



Weevil fauna of Yakushima Island, off of southern Kyushu, Japan (Coleoptera, Curculionoidea) I. New distributional records and biological notes of the family Curculionidae

Hiroaki KOJIMA ¹⁾ & Takeshi YÔRO ²⁾

¹⁾ Laboratory of Entomology, Tokyo University of Agriculture, 1737 Funako, Atsugi, Kanagawa, 243-0034 Japan

E-mail: h3kojima@nodai.ac.jp

²⁾ 4-21-11 Ougigayatsu, Kamakura, Kanagawa, 248-0011 Japan

Abstract The first part of the weevil fauna from Yakushima Island, off of southern Kyushu, Japan treats nine species new to the fauna of the island including two southernmost species and one northernmost species in their respective distributions, and two species with new biological information.

This year (2023) marks the 30th anniversary of Yakushima Island (abbreviated as Yakushima below), which was designated as a World Natural Heritage site in 1993. The island is also known as "the alps of the ocean" due to its rugged mountainous terrain in the sea. Needless to say, the rich nature of the island is well known, containing a wide range of habitats from subtropical rainforest at sea level to subarctic alpine forests at the mountain tops within the small island (an area of about 500km²).

However, the insect fauna of the island has yet to be fully elucidated except for some major taxa such as dragonflies, butterflies, stag beetles and long-horned beetles. Weevils are one of the minor taxa requiring urgent survey since a number of undescribed and unrecorded species still remain on the island. Given this situation, investigation of the island's weevil fauna was initiated in 2019 by the authors and the Nodai Entomological Team, thus far resulting in several publications (Kojima & Yôro, 2019a, b; Kojima *et al.*, 2019a, b; Kojima & Yôro, 2020).

In this paper, we report nine species new to the fauna of Yakushima, including two and one species that represent the southernmost and northernmost records of their distributions, respectively, and biological notes of two species, obtained by recent surveys by us, our members and friends as a first part of this series. The weevil classification system follows Alonso-Zarazaga *et al.* (2017). The related islands to Yakushima are defined as follows: the Ōsumi Islands contain the islands of Tanegashima, Yakushima, Kuchinoerabu-jima and Magejima, and the Satsunan Islands contain the Ōsumi Islands, the Tokara Islands and the Amami Islands. All the materials treated herein are deposited at the Laboratory of Entomology, Tokyo University of Agriculture, Atsugi, Japan (Nodai Entomology).

Lastly, we dedicate this paper to Mr. Hiroshi Onodera, the chairman of the Yakushima Environmental and Cultural Foundation for his great contribution to the island.

Acknowledgments. The authors thank Mr. Hiroshi Onodera for his kind arrangement during our visit to the island, and Dr. Steven R. Davis, Nodai Entomology, Atsugi for his critical reading of the manuscript. The senior author thanks Mrs. Mitsuko Hidaka of Shisuikan Guest House, Mrs. Yasuko Iwakawa, Suimeisou Guest House, and all the staff of the Riverside Bar St. Pote, Anbô, for their kind care and support during his stay, Mr. Sukenobu Konishi of Nagamine for their kind field guidance, Mrs. Ai Matsuda of Harumaki, and Messers Tubasa Abe, Takumi Matsuta, Takayasu Naito and Takehito Yanagihara of Nodai Entomology for their kind help in the field work. This study was partially supported by the Grant-in-Aid for Biodiversity Research of the Yakushima Environmental and Cultural

Foundation (Chairman: Mr. H. Onodera).

New distributional records

Curculionidae

Brachycerinae

1. *Echinocnemus squameus* (Boheman, 1835)

28 exs., Tabugawa, 24.iv.2023, H. Kojima, T. Matsuta & T. Abe.

Notes. New to Yakushima. Weevils were collected from young rice plants in terraced paddy fields with the next species (Fig. 1), and it is known as a pest of rice plants (Morimoto, 1984a).

2. *Lissorhoptrus oryzophilus* Kuschel, 1951

9 exs., Tabugawa, 24.iv.2023, H. Kojima, T. Matsuta & T. Abe.

