

A new record of the Genus *Pachyserica* Brenske, 1897 (Coleoptera, Melolonthidae) in Korea

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한국산 *Pachyserica* 속(딱정벌레목: 검정풍뎅이과)의 미기록종에 대한 보고

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ABSTRACT: We recognized *Pachyserica yanoi* Nomura which belongs to the genus *Pachyserica* Brenske, 1897 (Coleoptera, Melolonthidae) in Korea for the first time. A key to the genera of Korean Sericini, diagnosis and photographs of this species are provided.

Key words: *Pachyserica yanoi*, *Pachyserica*, Melolonthidae, New record, Korea

초 록: 한국산 미기록속 비늘우단풍뎅이속(신칭)의 미기록종인 제주비늘우단풍뎅이(*Pachyserica yanoi*)를 보고한다.

검색어: 제주비늘우단풍뎅이, 비늘우단풍뎅이속, 검정풍뎅이과, 미기록, 한국

Tribe Sericini (Coleoptera, Melolonthidae) is a large tribe in the family Melolonthidae including over 700 species in the palaearctic region (Löbl and Smetana, 2006). There were 5 genera of Sericini distributed in Korea (Kim, 2011); *Gastroserica*, *Maladera*, *Nipponoserica*, *Serica*, *Sericania*. Adding them, we report one more genus *Pachyserica* new to Korea.

The species of *Pachyserica* is a typical mountainous taxon. They live from low-land to high-land of mountains (Ahrens, 2004). As other members of Sericini, they are likely to be phytophagous. However, their ecology is not known in detail. The genus *Pachyserica* contains 38 species and distributes

over Asia (Ahrens, 2006; Löbl and Smetana, 2006). It is seemed that the species in this genus are monophyly by their phylogenetic analysis (Ahrens and Fabrizi, 2016).

The first *Pachyserica* species '*P. yanoi* Nomura, 1959' which was collected in Jeju island is reported in Korea. We provide a key to the genera, diagnosis of the genus and species, and photos of adult habitus and male genitalia.

Materials and Methods

The specimens used in this study were collected by Malaise trapping and they were deposited in the collection of National Institute of Biological Resources (NIBR, Incheon). Morphological terms follow Ahrens and Fabrizi (2016) and Nomura (1959).

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Specimens were examined under the stereomicroscope (SZ61, Olympus, Philippines) and photographs were captured by a digital camera (Canon EOS 60D, Japan).

Taxonomy

Key to the genera of Korean Sericini

1. Mesosternum between mesocoxae wider (or same) than the mesofemur 2
 - Mesosternum between mesocoxae narrower than the mesofemur 4
2. Hypomeron basally produced and distinctly carinate *Gastroserica*
 - Hypomeron basally produced but not distinctly carinate 3
3. Elytra with scale-like setae *Pachyserica*
 - Elytra without hair *Maladera*
4. Metacoxa with transverse furrow *Sericania*
 - Metacoxa without transverse furrow 5
5. Margin of Metatibia with wave-shaped horizontal ridges *Nipponoserica*
 - Metatibia with 2-3 short ridges, not wave-shaped *Serica*

Genus *Pachyserica* Brenske 비늘우단풍뎅이속 (신칭)

Pachyserica Brenske, 1897: 420 Type species *Pachyserica rubrobasalis* Brenske, 1897

Diagnosis. Body oval, widened posterior with lateral line, dark brown to reddish brown with yellowish antennae. Pronotum short; anterior angle not produced (Ahrens and Fabrizi, 2016). Elytra with two short tooth. Scaly hair and setae scattered dorsal surface of the elytra (Brenske, 1897). Antenna 9-10 segments with three club in both sex. Claws symmetry, split at the end; posterior part widened. Clypeus slightly narrowed anteriorly.

Pachyserica yanoi Nomura 제주비늘우단풍뎅이 (신칭) (Figs 1, 2)

Pachyserica yanoi Nomura, 1959: 41.

Description. Length: 7.8 ~ 8.0 mm, length of elytra: 5.5 ~ 6.4

mm, width: 4.0 mm, Body oval, dark reddish brown, antennae yellowish brown, legs reddish brown, dorsal surface dull with pale yellow setae, labroclypeus shiny, head sparsely setose, dorsal face of pronotum and elytra scale-like setose (Fig. 1A~D).

