



An annotated checklist of the Eulophidae (excl. Tetrastichinae) (Hymenoptera: Chalcidoidea) of Israel

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Abstract

An annotated checklist of Israeli Eulophidae, excluding Tetrastichinae, is presented based primarily on a total of 757 specimens collected since the 1970s from 70 localities in Israel mostly by Malaise traps, sweeping and rearing from hosts. Altogether, 127 species belonging to 35 genera are recorded, of which 82 species (65%) are newly reported for Israel. Valid names, distribution, and known hosts are given for each species. Two previously reported species are excluded from the fauna and one is considered as doubtful in the country. The most species-rich genera are *Pediobius*, with 14 species, and *Elasmus*, with 12 species. The most common species, comprising about half of the collected specimens, are *Diglyphus isaea* (Walker), *Neochrysocharis formosus* (Westwood), *Sympiesis sericeicornis* (Nees), *Pediobius pyrgo* (Walker) and *Euderus albitarsis* Zetterstedt. Three species are currently known only from Israel, *Aulogymnus albipes* (Askew), *Elasmus aternalis* Yefremova & Strakhova and *Pediobius thysanopterus* Burks. Hosts are reported for 17 species, of which 10 are new records. Most of the species (88%) have a vast area of distribution characterized as Palearctic, Holarctic, or even cosmopolitan.

Key words: Parasitic wasps, Eulophinae, Entedoninae, Eutiinae, biodiversity, biogeography, ecology, Middle East

Introduction

The Eulophidae comprise a large family of small parasitic wasps (0.5–2.0 mm) belonging to the superfamily Chalcidoidea. Worldwide, the Eulophidae are represented by more than 4,500 species in 334 genera (Noyes 2014). Eulophidae are either ectoparasitoids or endoparasitoids. These wasps mostly parasitize the larvae of insects, specifically those belonging to the orders Lepidoptera, Coleoptera, Diptera and Hymenoptera. Eulophids can regulate pest populations that damage fruit crops, vegetable crops and ornamental plants and have been successfully applied in biological control (LaSalle & Gauld 1993; Noyes 2014).

Israel is at the crossroads between the Palearctic, Oriental and Afrotropical regions in the Middle East, and thus its fauna has elements of all three regions. The country is distinguished by a large variety of different habitats (Kosswig 1955; Zohary 1973; Furth 1975). The north and center of the country is Mediterranean, whereas Irano-Turanian grassland and Saharo-Arabian eremic zone (Negev and Arava deserts) prevail in the south and east (Fig. 1). Malaise traps deployed year round in the Tel Aviv area reveals that the number of specimens and species collected increases from October to January but diminishes during the summer drought (Yefremova *et al.* 2014).

Preliminary findings indicate 518 species in 59 genera (Table 1). Table 1 list the publications and the number of species of Eulophidae (Eulophinae, Entedoninae and Eutiinae) recorded from 13 countries of the Middle East from 1941 to 2013. Prior to our checklist only 44 species of Eulophidae were known from Israeli. The status of knowledge of the Eulophidae in Israel is better than for most adjacent East-Mediterranean countries with the exception of Turkey and Iran, which have 199 and 114 species recorded, respectively.

The aim of this report is to provide the first annotated checklist of the Eulophidae of Israel, excluding Tetrastichinae, with data on general distribution and host preferences of the species.