

Adult Feeding Records of Two *Shirahoshizo* Weevils (Coleoptera, Curculionidae, Cryptorhynchinae) on *Castanopsis* Trees (Fagaceae) in the Ryukyus, Southwestern Japan

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The genus *Shirahoshizo* MORIMOTO in the tribe Cryptorhynchini, subfamily Cryptorhynchinae, comprises 18 species distributed from South to East Asia (ALONSO-ZARAZAGA & LYAL, 1999; STÜBEN & ALONSO-ZARAZAGA, 2013; ALONSO-ZARAZAGA *et al.*, 2017) and is associated with dead trees of Pinaceae (MORIMOTO, 1962; CHAO, 1980; CHEN, 1991) and Juglandaceae (ZHERICHIN, 1996).



Figs. 1–4. Habitat, adult food plant, and adults of *Shirahoshizo* spp. — 1, Habitat of *Shirahoshizo* spp. in Yamakubiri-rindô, Tokunoshima Is., the Amami Isls., central Ryukyus, southwestern Japan; 2, a fallen branch of *Castanopsis sieboldii*; 3, an adult of *S. rufescens* on a twig of *C. sieboldii* at night; 4, ditto, feeding on a twig of *C. sieboldii* at night.

In Japan, a *Shirahoshizo* species, *S. insidiosus* (ROELOFS), was once infamous as a pest of *Pinus* spp. (NIJIMA, 1913; MATSUMURA, 1932; INOUE, 1949), but YASUNAGA and MORIMOTO (1961) pointed out that these records were based on observations of two different species, *S. insidiosus* and *S. rufescens* (ROELOFS). Therefore, ecological traits of both species have been well studied until now (e.g., FURUTA, 1972; FURUTA & ÔSHIMA, 1972; FURUTA *et al.*, 1972; YOSHIKAWA, 1977, 1978, 1981, 1983; YOSHIKAWA *et al.*, 1986). According to INOUE (1949), “*S. insidiosus*” adults occasionally intensely feed on pine twigs. Additionally, numerous individuals of both *Shirahoshizo* species have so far been collected on many occasions from dead pine branches with leaves, suggesting that they feed on these tissues (TSUJI, unpubl.).

Recently, we had an opportunity to collect a number of adults of *S. insidiosus* and *S. rufescens* from recently dead trees or branches of *Castanopsis sieboldii* (Sudajii, in Japanese) on three islands in the Amami Isls., central Ryukyus and observed their feeding behaviors on Tokunoshima Is. In addition, we found specimens collected from *Castanopsis* sp. on Okinawajima Is. of the Okinawa Isls., central Ryukyus, through our examination of the specimens preserved in the Kyushu University Museum, Fukuoka (KUM).

In this short report, we record *Castanopsis sieboldii* for the first time as one of the adult food plants of *S. insidiosus* and *S. rufescens*. Most of the examined specimens are preserved in the Institute for Agro-Environmental Sciences, NARO, Tsukuba (NIAES), but partially also in KUM.

Shirahoshizo insidiosus (ROELOFS, 1875)

[Japanese name: Matsuno-shirahoshi-zômushi]

Cryptorrhynchus insidiosus ROELOFS, 1875, 167 (type locality: “Japon”); NIJIMA, 1913, 104 (biology); MATSUMURA, 1932, 890 (biology); INOUE, 1949, 116 (biology); YASUNAGA & MORIMOTO, 1961, 253 (taxonomic note).

Shirahoshizo insidiosus: MORIMOTO, 1962, 36 (establishment of the genus *Shirahoshizo*); FURUTA, 1972, 329 (biology); FURUTA & ÔSHIMA, 1972, 42 (biology); FURUTA *et al.*, 1972, 6 (biology); YOSHIKAWA, 1977, 9 (biology); 1978, 63 (biology); 1981, 367 (biology); 1983, 149 (biology); YOSHIKAWA *et al.*, 1986, 258 (biology); CHEN, 1991, 212 (in key); MORIMOTO, 1994, 158 (in key); STÜBEN & ALONSO-ZARAZAGA, 2013, 232 (cataloged; “A: JA SC”); ALONSO-ZARAZAGA *et al.*, 2017, 459 (cataloged; “A: JA SC”).

See ALONSO-ZARAZAGA *et al.* (2017) for other synonymy.

