen almost naked; legs shorter and broader.

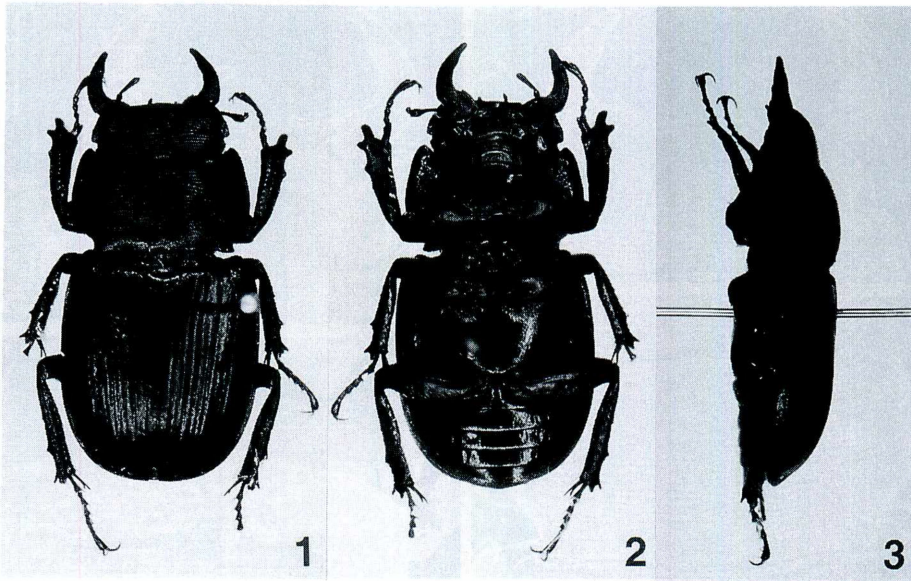
For the time being, this new genus includes only the type species.

Distribution. Known from only northern Myanmar close to the Chinese border.

Etymology. The new genus is dedicated to Mr. NOSE who gave us an opportunity to examine this interesting lucanid beetle.

Notes. Recently, one peculiar lucanid beetle was described by BOUCHER (1996) as a new member of the subgenus *Pseudolucanus* of the genus *Lucanus* from the Gaoligong Range on the China–Myanmar borders, which is near to the collecting site of the type species of this new genus. According to the original description, this *Pseudolucanus*, *L. (P.) denticulus*, shares with *Noseolucanus* the following important characteristics, which are not shared by the other members of the genus *Lucanus*: body depressed; eye almost completely divided by distinctly projected triangular canthus; elytra with distinct striae; legs relatively short and broad. Though it is difficult to determine with confidence its true taxonomic affinity since *L. (P.) denticulus* was described on the female holotype alone, these similarities suggest that *Noseolucanus* and *L. (P.) denticulus* may have a close phylogenetic relationship with each other, and further, it is possible that *L. denticulus* belongs to the new genus *Noseolucanus*.

On the other hand, body coloration and the silhouette of mandible and prothorax of the type species of *Noseolucanus* rather resemble those of North American *L. (P.) mazama* than Asian *Pseudolucanus* such as *L. (P.) oberthueri* or *L. (P.) atratus*. Need-



Figs. 1–3. *Noseolucanus rugosus* ARAYA et TANAKA, gen et sp. nov., ♂, holotype; 1, dorsal view; 2, ventral view; 3, lateral view.

