

First record of the beetle family Georissidae (Coleoptera) in Korea, with a mtDNA information of a species

Dae-Hyun Lee^{1,2,*}, Sang Woo Jung², Yoon-Ho Kim² and I Chan Shin³

¹Insect Biodiversity Institute, Daejeon 35203, Republic of Korea

²DASARI Research Institute of BioResources, Daejeon 35203, Republic of Korea

³Ecological Research Division, Korea National Park Research Institute, Wonju 26441, Republic of Korea

*Correspondent: spike11@naver.com

The beetle family Georissidae, represented by *Georissus kurosawai* Nakane, is identified for the first time in Korea. Worldwide, the family Georissidae Laporte contains 83 described species in the only genus *Georissus* Latreille. This beetles usually inhabits sandy or muddy banks of streams, rivers, and standing water, and some species live in tidal flats and leaf litter. Mostly, adults are covered by a layer of mud or sand grains dorsally and are attracted to light. They are characterized by the combination of the following characters: prosternum reduced, procoxae enlarged, metacoxae separate, ventral hydrofuge pubescence absent, elytra punctatostriate and without scutellary stria, metathoracic anepisterna concealed, and sternite III enlarged. Habitus and aedeagus photograph, mtDNA sequence, and habitat information are provided.

Keywords: Coleoptera, Georissidae, *Georissus kurosawai*, Korea, taxonomy

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INTRODUCTION

Worldwide, the family Georissidae Laporte contains 83 described species in the only genus *Georissus* Latreille, 1809 (Yasuda and Yoshitomi, 2022). This beetles usually inhabits sandy or muddy banks of streams, rivers, and standing water, and some species live in tidal flats and leaf litter (Satô, 1972; Shepard, 2003; Fikáček, 2012; Fikáček *et al.*, 2012; Shepard and Sites, 2016). Mostly, adults are covered by a layer of mud or sand grains dorsally and are attracted to light (Shepard and Sites, 2016).

They are characterized by the combination of the following characters: prosternum reduced, procoxae enlarged, metacoxae separate, ventral hydrofuge pubescence absent, elytra punctatostriate and without scutellary stria, metathoracic anepisterna concealed, and sternite III enlarged (Archangelsky *et al.*, 2005).

In this paper, we report the family Georissidae and one species, *Georissus kurosawai* Nakake, for the first time in Korea. We also provide a habitus and aedeagus photo, diagnosis, mitochondrial DNA sequence (mtDNA), information of habitat of the species.

MATERIALS AND METHODS

The specimens used in this study are deposited in

DASARI Research Institute of BioResources, Daejeon (DRIBR). The examined one male specimen has been deposited at the National Institute of Biological Resources, Incheon, Korea (NIBR). The terminology of taxonomic characters and measurements of specimens mainly follows Archangelsky *et al.* (2005) and Yasuda and Yoshitomi (2022). Total genomic DNA was extracted from one male, using the whole body excepting the abdomen. The universal barcoding primers LCO1490 (5'-GGTCAACAA ATCATAAAGATATTGG-3') and HCO2198 (5'-TAAAC TTCAGGGTGACCA AAAAATCA-3') (Folmer *et al.*, 1994) were used to amplify the partial mitochondrial cytochrome c oxidase subunit I (COI) gene. We used the following polymerase chain reaction (PCR) protocol by the genetic analysis of Jung *et al.* (2015). The obtained sequence was deposited in GenBank.

TAXONOMIC ACCOUNTS

Family Georissidae Laporte, 1840

Genus *Georissus* Latreille, 1809

Type species: *Pimelia pygmaea* Fabricius, 1798

***Georissus kurosawai* Nakane, 1963 (Figs. 1–3)**
(Korean name: Mo-rae-sal-i)

Georissus kurosawai Nakane, 1963: 63.

Diagnosis. Length 1.6–1.8 mm. Body oblong oval, convex dorso-ventrally, with granules. Color black, shining; legs dark brown; surface often covered with grey mud and sand (Fig. 1). Pronotal side dentate. Posterior parts of pronotum with granules, subbasal dentation, central depression and subbasal depression. Elytra with distinct granules. Elytral interstices raised. Sternite without ventral teeth. Median lobe as long as paramere; narrow apically; apical margin V-shaped. Paramere shorter than pallobase; lateral margin slightly rounded and widest at third (Fig. 2). **Materials examined.** KOREA: 30 exs, Nambuk-ri, Inje-eup, Inje-gun, Gangwon-do (38°4'34.24"N, 128°8'



Figs. 1–2. *Georissus kurosawai* (Gorham, 1892): 1) habitus 1.8 mm, dorsal view; 2) aedeagus, dorsal view. Scale bar = 0.1 mm.

