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## Occurrence in Japan of *Frankliniella hemerocallis* (Thysanoptera, Thripidae), with description of the larva and key to *Frankliniella* species from Japan

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### Abstract

The occurrence in Japan of the daylily thrips, *Frankliniella hemerocallis*, is confirmed. This thrips probably originated in Asia or Eurasia, because it is highly specific to *Hemerocallis* [Liliaceae] which is native to these areas. This thrips feeds on leaf, stem and petals rather than pollen. The second instar larva is described, and a key provided to the adults of *Frankliniella* species recorded from Japan.

**Key words:** *Frankliniella hemerocallis*, *Hemerocallis*, larva, Thripidae, Japan

### Introduction

The daylily thrips, *Frankliniella hemerocallis*, is a species of Thripidae that is highly specific to *Hemerocallis* [Liliaceae]. It was described from *Hemerocallis* flowers in Wisconsin, USA (Crawford 1948), and has been recorded from Florida, Maryland, New York, Bermuda, Costa Rica, and Hawaii, with one record from Japan (Nakahara 1997). Moreover, Gabor Jenser intends to record this species in a forthcoming publication from Hungary, and there is one female from Budapest in the Australian National Insect Collection, Canberra (teste L.Mound). This distributional information suggests that the thrips is native to the New World, and has been introduced to Hawaii and Japan, as are some other members of this genus such as *F. cephalica* and *F. occidentalis*. The record from Japan was based on a male on *Hemerocallis* from Japan, intercepted by US plant quarantine (O'Neill & Nakahara 1970), and these authors considered that this thrips was originally from Asia including Japan, as is their host plant. However, there is no record of *F. hemerocallis* in the bibliography of Japanese Thysanoptera (Miyazaki & Kudo 1988), or in the monograph on Japanese Thysanoptera (Kurosawa 1968), and also no subsequent publication concerning this thrips in Japan. Moreover, it has not been recorded from countries neighboring Japan, including China, Korea, Taiwan, Philippines and India (Bhatti 1990; Mirab-balou *et al.* 2011; Wang 2010). Thus, until now, there has been no record of specimens of *F. hemerocallis* being collected in this area.

In early summer of 2012 and 2013, numerous individuals of *F. hemerocallis*, including larvae, were collected from *Hemerocallis* at Honshu, Japan. Previously, six species of *Frankliniella* were known in Japan as follows (Masumoto & Okajima 2004; Nakao *et al.* 2011): *cephalica* (D. L. Crawford), *fusca* (Hinds), *intonsa* (Trybom), *lilivora* Kurosawa, *occidentalis* (Pergande) and *tenicornis* (Uzel).

In this article, the presence of *F. hemerocallis* in Japan is confirmed, and a diagnosis and description of the second instar larva is presented together with an identification key to species of this genus from Japan.

### *Frankliniella hemerocallis* J. C. Crawford, 1948

(Figs 4–16)

**Diagnosis.** *Female macroptera* (Fig. 4). Body uniformly dark brown, femora, mid and hind tibiae dark brown, fore