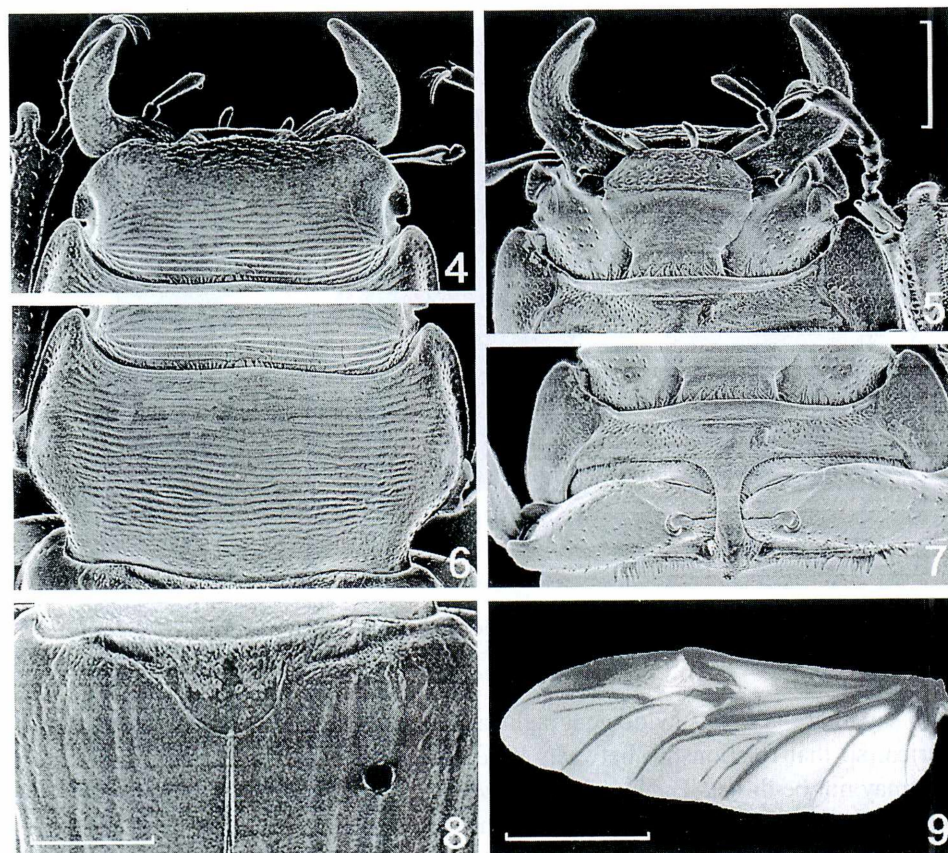
less to say, there is a very wide geographical gap between Asian Myanmar and North America, so that relationship between *Noseolucanus* and North American *Pseudolucanus* may not be direct. The subgenus *Pseudolucanus* is considered to be an ancestral group within the genus *Lucanus*. Thus, the similarities among the type species of *Noseolucanus*, *L. (P.) denticulus* and *L. (P.) mazama* may be due to sharing the ancestral character states in the tribe Lucanini. It is probable that the common ancestor of *Noseolucanus* and *Lucanus* dispersed from the northern area of Southeast Asia, most probably Myanmar–China borders, in which it must have originated, towards the Holarctic Region including Europe, and migrated to the New World through the Bering Land Bridge like such mammals as antelopes.

Anyway, discovery and examination of the male of *L. (P.) denticulus* as well as perfect specimens of *Noseolucanus* are much desired for determining their true phylogenetic affinities. Also, such a study would contribute much to evaluation of the currently prevailing generic classification of the tribe Lucanini, in light of the phylogeny.

Noseolucanus rugosus ARAYA et TANAKA, sp. nov.

(Figs. 1–9)

Description of the holotype. Male. Body (Figs. 1–3) nearly oval, depressed, surface opaque and dull brownish black in color. Head (Fig. 4) square in shape, relatively large to elytra, sunk in prothorax; anterior half of dorsal surface densely punc-



Figs. 4–9. *Noseolucanus rugosus* ARAYA et TANAKA, gen. et sp. nov., ♂, holotype; 4, head, dorsal view; 5, ditto, ventral view; 6, pronotum; 7, prosternum and intercoxal process; 8, scutellum and elytral striae; 9, hind wing. Scales: 2.0 mm for Figs. 4–8; 5.0 mm for Fig. 9.

tured, posterior half closely, transversely and irregularly rugose, with a hollow near each eye; ventral surface with isodiametric and well-defined punctures near each eye. Mandible (Fig. 4) short, rounded strongly and regularly, with a quite feeble inner tooth; base of outer margin strongly concave, inner margin becoming inflated, ventral side with large and close punctures. Clypeus (Fig. 4) not projected, almost hidden in dorsal view. Mentum (Fig. 5) closely punctured, trapezoidal in shape, apical part almost straight. Eye (Fig. 4) small, with distinct triangular canthus covering more than 3/4 of its external margin. Prothorax (Fig. 6) broader than long, relatively large to elytra, depressed, closely, transversely and irregularly rugose on dorsal surface; lateral margin rounded, strongly concave to the narrow base, each posterior end with sharp angulation. Elytra (Fig. 8) very short and broad; dorsal surface dull, not hairy, with shallow but distinct striae; lateral sides finely but rather deeply punctured, and a little flattened