Notes. New to the Satsunan Islands including Yakushima; the weevil is well known as a serious pest of rice introduced from the US (Morimoto, 1984a).

Curculioninae

3. *Orsophagus trifasciatus* Roelofs, 1874 (Fig. 12)

1 ex., Tabugawa, 24.iv.2023, H. Kojima; 3 exs., Koidomari-Koshima, 24.iv.2023, H. Kojima.

Notes. New to the Satsunan Islands including Yakushima. This is the southernmost record of this species. The weevils were collected from sweeping leaves of *Melia azedarach* (Sendan in Japanese; Meliaceae) by using long-handled insect net.

4. *Ixalma hilleri* Roelofs, 1879

1 ex., Koshima (alt. 50m), 21.vii.2021, S. Konishi.

Notes. New to the Ôsumi Islands including Yakushima. The weevil is known to associate with *Kadura japonica* (Sanekazura in Japanese; Schisandraceae) (Morimoto, 1984a).

5. *Orchestes (Granulorchestes) dorsoplanatus* Roelofs, 1875

1 ex., Shiratani-unsuikyô, 9.vii.2021, S. Konishi.

Notes. New to the Ôsumi Islands including Yakushima. The weevil is known to associate with *Castanopsis* (Fagaceae) (Morimoto, 1984b; Kojima, 2011).

Conoderinae

6. *Phaenomerus foveipennis* (Morimoto, 1961) (Figs. 2, 13)

7 exs., Ôko-rindô, 16.vii.2023, H. Kojima.

Notes. New to the Ôsumi Islands including Yakushima. Weevils were found on a fallen trunk of *Castanopsis sieboldii* (Sudajii in Japanese; Fagaceae) attacked by a certain ambrosia beetle.

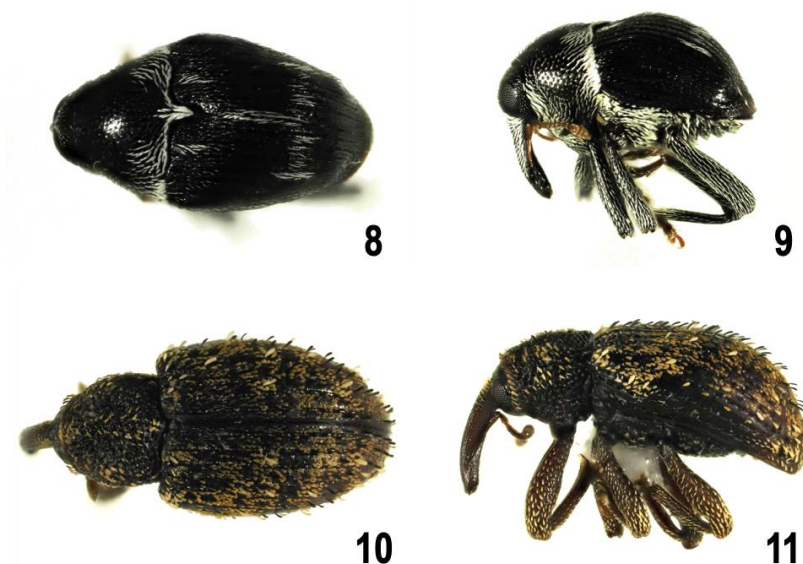
7. *Lobotrachelus tosanus* Morimoto, 1958 (Figs. 8-9)

1 ex., Kendô Shiratani-sen (alt. 300m), 14.vii.2021, S. Konishi.

Notes. New to the Satsunan Islands including Yakushima. This is the southernmost record of this species.



Figs. 1-7. Photographs of adult weevils and their habitats on Yakushima Is. 1, Habitat (terraced paddy field) of two erhirhinine weevils (*Echinocnemus squameus* and *Lissorhoptrus oryzophilus*); 2, *Phaenomerus foveipennis* on the trunk of *Castanopsis sieboldii*; 3, habitat of *Mechistocerus parcimaculatus*; note the standing and felled dead tree trunk of *Cinnamomum yabunikkei*; 4, 5, adults of *Mechistocerus parcimaculatus* on the dead trunk of *C. yabunikkei*; note the color variation of scaly patches on elytra; 6, habitat of *Styanax kuwanoi*; note the hedge tree, *Eurya emarginata*; 7, adult pair of *Synommatooides shirozui* (photographed by H. Kojima except for fig. 7 by T. Naito).



