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Description of a New Species of *Leptaulax* (Coleoptera, Passalidae) from South Korea^{1), 2)}

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Abstract. A new species *Leptaulax koreanus* is described as a first record of the family Passalidae from South Korea.

INTRODUCTION

The family Passalidae has not been known from Korean Peninsula, except for a record of *Leptaulax* sp. from Quelpart Island (Chejudo Is., South Korea) by van Doesburg (1956). During the binational joint surveys of the insect fauna in Korea, a lot of passalids was obtained together with larvae and is described in this paper as *Leptaulax koreanus* sp. nov. as the northernmost species of the family. The genus *Leptaulax* is widely distributed in Southern Asia. The description of the new species on its adult and larva and their important characters are illustrated, and some photographs of larval characters (the mouthparts and the sound producing apparatus) by SEM are also presented.

- 1) Results from the Korea-Japan Co-operative Science Program on "The Evolution and Biogeography of the Insects in the East Asia". No. 13.
- 2) Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 4, No. 47).

Leptaulax koreanus sp. nov.

Adult (Figs. 1-2). Body length (from anterior margin of head to apices of elytra) 18.7-21.0 mm. Width 7.2-8.8 mm.

Frons (Fig. 2A) about twice as wide as long, polished, with 2-S annular punctures and some ordinal punctures on each side, median ridge weak to obsolete, area surrounded by frontal, parietal and supraorbital ridges with annular punctures; area posterior to outer tubercle polished, impunctate or weakly wrinkled; frontal ridge obsolete behind inner tubercle; parietal ridge ending more or less abruptly about half way to supraorbital ridge; ridge between inner tubercles bisinuate, with a slight process at middle; inner tubercle broader and slightly longer than outer tubercle, distance between two inner tubercles about twice as great as or slightly greater than that between inner and outer tubercles; outer tubercles slightly directed outwards; median tubercle distinct, blunt. Antennae with 3 long lamellae. Labrum punctured and hairy, more or less concave at anterior margin, parallel-sided or weakly convex at sides. Mandibles each strongly angular on basilateral side, upper tooth well-developed, anterior lower tooth triangular and simply pointed, left anterior lower tooth broader than the right.

Pronotum with distinct median groove, sparsely punctured in lateral portion, with a row of punctures along side margin to exterior half of anterior margin on each side, anterior corners interior to this row impunctate row with a few punctures, anterior angles slightly prominent forward. Lateral

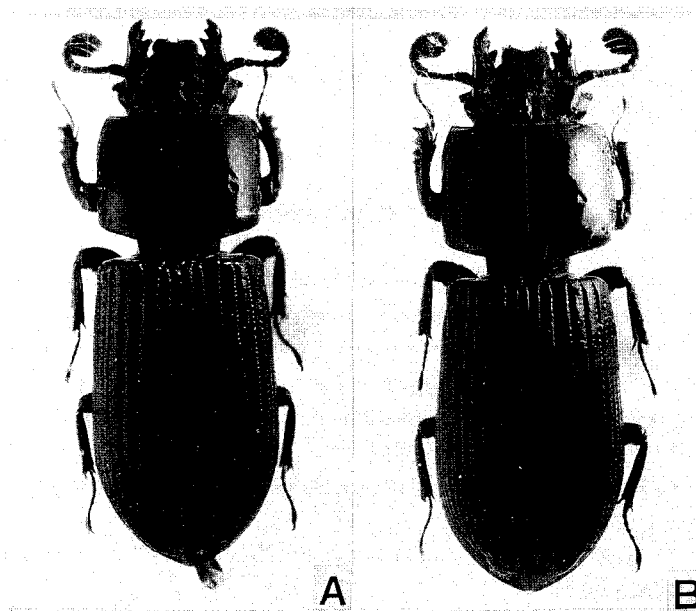


Fig. 1. Adults of *Leptaulax koreanus* sp. nov. in dorsal view. A: male; B: female.

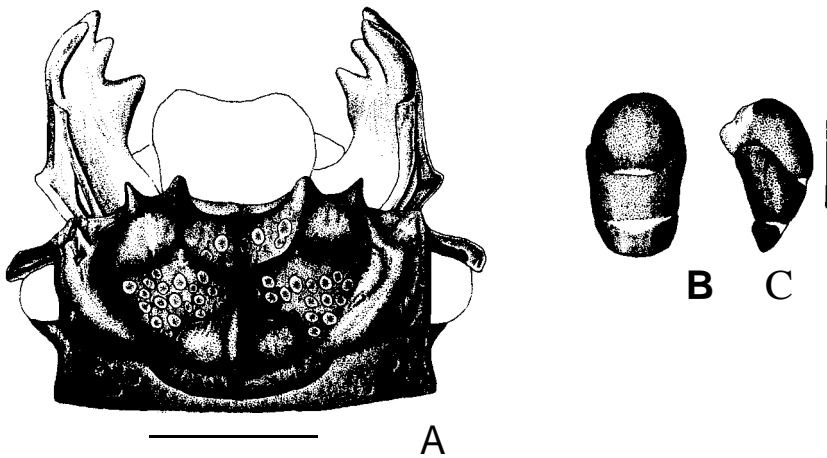


Fig. 2. Adult characters of *Leptaulax koreanus* sp. nov. A: Head in dorsal view (scale: 2 mm) ; B: male genitalia in dorsal view (scale: 1 mm) ; C: ditto, in lateral view.