at edge. Scutellum (Fig. 8) relatively large, sunk anteriorly, smooth but exceptionally punctured on anterior part. Hind wing (Fig. 9) fully developed, about 1.5 times of elytral length. Prosternum (Fig. 7) densely punctured, fringed with long yellowish-brown hairs around procoxal cavity and at both anterior and posterior margins; intercoxal process of prosternum relatively developed, expanding posteriorly. Mesosternum with close punctures, each bearing a yellowish-brown hair. Metasternum with fine but distinct punctures, almost naked in central area, but scarcely fringed with minute yellowish-brown hairs around metacoxal cavity. Legs relatively short and broad, clothed with long but sparse yellowish-brown hairs. Tarsi relatively short. Protibia short and broad, with long but sparse yellowish-brown hairs along ridge; outer margin with large and dull curved terminal fork, followed by one large lateral spine and one feeble lateral protuberance. Meso- and metatibiae short, with large punctures, each bearing a long yellowish-brown hair, arranged in rows; lateral margin with one distinct spine and one feeble protuberance; distal end with three large terminal spines at outer side and two articulated long spines at inner side. Abdomen with five visible sternites, smooth, not hairy.

Measurements. BL – 16.45; BT – 4.70; HL – 3.20; HW – 6.20; CHW – 6.90; ML – 7.70; DBT – 4.30; PL – 4.80; PW – 8.95; EL – 10.40; EW – 10.00; PTL – 4.20; PTW – 1.60; HWL – 15.70.

Holotype. 1 ♂, 16~21-VIII-1995, Katcin, Sanbun, north of Putao, northern Myanmar.

The holotype is deposited in the entomological collection of the Graduate School of Human and Environmental Studies, Kyoto University (KUHE).

Notes. Several wingless lucanid beetles have been known from the high mountains in Southeast Asia (ARAYA, 1994). Seemingly, the present subalpine species also looks flightless due to having the short elytra relative to the head and pronotum, but it may actually be a good flier since its hind wings are highly developed and about 1.5 times of elytral length.

Recently, unexpected species diversity has been revealed for the subgenus *Pseudolucanus* of the genus *Lucanus* in the Hymalayas and their surrounding areas (BOUCHER & HUANG, 1991; BOUCHER, 1995). It is expected that further field works may possibly yield other undescribed members of this new genus.

Acknowledgments

We wish to express our deep appreciation to Messrs. Y. NOSE, S. NYI and N. LANWAN, and Miss B. LANWAN, for giving us the opportunity to examine the precious specimen of the type species of this new genus and to Mr. M. SUZUMURA for offering many invaluable lucanid specimens for comparison. We also thank Dr. M. KON, University of Shiga Prefecture, for preparing the photographs and critically reading an early draft of this manuscript. This study is supported in part by the Grants-in-Aid from the Ministry of Education, Science, Sports and Culture, Japan, Nos. 09740639

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Specimens Examined for Comparison

- Lucanus gracilis*: 1 ♂, 1 ♀, 25–VI–1980, Darjeeling, West Bengal, NE. India.
L. oberthueri: 1 ♂, VI–1990, Sandakphu, West Bengal; 1 ♂, 1 ♀, VI–1990; Mt. Kanchenjunga, Sikkim; 1 ♂, Darjeeling, West Bengal, NE. India.
L. davidis: 1 ♂, 1 ♀, 2–6–VII–1994, 1,900–2,900 m, Gonggashan–Hailuogou, W. Sichuan; 1 ♂, 21–24–VII–1992, Hailuogou Glacier Park, Luding, Sichuan, China.
L. atratus: 1 ♂, 1 ♀, VII–1986, Tiger Hills, Darjeeling, West Bengal, NE. India; 1 ♂, VII–1990, Mt. Pulchoki, 2,000 m, Kathmandu, C. Nepal.
L. groulti: 1 ♂, 17–19–VII–1981, Lawarai Pass, 2,700–3,300 m, Pakistan.
L. wittmeri: 1 ♂, 6–VI–1992, Ghorapani, 2,800–3,200 m, W. Nepal.
L. barbarossa: 1 ♂, 18–VII–1985, Los Navuas.
L. mazama: 1 ♂, VII–1995, Canlamzon, Cochise, C. Arizona.
L. capreolus: 3 ♂♂, 1 ♀, VII–1991, Bringham, Alabama.
L. placidus: 1 ♂, 3–VI–1923, Chicago, Ill., U. S. A.; 1 ♀, 16–VII–1963, Colorado Springs, U. S. A.

