

First Records of *Japanolaccophilus niponensis* (KAMIYA, 1939) (Coleoptera, Dytiscidae) Larvae with Ecological notes

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Japanolaccophilus niponensis (KAMIYA, 1939) (Fig. 1A) is a small dytiscid species inhabiting rivers (MORI & KITAYAMA, 2002; NAKAJIMA *et al.*, 2020). This species is endemic to Japan and enumerated as “Near Threatened” in the Red List of Japan (Ministry of the Environment of Japan, 2015, 2020). A little is known about the ecology of *J. niponensis*; its immature stages are still unknown.

In the present paper, we report the second and third instar larvae, prepupa and pupa of *J. niponensis* for the first time.

Specimens examined. 8 third instar larvae, Kuroson, Nishitosa, Shimanto-shi, Kochi Pref., 19.VI.2002, Y. KAMITE leg.; 2 third instar larvae, Iwagami-machi, Komatsu-shi, Ishikawa Pref., 16.VII.2018, K. WATANABE leg.; 2 second instar larvae (Fig. 1B) and 6 third instar larvae (Fig. 1C), same locality, 24.VI.2020, K. WATANABE leg.; 1 third instar larva, Katahara, Yamagata-shi, Gifu Pref., 27.VI.2020, Y. KAMITE leg.

Ecological notes. Two larvae collected from Iwagami-machi, Komatsu-shi, Ishikawa Prefecture, Japan on June 24, 2020 were reared individually in plastic cups (‘larval cup’; 8 cm in diameter, 4 cm in height, with a water depth of ca. 5 mm). These cups were maintained in the laboratory at 26°C with 9 h of light (from 8:15 am to 5:15 pm, JST) and 15 h of darkness (9 L : 15 D). All larvae were provided with live chironomid larvae collected from the container at the Ishikawa Insect Museum as feed. Other plastic cups (‘pupation cup’; the same size as the larval cups) were prepared with crushed and moistened peat moss (3 cm in depth) as the pupating soil on a wet tissue paper. Third instar larvae were carefully placed individually on the peat moss in the pupation cups when they stopped eating the prey and moved constantly.

As a result of the rearing experiment, all larvae ate the live chironomid larvae. Based on the first author’s observation on the inside a pupal chamber two days after its construction, the period of each developmental stage was as follows: the pupal chamber construction to pupation: five days; pupation to emergence: five days. The period of after landing to escaping from the pupal chamber was 17 days. The prepupa, pupa and new adult just after emergence were as shown in Fig. 1D, E and F.

We collected larvae of *J. niponensis* from fallen leaves at the bottom of small rivers and submerged roots of plants. The second and third instar larvae were found from June to July at the collecting sites in Ishikawa, Gifu and Kochi Prefectures. In western Japan, therefore, the larvae and new adults may emerge from June to July and July to August, respectively.

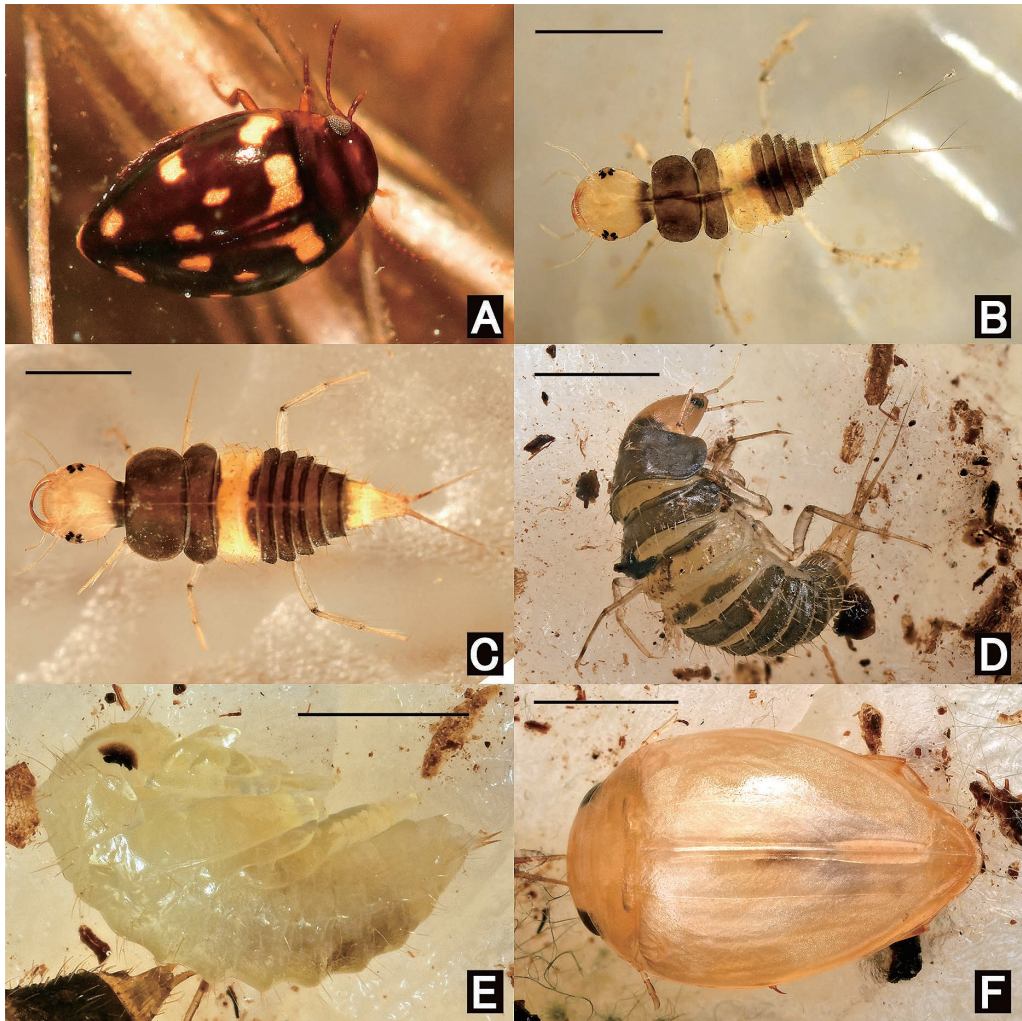


Fig. 1. *Japanolaccophilus niponensis*. — A, Adult; B, second instar larva; C, third instar larva; D, prepupa; E, pupa; F, new adult just after emergence. Scale bars: 1.0 mm.

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