

New distributional records of *Lioponera daikoku* (Terayama, 1996) (Hymenoptera: Formicidae: Dorylinae) from Japan

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久末遊¹・井戸川直人²・蒔田将吾³・辻尚道¹：クロクビレハリアリの新産地

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Abstract. A rare and Japanese endemic species *Lioponera daikoku* (Terayama, 1996) was recorded for the first time from Yakushima Island, Shikoku and a locality of Honshu. According to those collecting records, overwintering of *L. daikoku* males and females in the nest after emergence and their nuptial flight during the following spring were suggested.

The genus *Lioponera* Mayr, 1879 is a group of rare predatory doryline ants, including 73 species known from the Palearctic, Afrotropical, Malagasy, Indomalayan and Australasian regions (Borowiec 2016). This genus had been synonymized with the genus *Cerapachys* (e. g. Brown 1975), but was resurrected by recent molecular phylogenetic analyses (Borowiec 2016). Most congeners of *Lioponera* are known as predators of ants feeding on larvae of the subfamily Myrmicinae (Hölldobler 1982; Idogawa & Dobata 2018; Ramage *et al.* 2019), however, only a few their collecting records have been accumulated to date. Among them, *Lioponera daikoku* (Terayama, 1996) is endemic to Japan and which is sporadically collected from Honshu (Shizuoka, Kyoto, Awajishima Is.), Kyushu (Fukuoka), Amami-Oshima Is. and Okinawa Is. (Myrmecological society of Japan 1991; Terayama *et al.* 1994, 2009; Terayama 1996; Tamego 2009). Nests of *Lioponera* are found in a variety of microhabitats, including soil, under stones and in rotting logs (Wilson 1958; Brown 1975), and also in the cavities of dead bamboo stems (Idogawa & Dobata 2018). This species has been considered to be a very rare species because they had been collected only few times in the past even so its wide distributional range, but recently many individuals have been collected from Honshu, Shikoku and Yakushima Is. In this paper, we report additional records of this species in

Japan based on the individuals collected by the authors with some ecological findings. The distribution of this species, including known records, is also shown. The examined specimens used in this paper are deposited in Entomological laboratory, Faculty of Agriculture, Kyushu University (ELKU) and personal collection of Mr. K. Sadahiro (CKS).

***Lioponera daikoku* (Terayama, 1996) (Fig. 1)**

[Honshu] **Mie Pref.:** 3w (3 workers), Kumano City, Hobo Town, 18. III. 2015, N. Tsuji (ELKU). [Shikoku] **Ehime Pref.:** 1af (1 alate female), 3w, Matsuyama City, Shiroyama Park, 10. XI. 2017, N. Idogawa (ELKU); 1w, same data but different date and collector, 11. XI. 2017, Y. Hisasue (ELKU). **Kochi Pref.:** 1af, 4♂, Tosashimizu City, Cape Ashizuri, 13. XII. 2018, S. Makita (CKS); 4♂, same data but different collector, K. Sadahiro (CKS). [Yakushima Is.] 1♂, Anbo, 2. V. 2018, Y. Hisasue (ELKU).

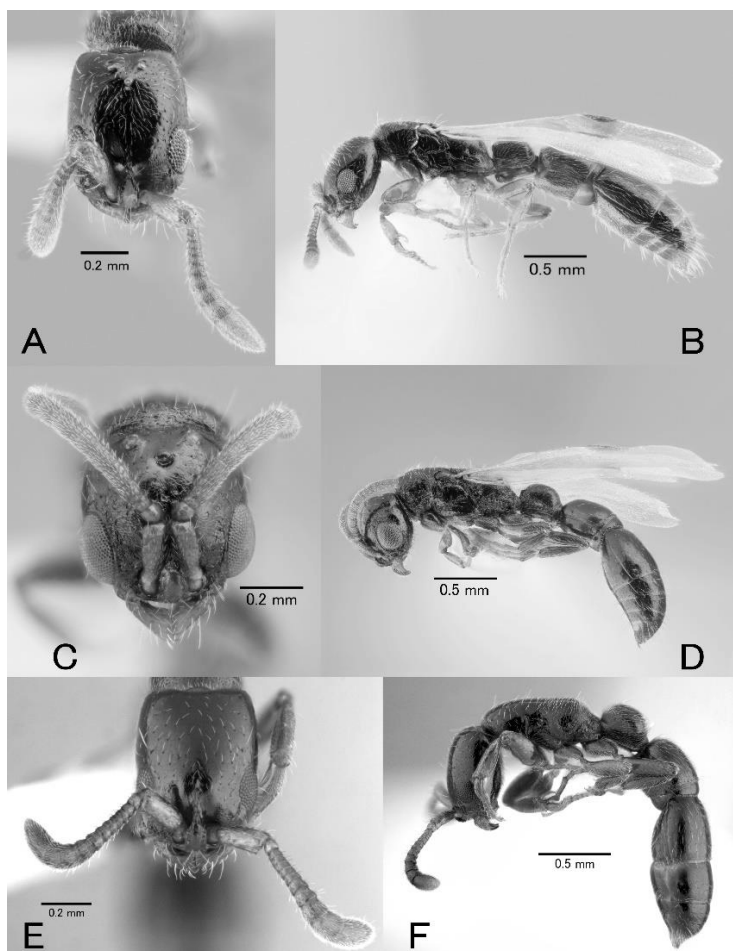


Fig. 1. Habitus of *L. daikoku*. A, B-queen. C, D-male. E, F-worker. A, C, E-head in frontal view. B, D, F-lateral habitus.

Distribution. Honshu (Shizuoka, Mie, Kyoto), Awajishima Is., Shikoku (Ehime, Kochi), Kyushu (Fukuoka),

Yakushima Is., Amami-Oshima Is., Okinawa Is. (Fig. 2). Distribution of Fukui Prefecture and Okinawa Is. by Terayama & Kihara (1994) and JADG (2003) are miss plots (Terayama, personal communication).



Fig. 2. Distribution of *L. daikoku* in Japan. Gray; known localities in previous studies, black: additional localities added by present study (black).

Biological notes. Workers from Mie Prefecture was collected by beating dead branches hanging from a vine at about 2.0 m above the ground. In Ehime Prefecture, its' colony was collected from a fallen tree approximately 20 cm in diameter, which differs from the nesting environment of this species reported by Idogawa & Dobata (2018). However, the reason for this difference in the nesting environment is not clear. Additionally, *Monomorium triviale*,

one of the prey species of *Lioponera daikoku*, heavily populated around the site where *L. daikoku* was found. In the case of Kochi Prefecture, these individuals were collected from a hollow branch about 1.5 m high in a forest by the sea. It is possible that these are members of the same colony because they were collected from branches of the same tree and close in distance. The diameters of the branches where they were nesting were 2.1 and 2.2 mm. Male from Yakushima Is. was collected by sweeping the forest edge. Despite many field surveys were carried out in Yakushima Is., *L. daikoku* has not been recognized in ant fauna of Yakushima Island to date (Terayama & Yamane 1984; Hosoishi *et al.* 2007; Harada *et al.* 2009) and thus the present collecting record is remarkable. In addition, its prey ant, *Monomorium triviale* have not been reported from Yakushima Island yet (Antmaps 2020). Whether the prey species in Yakushima Is. is *Monomorium* or another genus should be verified in the future.

These records and previous observations (Idogawa & Dobata 2018) suggest that winged ants overwinter in the nest after emergence and take nuptial flight during the following spring.

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