plates of lower side of prothorax more or less punctured in front of coxae, unpunctured at sides of coxae, wrinkled at anterior areas. Prosternum smooth and polished between and behind coxae, keel strongly grooved transversely in front, anterior median semicircular area dull and radially grooved. Mesosternum polished, with long oval scar, mat both in scar and in area posterior to scar along lateral margin. Metasternum polished and impunctate on central area, with small depression between mesocoxae; anterior intermediate area rough posterior to mesocoxa; posterior intermediate area with large punctures, lateral area rough. Elytra polished throughout, puncturing of lateral grooves strongly transverse.

Abdominal sternites slightly smooth, with rough area at side; 3rd sternite weakly convex. Male genitalia (Fig. 2B–C, 3) very small, broadened distally, rounded at apex; basal piece transverse, membranous on ventral side, lateral lobe semicylindrical with a pair of ventral projections extending ventrally, median lobe about as long as basal piece + lateral lobe, rounded on dorsal side, internal sac slightly longer than external sclerites, membranous on basal part, covered with microtrichiae in apical 1/3, median orifice weakly sclerotized and glabrous, with a longitudinal slit and large and cordiform sclerite at base of the slit.

Mature larva (Fig. 4). Length 23.1–27.9 mm. Width 3.0–4.8 mm.

Body elongate and cylindrical, head yellowish brown, thoracic segments and 1st to 7th segments whitish, 8th to 10th whitish gray, thoracic legs pale brown.

Head capsule (Fig. 4B) ovoid, 1.2 times as wide as long with a Y-shaped suture on median part and sparse and short setae on anterior side. Clypeus transverse and trapezoid, narrowed anteriorly, with a pair of short setae at anterolateral part. Antennae very short (Fig. 5B), 1st segment wider than long, subcylindrical, 2nd three times as long as 1st, nearly fusiform, widest at middle, rounded and

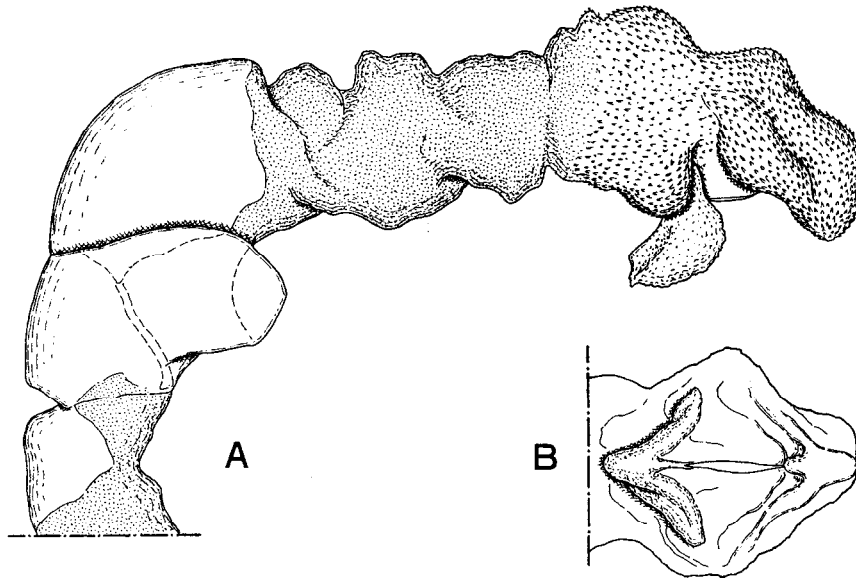


Fig. 3. Male genitalia of *Leptaulax koreanus* sp. nov. A: internal sac extended, in lateral view; B: median orrifice in ventral view.

pubescent at apex. Labrum transverse, rounded at anterior margin, with sparse long setae; mandibles (Fig. 5A) nearly symmetrical, each with 3 robust teeth at apex, a broad tooth and a pencil on inner side at base; maxillae (Fig. 5C) short, each narrowed anteriorly, cardo very short, stipes nearly hemicylindrical, lacinia elongate and conical, acute at apex, galea elongate and sharpened toward apex, with some long setae on inner side, maxillary palpus shorter than lacinia, 1st segment longest and weakly broadened apically, 2nd about as long as wide, narrowed apically, 3rd slightly shorter than 2nd and conical.