要 約

荒谷邦雄・田中正浩：ミャンマー北部山地からのミヤマクワガタ属に近縁な新属新種のクワガタムシの記載。—— 筆者らは、最近、ミャンマー北部の中国国境の山地で得られた、クワガタムシ族 (*Lucanini*) に属すると思われる、未知の特異な雄のクワガタムシの標本を検査する機会を得た。問題の標本は、残念なことに、触角が両方とも欠損していたうえ、腹部内部の損傷が激しく、交尾器を検査することもできなかった。こうした事情のため、本種の確かな類縁関係はわからないが、頭部および前胸背板に密に細かい横皺が入るという本種の特徴は、従来知られているどのクワガタムシの属にも知られていないものである。加えて、分類学的にも生物地理学的にも重要な発見であること、採集地点がミャンマーと中国の国境付近の山地であり、今後、追加標本が容易には得られそうにないことをも考慮し、この新種を一応、ミヤマクワガタ属 (*Lucanus*) に近縁な新属のものと認め、*Noseolucanus rugosus* と命名し記載した。この新属名は、貴重な標本の提供者である野瀬幸信氏に献名したものである。

本種は、大顎の発達がそれほど顕著ではなく、その概観は *Lucanus* 属の *Pseudolucanus* 亜属を思わせるものがあり、全体の質感、とくに大顎や前胸の概形は北米産のマザマミヤマクワガタ *Lucanus (Pseudolucanus) mazama* に、また眼縁突起の形状や浅い筋のある鞘翅などの特徴は、中国南部ミャンマー国境の山地から最近記載された *L. (P.) denticulus* によく似ている。*Pseudolucanus* 亜属は *Lucanus* 属の中でも祖先的な一群と見なされており、*Noseolucanus rugosus* と中国南部ミャンマー国境産の *L. (P.) denticulus*、および北米産の *L. (P.) mazama* の3種に見られるこうした形態の共通性は、*Lucanini* 族におけるもっとも祖先的な形質の共有である可能性が高い。もしかすると、*Noseolucanus* 属と *Lucanus* 属の共通祖先種は、アジア大陸の中国とミャンマーの国境付近に起源し、氷期に存在したベーリング陸橋を通して北米大陸に侵入したのかもしれない。

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Elytra, Tokyo, **26** (2): 339–340, November 15, 1998

Records of Carabid Species from Okishima Island, Lake Biwa, Shiga Prefecture, Central Japan

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The Island of Okishima lies on Lake Biwa, Shiga Prefecture, and is about 1.5 km² in area. The present report is the first record of carabid species from there.

I wish to express my gratitude to Mr. K. FUJIMOTO, Mr. S. TAKEDA and Miss Y. SUGINO for their kind support in various ways and gifts or loan of the materials. The specimens examined are preserved in the Lake Biwa Museum.

Carabus jaconicus sotai (ISHIKAWA et KUBOTA)

Specimens examined. 23 ♂♂, 30 ♀♀, Okishima Is., Ômihachiman-chô, Shiga Pref., 1–VII–1997, K. YAHIRO & Y. SUGINO leg.; 4 ♂♂, 24 ♀♀, ditto, 2–IX–1997, K. YAHIRO leg.; 1 ♀, ditto, 29–III–1998, K. YAHIRO leg.; 1 ♂, ditto, 29–III–1998, K. FUJIMOTO leg.; 1 ♂, 29–III–1998, K. YAHIRO leg.; 1 ♂, ditto, 29–III–1998, S. TAKEDA leg.

Apotomopterus porrecticollis (BATES)

Specimen examined. 1 ♀, Okishima Is., 29–III–1997, K. YAHIRO leg.