Specimens examined. Japan: the Ryukyus. 1 ex., Imaizaki, Ankyaba, Tatsugô, Amami-Ôshima Is., 20.V.2016, H. YOSHITAKE leg., on a dead branch of *Castanopsis sieboldii* (NIAES). 31 exs., Yamakubiri-rindo, Todoroki, Tokunoshima-chô, Tokunoshima Is., 14–19.IX.2017, H. YOSHITAKE & N. TSUJI leg., on dead branches of *Castanopsis sieboldii* (KUM & NIAES). 17 exs., Matsubara, Amagi-chô, Tokunoshima Is., 15.IX.2017, H. YOSHITAKE & N. TSUJI leg., on dead branches of *Castanopsis sieboldii* (KUM & NIAES). 2 exs., Kamimiyôdô-shinrin-kôen, Amagi, Amagi-chô, Tokunoshima Is., 18.IX.2017, H. YOSHITAKE, on dead branches of *Castanopsis sieboldii* (NIAES). 2 exs., Mt. Ôyama, China-chô, Okinoerabujima Is., 22.V.2016, H. YOSHITAKE leg., on dead branches of *Castanopsis sieboldii* (NIAES). 4 exs., Mt. Yonaha-dake, Kunigami-son, Okinawajima Is., 29.VI.1993, K. MORIMOTO, on dead trees of *Castanopsis* sp. (KUM).

Distribution. Japan (Honshu, Shikoku, Kyushu, and the Ryukyus; introduced to the Ogasawara Isls.); South Korea and China (Hunan and Fujian).

Shirahoshizo rufescens (ROELOFS, 1875)

[Japanese name: Nisematsuno-shirahoshi-zômushi]

Cryptorrhynchus rufescens ROELOFS, 1875, 166 (type locality: “Japon”); YASUNAGA & MORIMOTO, 1961, 253 (taxonomic note).

Shirahoshizo insidiosus (nec ROELOFS, 1875): NIJIMA, 1913, 104 (in part; biology); MATSUMURA, 1932, 890 (in part; biology); INOUE, 1949, 116 (in part; biology).

Shirahoshizo rufescens: MORIMOTO, 1962, 36 (establishment of the genus *Shirahoshizo*); FURUTA, 1972, 329 (biology); FURUTA & ÔSHIMA, 1972, 42 (biology); FURUTA *et al.*, 1972, 6 (biology); YOSHIKAWA, 1977, 9 (biology); 1978, 63 (biology); 1981,

367 (biology); 1983, 149 (biology); YOSHIKAWA *et al.*, 1986, 258 (biology); MORIMOTO, 1994, 157 (in key); ZHERICHIN, 1996, 295 (in key); STÜBEN & ALONSO-ZARAZAGA, 2013, 232 (cataloged; “A: FE HKG HP JA NC SC UP”); ALONSO-ZARAZAGA *et al.*, 2017, 459 (cataloged; “A: FE HKG HP JA NC SC UP”).

See ALONSO-ZARAZAGA *et al.* (2017) for other synonymy.

Specimens examined. Japan: the Ryukyus. 12 exs., Imaizaki, Ankyaba, Tatsugô, Amami-Ôshima Is., 20.V.2016, H. YOSHITAKE leg., on dead branches of *Castanopsis sieboldii* (NIAES). 117 exs., Yamakubiri-rindô, Todoroki, Tokunoshima-chô, Tokunoshima Is., 14–19.IX.2017, H. YOSHITAKE & N. TSUJI leg., on a dead branch of *Castanopsis sieboldii* (KUM & NIAES). 23 exs., Matsubara, Amagi-chô, Tokunoshima Is., 16.IX.2017, H. YOSHITAKE & N. TSUJI leg., on dead branches of *Castanopsis sieboldii* (NIAES). 7 exs., Kamimiyôdô-shin-rin-kôen, Amagi, Amagi-chô, Tokunoshima Is., 18.IX.2017, H. YOSHITAKE, on dead branches of *Castanopsis sieboldii* (NIAES). 1 ex., Mt. Ôyama, China-chô, Okinoerabujima Is., 22.V.2016, H. YOSHITAKE leg., on a dead branch of *Castanopsis sieboldii* (NIAES).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, and the Ryukyus; introduced to the Ogasawara Is.); Hongkong, India (Himachal Pradesh, Uttarakhand, and Uttar Pradesh), the Korean Peninsula, and the Russian Far East.

Biological Notes

From 14th to 19th September, 2017 in Yamakubiri-rindô, Tokunoshima Is. of the Amami Isls., several adults of *Shirahoshizo insidiosus* and *S. rufescens* were observed feeding on the buds and twigs of a recently fallen branch of *Castanopsis sieboldii* at night (Figs. 1–4). In addition, adults of the two species were occasionally collected from recently deceased trees or branches of *C. sieboldii* on Amami-Ôshima Is., Tokunoshima Is., and Okinoerabujima Is., and some *S. insidiosus* adults were collected from *Castanopsis* sp. on Okinawajima Is., strongly suggesting that they fed on the plant tissues.

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