Prothorax long, weakly narrowed anteriorly, with a pair of ovoid spiracles near its posterior margin, and a pair of small sclerite at middle of dorsolateral side, meso–metathoraces subequal in length, slightly broadened posteriorly, each with a pair of small sclerites at dorsolateral side. Thoracic legs (Fig. 5D) comprised by both large fore and mid legs and very short hind legs, mid leg longest, coxa with a file-like area (Fig. 5E) consisting of many granules and carinae on posterior side of its base, hind leg (Fig. 5F) very short and subconical, with 6 to 7 tubercles on its dorsal side, each tubercle with a papillary sensilla at middle.

Abdomen cylindrical, 1st to 5th segments subequal in length, each with a pair of spiracles at anterior 1/5 on lateral side, with two pairs of small sclerites at posterior 1/3 and with a pair of long setae at posterior 2/5 on dorsolateral side (submedial tergal setae in Schuster and Reyes-Castillo, 1981), 6th to 8th segments weakly bent ventrally, successively enlarged posteriorly, each with a pair of spiracles at anterior 1/5, a pair of small sclerites at posterior 2/5 on both lateral sides, and with a

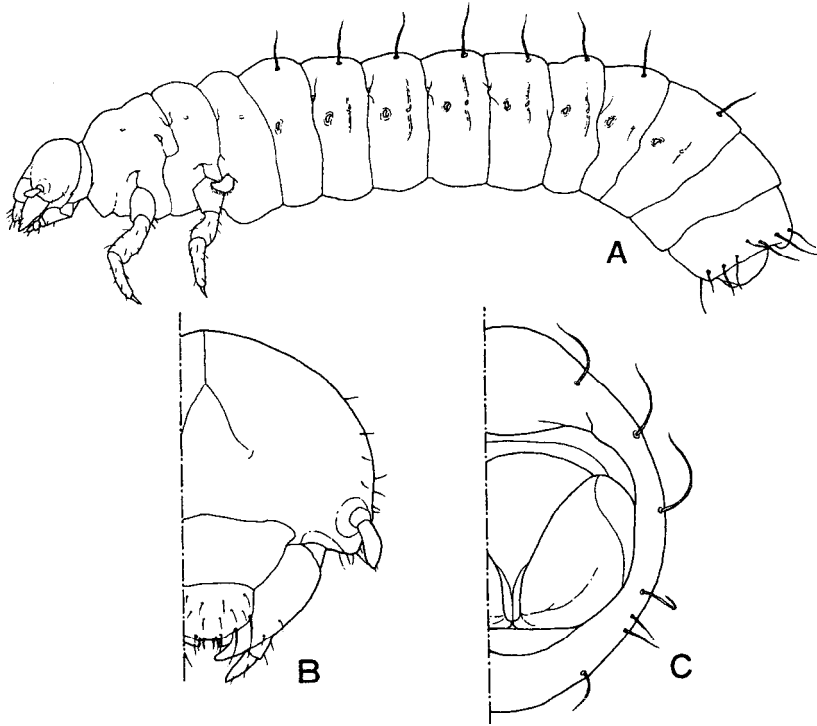


Fig. 4. Mature larva of *Leptaulax koreanus* sp. nov. A: lateral view; B: head in anterior view; C: anal region in posterior view.

long setae at posterior 2/5 on dorsolateral side, 9th as long as 8th, shortened on ventral side, 10th slightly shorter than 9th, with 14-16 long setae (anal ring setae by Schuster and Reyes-Castillo, 1981) around posterior margin, raster indistinct, anal region (Fig. 4C) nearly circular, dorsal lobe transverse, divided by a transverse suture, ventral lobe very large, divided into two tubercles by a longitudinal slit, each tubercle with a longitudinal suture on its lateral side.

Immature larva (1st to 2nd instar?). Similar to mature larva in shape, but head capsule with two pairs of long setae behind antennae; 3 thoracic and 1st to 9th abdominal segments each with 2 pairs of long setae on dorsal side, 10th abdominal segment with 12 anal ring setae.

Distribution. South Korea (Kyonggi Do).

Holotype, male, Kwangnung, Pochon Gun, Kyonggi Do, 14-19. v. 1992, S. Nomura leg. Paratype, 100 exs., same data as holotype, M. T. Chûjô & S. Nomura leg.; 20 exs., same locality as holotype, 16-19. vii. 1992, M. T. Chûjô & S. Nomura leg.