Figs. 8-11. Habitus images of weevils from Yakushima Is. 8, *Lobotrachelus tosanus*, dorsal; 9, ditto, lateral; 10, *Protacallodes ryukyuensis*, dorsal; 11, ditto, lateral.

Molytinae

8. *Styanax kuwanoi* Chûjô & Voss, 1960 (Fig. 14)

3 exs., Koidomari-Koshima, 24.iv.2023, H. Kojima; 2 exs., Koshima (alt. 60m), 25.iv.2023, T. Naito.

Notes. New to the Ôsumi Islands including Yakushima. Weevils were collected from branches of *Eurya emarginata* (Hamahisakaki in Japanese; Pentaphylaceae), one of hedge trees of citrus gardens, by visual searching (Fig. 6).

9. *Protacallodes ryukyuensis* Morimoto, 2011 (Figs. 10-11)

1 ex., Miyanoura, 16.x.2023, S. Konishi.

Notes. This species has hitherto been known from the Ryukyus (Amami-Oshima Is., Kumejima Is. and Ishigakijima Is.). It is new to the Ôsumi Islands including Yakushima. This is the northernmost record of this species. An adult was collected under bark of a dead budding branch (2-3cm in diameter) of *Castanopsis sieboldii* (Fagaceae) about 1m from ground level. This is the third record of this species since the original description (Morimoto, 2011; Yoshitake, 2020).

Biological Notes

Dryophthorinae

1. *Synommatoides shirozui* Morimoto, 1978 (Fig. 7)

2 exs, Koseda, 23.iv.2023, T. Naito.

Notes. No information has been available on the biology of this species; however, a pair of weevils were collected under the bark of a fallen Japanese cedar, *Cryptomeria japonica* (Sugi in Japanese; Cupressaceae) in the plantation forest.



Figs. 12-14. Habitus images of weevils from Yakushima Is. 12, *Orsophagus trifasciatus*; 13, *Phaenomerus foveipennis*; 14, *Styanax kuwanoi*.

Molytinae

2. *Mechistocerus parcimaculatus* Morimoto & Miyakawa, 1984 (Figs. 4-5)

8 exs., Kosedá, 23.iv.2023, T. Abe & H. Kojima; 1 ex., 23.iv.2023, T. Matsuta; 1 ex., 25.iv.2023, T. Naito.

Notes. A number of weevils were found on the dead trunk of *Cinnamomum yabunikkei* (Yabunikkei in Japanese; Lauraceae) (Fig. 3). The association of this weevil with *C. yabunikkei* is reported here for the first time.

要 約

小島弘昭・養老孟司：屋久島のゾウムシ相（甲虫目ゾウムシ上科）I. ゾウムシ科の新分布記録と生態的新知見。——筆者らは 2019 年から世界自然遺産屋久島のゾウムシ上科甲虫相の調査を開始した。屋久島は世界自然遺産に指定され今年で 30 周年を迎えるが、マイナー昆虫の一群であるゾウムシ類では、未記載種や未記録種が多く存在する。このシリーズの第一報として、ゾウムシ科甲虫の分布新記録種 9 種（イネゾウムシ、イネミズゾウムシ、オビデオゾウムシ、サビノコギリゾウムシ、ヒラセノミゾウムシ、キンケツツヒメゾウムシ、トサヒシガタクモゾウムシ、クワノコブコブゾウムシ、オキナワニセミヤマクチカクシゾウムシ（和名新称））と生態的新知見が得られた 2 種（シロズキクイサビゾウムシ、コシラホシメカクシゾウムシ）を扱った。また、9 種の分布新記録種のうち、2 種が分布南限記録で、1 種が分布北限記録であった。

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