Clypeus subparallel, anterior angles rounded, anteriorly very slightly sinuate medially (Fig. 1D); margins moderately reflexed; surface flat and shiny, moderately punctate, with erect setae; frontoclypeal suture distinctly incised, slightly elevated and not angled medially; smooth area anterior to eye wide, 2 times as wide as long; ocular canthus moderately long and broad (1/3 of ocular diameter), finely and sparsely punctate, with one long terminal seta. Frons dull, with fine punctures and numerous setae on the surface. Eyes medium sized, ratio diameter/interocular width: 0.55. Antenna with nine antennomeres; antennomeres three to five longer than width, six wider than long, club with three antennomeres, 1.3 times longer than the remaining antennomeres combined and slightly reflexed. Mentum elevated and slightly flattened anteriorly. Labrum transverse, short, not produced medially.

Pronotum transverse, widest at base, lateral margins convex and slightly convergent anteriorly, anterior angles not produced and sharp, posterior angles slightly blunt; surface densely punctate with scale-like setae (Fig. 1D). Scutellum slender and long, triangular, dull, dense punctures with scale-like setae.

Elytra oblong, widest near behind, striae impressed, densely punctate, intervals somewhat convex, with scattered punctures, short scaly hair scattered, completely mat, usually has black spot area posteriorly; epipleural edge moderately robust, ending at moderately curved external pical angle of elytra, epipleura densely setose (Fig. 1A and B).

Ventral surface dull, densely punctate, metacoxa with a few short robust setae laterally; abdominal sternites densely punctate, with a transverse row of coarse punctures, each bearing a short seta (Fig. 1C). Mesosternum between mesocoxae almost same as the width of the mesofemur. Ratio of length of metepisternum/metacoxa: 1/1.3. Pygidium slightly convex at apex and dull, densely punctate, with smooth midline, with scale-like setae.

Legs moderately slender, shiny (Fig. 1C); profemur with fine and dense setae; mesofemur slender with three row of

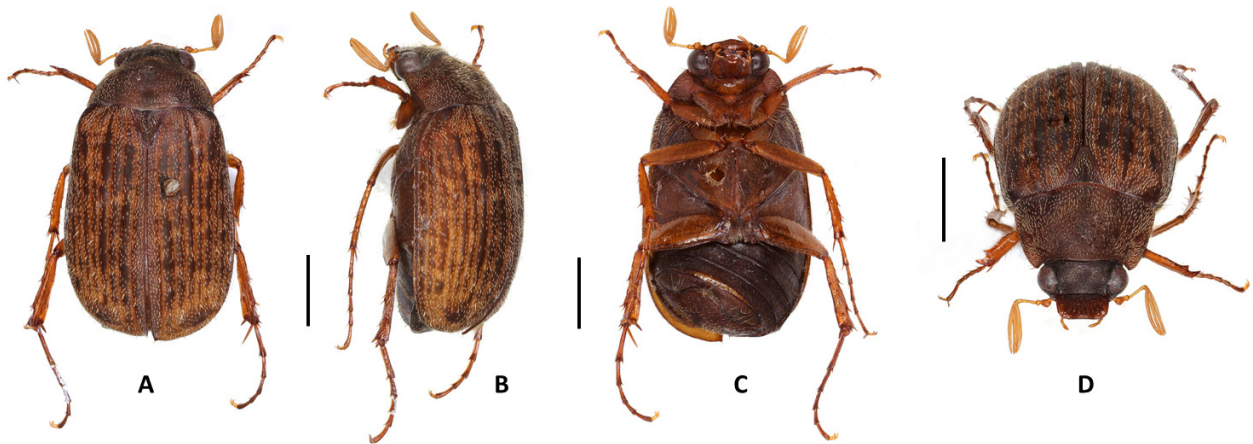


Fig. 1. Adult of *Pachyserica yanoi*: A. dorsal, B. lateral, C. ventral, D. front (Scale bars: 2 mm).