Remarks. This new species resembles *L. dentatus* (Fabricius) in having the following characters: the parietal ridge is not extending to the supraorbital ridge; the lateral ribs of the elytra are

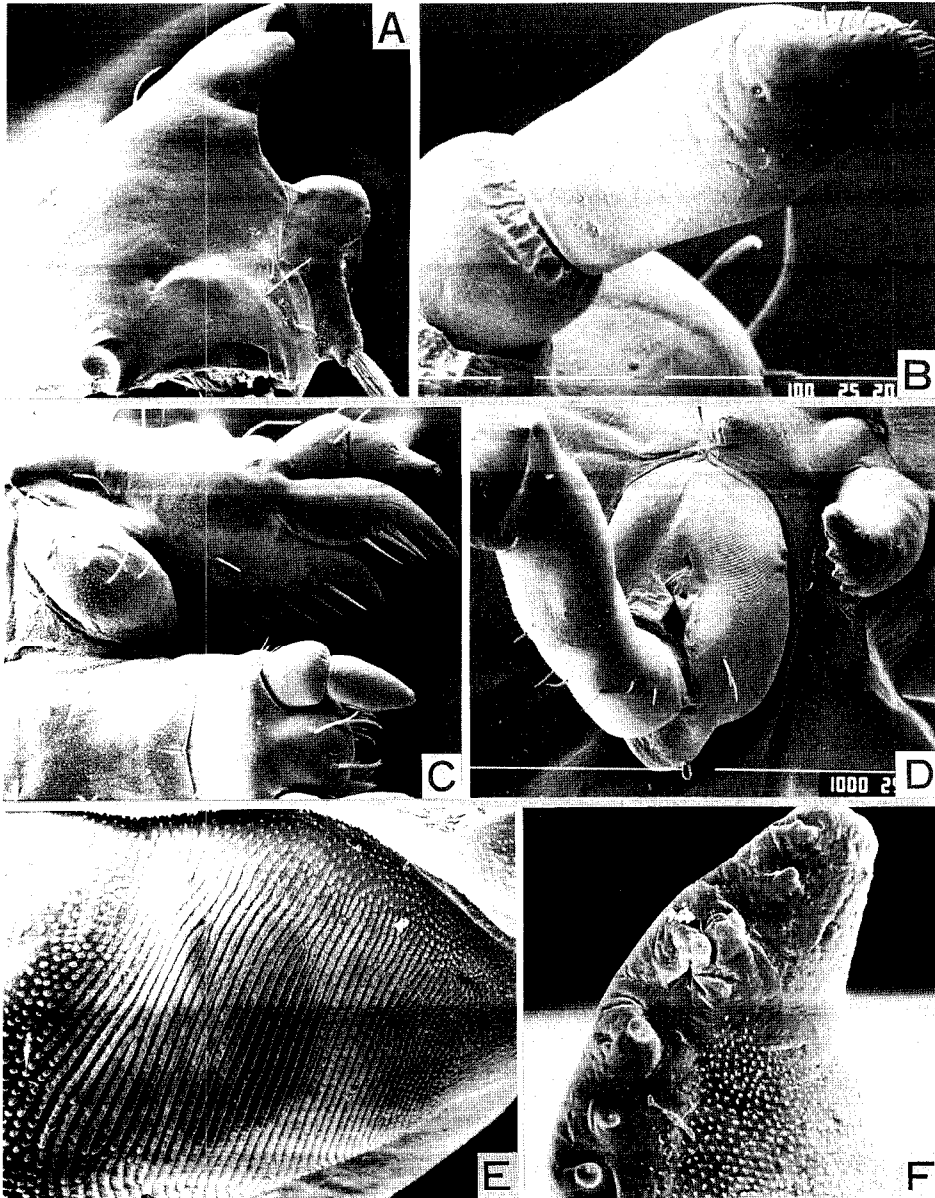


Fig. 5. Larval characters of *Leptaulaxkoreanus* **sp. nov.** A: left mandible in dorsal view; B: left antenna; C: maxilla and labium; D: mid and hind legs; E: sound product apparatus (file) of mid coxa; sound product apparatus (scraper) of hind leg.

the latter by having the simply pointed anterior lower tooth.

As for the larval characters, Schuster & Reyes-Castillo (1978) revised the larvae of Neotropical Passalidae, and showed some setal patterns of their dorsal surface. Comparing with them, the setal pattern of this species is more simple than the others, and is also different from that of *Leptaulax bicolor* (Fabricius) described by Gravely (1916). This species is most closely allied to *L. dentatus* (Fabricius) noted by Gravely (1916) in the setal pattern, but differs by the ninth abdominal segment with a pair of dorsal setae (medial tergal setae by Schuster and Reyes-Castillo, 1978) as well as each of the first to eighth segments (without setae in *dentatus*).

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