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The parasitic copepod *Neoergasilus japonicus* (Ergasilidae) from a new host *Candidia sieboldii* (Cyprinidae)

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Abstract. Adult females of the ergasilid copepod *Neoergasilus japonicus* (Harada, 1930) were collected from the fins of the cyprinid *Candidia sieboldii* (Temminck & Schlegel, 1846) in a pond, Higashi-Hiroshima, Hiroshima Prefecture, western Honshu, Japan. This represents a new host record for *N. japonicus* and the first record of parasitic copepod from *C. sieboldii*.

Key words: *Neoergasilus japonicus*, fish parasite, new host record, *Candidia sieboldii*

The cyprinid *Candidia sieboldii* (Temminck & Schlegel, 1846) is endemic to Japan, where it occurs in Kinki and Sanyo districts of Honshu Island and northern parts of Shikoku and Kyushu islands (Hosoya, 2013). Until recently, this species had been regarded as a junior synonym of *Zacco temminckii* (Temminck & Schlegel, 1846), but based on re-examination of type specimens, Hosoya *et al*. (2003) reported that *Z. sieboldii* was differentiated from *Z. temminckii*. Both species are now placed in *Candidia* (Hosoya, 2013). Since *C. sieboldii* has been recently recognized as valid, its parasite fauna is poorly known: only one helminth parasite, *Southwellina hispida* (Van Cleave, 1925) (Acanthocephala), has been reported from the Lake Biwa basin (Amin *et al*., 2007). Recently, we collected specimens of the ergasilid copepod *Neoergasilus japonicus* (Harada, 1930) (Fig. 1) from *C. sieboldii* caught in western Honshu.

Twelve and five individuals of *C. sieboldii* were collected using hook and line with earthworm bait from a small pond (34°26'45.9"N, 132°50'15.4"N) in Shira-ichi, Higashi-Hiroshima, Hiroshima Prefecture, on 23 September 2008 and 22 April 2013, respectively. The fish were transported alive to the laboratory of Hiroshima University, where they were identified, measured for standard length (SL, mm), and examined for metazoan parasites. When copepods were found, they were removed and fixed in 70% ethanol. Attachment sites of copepods were recorded using the fish caught on 22 April 2013. Three copepods were dissected for identification, and voucher specimens are deposited in the Crustacea (Cr) collection of the National Museum of Nature and Science, Tsukuba, Ibaraki Prefecture, Japan (NSMT-Cr 22942 [n=34, 22 April 2013]). The scientific names of fishes used in this paper follow Nakabo (2013).

All (100%) of the 12 (65–141 [mean 100] mm SL) and five (82–100 [93] mm SL) individuals of *C. sieboldii* collected on the two dates were infected with a total of 150 (range: 1–24 per infected fish, mean: 12.5) and 59 (4–34, 11.8) adult females of *N. japoni-*

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cus, respectively. These females occurred on the fins: both the anal and dorsal fins were most heavily infected (30 [51%] and 23 [39%] of the copepods found), followed by the ventral (4, 7%) and pectoral (2, 3%) fins.

The present collection represents a new host record for *N. japonicus* and the first record of parasitic copepod from *C. sieboldii*. In Japan, *N. japonicus* is widely distributed, ranging from the subarctic Hokkaido Island in north to the subtropical Okinawa-jima Island in south (Nagasawa *et al*., 2008; Nagasawa & Uyeno, 2012) and its known hosts consist of 11 cyprinids, one loricariid, one poeciliid, one ambassid, one centrarchid, three ciclids, and one odontobutid (Nagasawa & Uyeno, 2012). As reported by Nagasawa & Obe (2013), it is abundantly found on the fins of fishes.

Much yet remains unknown about the parasite fauna of *C. sieboldii*. Also, due to the past taxonomic confusion of *C. sieboldii* and *C. temminckii*, it is likely that the parasites previously reported from *C. temminckii* in Japan contained those infecting *C. sieboldii*. Thus, further research is necessary to clarify the parasite fauna of these cyprinids, especially in water bodies where both species co-occur.

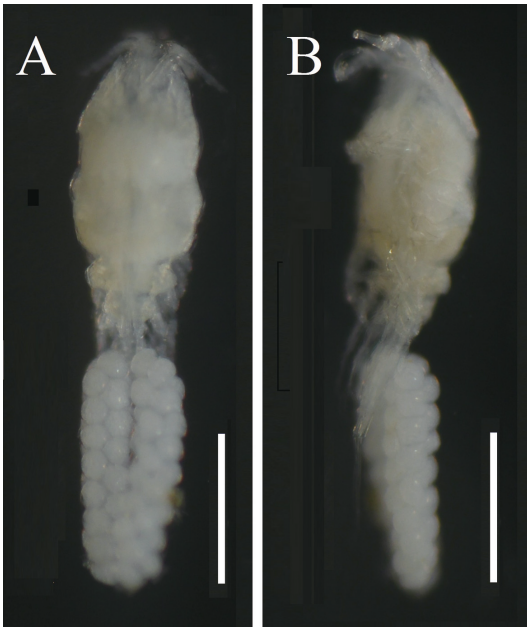

Fig. 1. *Neoergasilus japonicus*, ovigerous female, NSMT-Cr 22942, from *Candidia sieboldii* in Higashi-Hiroshima, Hiroshima Prefecture, Japan. A, dorsal view; B, lateral view. Scale bars: 0.3 mm in A and B.

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