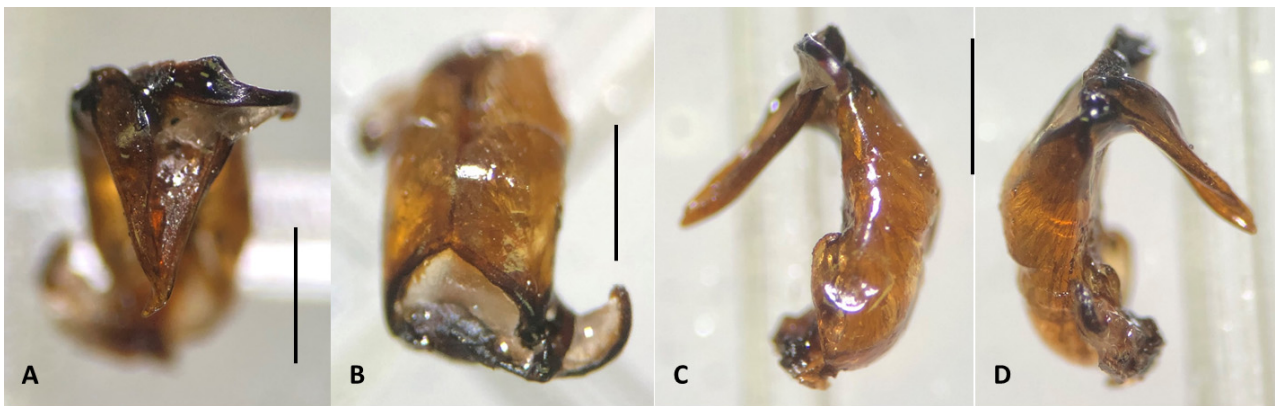


Fig. 2. Male genitalia of *Pachyserica yanoi*: A. paramere, B. dorsal view, C. lateral (R), D. lateral (L) (Scale bars: 0.5 mm).

setae, mat ventrally; metafemur shiny, anterior margin acute, with two longitudinal rows of setae; Protibia bidentate, with three rows of setae, one is on the central, two are on the margins, anterior claws symmetrical, basal tooth of inner claw truncate at apex. Metatibia moderately slender and not very long, widest at the two third, dorsally moderately carinate, with two groups of spines, basal one at one third, apical group at three quarters of metatibial length; ventral edge finely serrated, with two spine, medial face punctate, Tarsomeres smooth; mesotarsomeres ventrally with a row of setae. metatarsomeres finely serrated ventrally, first metatarsomere slightly shorter than the two following tarsomeres combined, half of its length as long as the upper tibial spur. Male genitalia shown as Fig. 2 (Fig. 2A~D).

Female unknown.

Etymology. The Korean name of this species is named from

it's collection site, "Jeju-do island".

Material examined. [NIBR] 3♂, Hoecheon-dong, Jeju-do, 18.VI.2008, JD Yeo et als (Light trap)

Distribution. Korea (Jeju), Japan (Ishigaki, Iriomote).

Remark. This species has been known only in Japan before. They are known to inhabit in low-land and middle-land forests (Kobayashi and Matsumoto, 2011). They appear from March to June and attract to light trap at night. Their exact host is not known yet. There is no record of outbreak, so it does not seem to be considered a cautionary pest.

The three specimens observed in this study were found in 2015 while reviewing samples from the collections of the National Institute of Biological Resources. Labeling information says they were captured by light trap. It would have been better if further investigation had been carried out at the previously collected location after the sample observation, but it is

unfortunate that it was not.

Because the number of samples observed is quite small, the possibility of accidental visits by typhoons, air currents or wind can be considered. Of a total of 22 typhoons in East Asia in 2008, only 'Kalmaegi' affected Korea. However, it has been affected in July, it is after June when the samples were collected. Moreover, since the species appear southern islands of Okinawa, the path of typhoons from Southeast Asia to South Korea via China does not coincide. In case of airflows and winds, it should be very small in body size or must have excellent flight capability, but this is not possible with this species I can think of it.

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Statements for Authorship Position & contribution

Kim, A.Y : National Institute of Biological Resources, Researcher; Designed the research and wrote the manuscript

Park, S.W : Research Institute of Forest Insect Diversity, president; Conducted the experiments and Carried out microscopic analysis of samples

All authors read and approved the manuscript.

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