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Diversity and biogeography of Israeli geophilomorph centipedes (Chilopoda: Geophilomorpha)

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Abstract

The fauna of Chilopoda Geophilomorpha of Israel has been analyzed after examining 128 new specimens from 35 localities, reinterpreting all published data including 103 records, and relating occurrence of species with major climatic parameters. A key to identification has been compiled. A total of 17 species are distinguished, of which three are reported from Israel for the first time, while five are documented by published records only. The following **new synonymies** are proposed and discussed: *Dignathodon pachypus* Verhoeff, 1943 = *Dignathodon microcephalus* (Lucas, 1846); *Geophilus flavidus noduliger* Verhoeff, 1925 = *Clinopodes escherichii* (Verhoeff, 1896); *Pachymerium ferrugineum vosseleri* Verhoeff, 1902 = *P. ferrugineum* (Koch, 1835). Of all the species, *Bothriogaster signata* and *Pachymerium ferrugineum* are widespread in the country, while other species occupy different climatic zones, from desert to more humid and montane.

Key words:

Introduction

Israel forms a biogeographic land bridge between Asia, Africa and Europe. Due to its position, for many taxa we find representatives of different faunas mixing in a relatively narrow geographic zone. Despite its relatively small area, Israel has a representation of a range of different climatic zones and vegetation types, from extreme arid desert in the south and east, through Mediterranean landscapes in the center and north, and up to temperate montane climate in the high peaks of the Galilee and Mt. Hermon. The combination of its unique position and diverse climate leads to unusually high biodiversity in many taxonomic groups (Yom-Tov and Tchernov 1988).

In contrast with the extensive literature on vertebrate biogeography in Israel, there has been very little work on terrestrial invertebrates. Specifically, myriapods have been the subject of only a handful of studies in this region. With respect to geophilomorph centipedes (Chilopoda, Geophilomorpha), the first scant records date back to late 19th century and the early 20th century (Porat 1893; Silvestri 1895; Verhoeff 1901, 1902). Progress in the faunistic and taxonomic analysis of this group, based on many more samples, was provided by Verhoeff (1925, 1934) and Zapparoli (1991, 1995). A total of 20 nominal species have been reported in the literature, and as many as 15 species or subspecies have been described in the past based upon specimens from Israel (Table 1). However, published data are unsatisfactory because they rely on an outdated taxonomic background and are based on poor and unsystematic sampling.

Our aim in the current contribution is to provide a broader and up to date overview of the fauna of the Geophilomorpha in Israel, by critically revising published data, while adding a large amount of new records from a broader range of localities, and providing a key for the identification of local species.