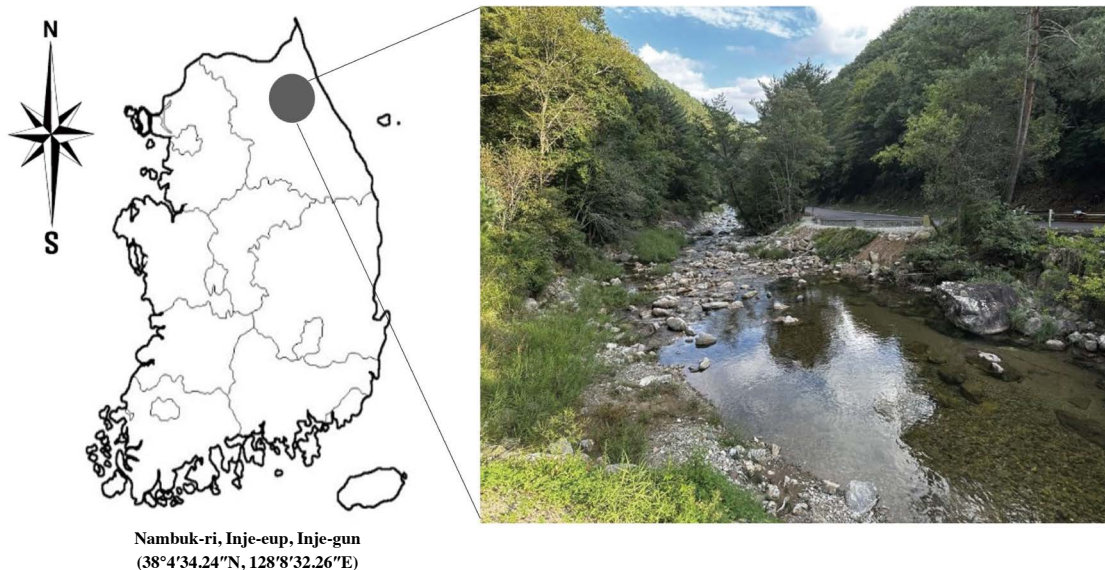
32.26"E), 18 VIII 2022, SW Jung, YH Kim, JH Lee, at light; 1 ex., ditto but deposited in NIBR (PCQAIN000000 7233).

Distribution. Korea (South), Japan.

Habitat. All specimens were collected in light trap near a mountain stream (Fig. 3).

Mitochondrial DNA (mtDNA) sequence of *Georissus kurosawai*. Total 658 bp (accession number PP766011) COI showing 85.30% similarity to the reference sequence of the *Georissus laesicollis* (accession number KU911 791.1) from Germany. The COI gene sequence is shown in the below:

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AAATAGATGTTGATATAAAATTGGATCTCCAC
CTCCAGCAGGGTCAAAGAATGAAGTATTTAAAT
TTCGGTCTGTAAGTAATATAGTAATAGCACCAG
CTAATACAGGCAGAGATAGTAAAAGAAGAAGGG
CAGTAATTGCAACTGATCATACAAATAAAGGGA
GTCGGTCATAAGTTAAGTTGAATGAACGTATG
TTGATTACTGTTGTAATAAAATTAATTGCACCT
AGAATTGATGAAATACCTGCTAAATGAAGACTG
AAAATTGCTAAATCAACTGAAGCTCCTCCATGG
GCGATATTAGAAGATAAAGGAGGATAAACTGTT
CATCCTGTTCCGGCTCCTCTTTCTACTATTCT
TCTTATTAGAAGAAGAGTTAATGAGGGGGGTAG
CAGCCAAAATCTTATGTTGTTTATCCGAGGAAA
TGCTATGTCGGGGGCTCCAAGCATTAGGGGAAC
TAATCAATTTCCAAATCCTCCAATTATGATAGGTA
TAATAAAAAAAAAATTATGATGAAAGCGTGGG
CTGTTACAATAACATTATAAATTTGGTCATCTCC
AATTAAGGTTCTGGATTTCTAATTCAGCACGA
ATTAATACTCAGAGATGTTCCAATTATTCCA
GCTCATGCTCCAAAAATAAAATAAAGAGTT
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Nambuk-ri, Inje-eup, Inje-gun
(38°4'34.24"N, 128°8'32.26"E)

Fig. 3. Habitat of *Georissus kurosawai*.

CONFLICTS OF INTEREST

The author of this paper has no affiliation with any interests and is solely responsible for the paper.

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