

The red dwarf honey bee, *Apis (Micrapis) florea* FABRICIUS, 1787 (Hymenoptera: Apidae) discovered in Eritrea

Futsum HAGOS & Michael MADL

Abstract

Apis (Micrapis) florea FABRICIUS, 1787, is recorded from Eritrea for the first time by collecting near Mendefera (Dubub Province) and oral communications of people in the region of Assab (Southern Red Sea Province). The record from Mendefera is a natural expansion of the Ethiopian population. The population of Assab was introduced by man several years ago.

Key words: *Apis florea*, *Vernonia amygdalina*, Eritrea.

Zusammenfassung

Die asiatische Zwerghonigbiene, *Apis (Micrapis) florea* FABRICIUS, 1787, wird erstmals für Eritrea nachgewiesen. Die Nachweise erfolgten durch eine Aufsammlung bei Mendefera (Dubub Provinz) und durch mündliche Befragung von Einheimischen in der Umgebung von Assab (Südliche Region des Roten Meeres). Die äthiopische Population erreichte durch natürliche Gebietserweiterung Eritrea bei Mendefera, während es sich bei der Population von Assab um eine Einschleppung durch Menschen handelt, die vor mehreren Jahren stattgefunden hat.

Introduction

The red dwarf honey bee, *Apis (Micrapis) florea* FABRICIUS, 1787, which is native to the Oriental region, has expanded its range westwards into the Palaearctic and Afrotropical regions naturally or has been introduced by human activity (HEPBURN & RADLOFF 2011, SILVA et al. 2020). In the Palaearctic region, *Apis florea* is known from Pakistan, Iran, Iraq, Jordan, Israel, Egypt (Sinai Peninsula), Saudi Arabia, United Arab Emirates, Oman, and Yemen (MORITZ et al. 2010, HEPBURN & RADLOFF 2011, RADLOFF et al. 2011, SHEBL 2017, summarized in SILVA et al. 2020).

In the Afrotropical region, *Apis florea* was discovered near Khartoum (Sudan) in 1985 (LORD & NAGI 1987, MOGGA & RUTTNER 1988). Today, *A. florea*, which builds a small single open comb hidden in the vegetation, is widely distributed in Sudan and exists sympatrically with a native cave-breeding subspecies of *Apis mellifera* LINNAEUS, 1758 (EL-NIWEIRI & SATTI 2015, EL-NIWEIRI et al. 2019). As the invasion could be a risk for apiculture and the native ecosystem in Sudan, several studies have been carried out. Hitherto, the invasion of *A. florea* has caused no negative impact for agriculture and biodiversity conservation (MOGGA 1994a, b, EL SHAFIE et al. 2002, EL-NIWEIRI & EL-SARRAG 2006, EL-NIWEIRI & SATTI 2015, EL-NIWEIRI et al. 2019). *Apis florea* is also free of parasitic mites (EL-NIWEIRI & EL-SARRAG 2006) and of the greater wax moth (EL-NIWEIRI et al. 2005).



Fig. 1: A worker of *Apis florea* foraging on *Vernonia amygdalina* near Mendefera.

In 2003, *A. florea* was detected in Ethiopia and became well established in the Amhara and Tigray regions (PAULY & HORA 2013, BEZABIH et al. 2014, ZEWDU et al. 2016). No alien mites have been detected in the colonies (ZEWDU et al. 2016).

In 2014, *A. florea* was discovered in Djibouti (STEINER 2017), which is the latest introduction into the Afrotropical region. No further study has been carried out in Djibouti.

Until now, the record from Kenya by ALEXANDER (1991: 148 appendix 1), who mentioned no exact data, has been overlooked in the scientific literature. This material has been examined by SILVA et al. (2020) and published without further data except the geographical coordinates in the online appendix (Diani Beach, ca. 35 km S of Mombasa). No further studies have been carried out in Kenya.

Records

As *A. florea* was recorded near the Eritrean border (Humera, Adi Kahu, Rama) in Ethiopia (BEZABIH et al. 2014), it was only a matter of time before this alien honey bee species would be detected in Eritrea. Michael Madl observed workers of *A. florea* and *A. mellifera* south of Mendefera foraging together on *Vernonia amygdalina* DELILE (Asteraceae), a medicinal plant in Eritrea (YEMANE et al. 2017), without any interactions. The number of workers of the latter was much higher than of the former. The specimens were collected between 9:30 and 11:00 in sunshine and photographed around 15:30, by which time there was increasing cloud cover.

Material examined: Eritrea, Dubub Province, 1 km S Mendefera, 14°50'58"N, 38°48'54"E, ca. 1935 m a.s.l., 6 workers on *Vernonia amygdalina*, 10.11.2019, leg. M. Madl, coll. Natural History Museum Vienna.

Apis florea is well known to the people in the region of Assab (Southern Red Sea Province), not far from the border with Djibouti (Department of Agricultural Extension Annual Report for 2019, unpublished).

The Eritrean records apparently represent two different introductions. The population from Mendefera (1935 m a.s.l.) is a natural expansion of the Ethiopian one. As the people from the region of Assab gather honey of *A. florea*, the bee must have been introduced incidentally or intentionally by man probably via the port of Assab several years ago.

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Authors' addresses: Futsum HAGOS, Forestry and Wildlife Authority of the State of Eritrea, P.O. Box 1048, Asmara, Eritrea.
E-mail: fuhageb@gmail.com

Michael MADL, 2nd Zoological Department,
Natural History Museum, Burgring 7, 1010 Vienna, Austria.
E-mail: michael.madl@nhm-wien.ac.at

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