

The first troglobite scorpion from Israel and a new chactoid family (Arachnida: Scorpiones)

by Gershom Levy

Abstract. A new eyeless troglobite scorpion, *Akrav israchanani* n. sp., is described from inside karstic voids in Israel that form a completely isolated, old underground ecosystem with living populations of blind crustaceans and pseudoscorpions. The scorpions, of which no live specimen has yet been collected, prove to differ from all other scorpions and are placed in a new family, Akravidae. The possibility is addressed that the subterranean Akravidae are a relict of an old circum-tropical pattern of distribution that differs from the present temperate location of Israel.

Kurzfassung. Aus Israel wird ein neuer höhlenbewohnender Skorpion, *Akrav israchanani* n. sp., von karstischen Hohlräumen beschrieben, in denen ein völlig isoliertes, altes unterirdisches Ökosystem mit lebenden Populationen von blinden Crustaceen und Pseudoskorpionen existiert. Die Skorpione, von denen bisher noch kein lebendes Tier gesammelt werden konnte, unterscheiden sich von allen anderen Skorpionen und werden in eine neue Familie gestellt, die Akravidae. Es wird die Möglichkeit diskutiert, dass die unterirdisch lebenden Akraviden Relikt eines alten, die Tropen umfassenden Verbreitungsmusters sind, das sich von der gegenwärtigen Lage Israels in den gemäßigten Breiten unterscheidet.

Key words. Troglobite scorpion, karst fauna, subterranean fauna, new family, Israel, Middle East.

Introduction

The recent discovery (2006) of the Ayyalon Cave in Israel revealed a peculiar underground ecosystem. The completely isolated subterranean space is located in a quarry deep below a surface that precludes the permeability of water or organic matter from the outside. The space comprises galleries of winding passages and a large chamber with warm brackish groundwater with high H₂S levels (FRUMKIN & GVIRTZMAN 2006). The closed subterranean ecosystem depends basically on biomass production by chemoautotrophic sulfide oxidizing bacteria that are found there in great masses (DIMENTMAN et al. 2006). The troglobites discovered include living populations of various species of blind Crustacea, Collembola and Pseudoscorpiones. No live scorpions have as yet been detected, only their empty carcasses. These desiccated but not fossilized cuticular remains which retain their bright fluorescence under UV light were found firmly attached to rocks at various levels corresponding to the levels attained by the rise and fall of the underground water inside the voids. No traces of any of the scorpions' prey animals have yet been found. Could their disappearance have caused the presumed extinction of the scorpions? The internal contents of the scorpions' carcasses have been completely cleared out. This may have been carried out by mites, as the remains of an unidentified mite were found inside a dry carcass. Photographs were taken on spot of the scattered scorpions (Fig. 1). A few of the fragile remains were carefully scraped