

ON SOUTHERN ANATOLIAN *DOLICHOPODA* BOLIVAR, 1880
WITH TAXONOMIC NOTES ON THE GENUS
HELLERINA GALVAGNI, 2006
(Orthoptera, Rhaphidophoridae) (*)

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INTRODUCTION

The examination of a recent paper by Galvagni (2006) forced us to reconsider the complete original description of the new cave-cricket *Hellerina lycia* Galvagni, 2006. The author classifies this taxon, inhabiting a cave south of Antalya (Olympos National Park, Cave 10 Km NW of Kemer, near to the village of Gedelma, 36°40' N, 30°20' E), as a new genus of Dolichopodinae only on the basis of the endophallus structure of an immature individual without taking into account the large similarity among all the morphological characters of the genus *Dolichopoda* Bolivar, 1880 and those of *Hellerina lycia*. In particular it is not possible to consider the epiphallus structure, as the main key of identification for the *Dolichopoda* species (Baccetti & Capra 1959).

This last genus occurs in Turkey with at least four species one of which, *Dolichopoda sbordonii* Di Russo & Rampini, 2006, inhabits caves north of Antalya not far from the locality of *Hellerina lycia*. Therefore at the time of the publication of Galvagni's paper we were surprised at the description of a new genus in an area where, since the end of XIX century, only *Dolichopoda* and *Troglophilus* Krauss, 1879 species were recorded (Bolivar 1899; Us 1976; Rampini & Di Russo 2003). On the basis of the examination of new specimens recently collected by us in the same locality, we propose here *Hellerina* Galvagni, 2006 = *Dolichopoda* Bolivar, 1880 **syn. nov.** and *Hellerina lycia* Galvagni, 2006 = *Dolichopoda lycia* (Galvagni, 2006) Rampini & Di Russo, 2008 **comb. nov.**

(*) Zoological researches in the Near East by the Universities of Rome: 214.

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Dolichopoda lycia (Galvagni, 2006) **comb. nov.**

MATERIAL EXAMINED. Turkey, Antalya prov., Kemer district, National Park Bey Daglari (Olympos), Gedelma village, Peynirdeligi Cave, 36°36'76" N; 30°26'51" E, 714 m, 15.XII.2007, Rampini & Di Russo leg., 6 ♂♂, 1 ♀, 1 ♀ nymph (coll. MZUR); same data and collectors: Antalya prov., Kemer district, Akyarlar cave, 1 ♂, 2 ♀♀ (coll. MZUR).

DEPOSITORY. Museo di Zoologia dell'Università degli Studi "La Sapienza" di Roma, Italy (MZUR).

DIAGNOSIS. A Rafidoforid Orthopteran attributable to the genus *Dolichopoda* Bolivar, 1880 for the lacking of spines on all the femurs, the occurrence of spines on fore tibia and epiphallus wide at the basal part, with a sclerotized median process of different shape. The new species is similar to the geographically close *D. sbordonii* from which it is different for the bigger size, the absence of the tubercles on the X tergite and the lack of styli on the male subgenital plate. It differs also from *D. sbordonii* for the shape of the female subgenital plate, moderately incised on the apex, the long and less curved ovipositor and the occurrence of 15 denticles on the ventral valves. Very interesting is the morphology of the male genitalia, divided in two parts: the median process (epiphallus) flattened and with the posterior margin bilobate and the accessory apparatus (endophallus) with the basal part formed by two valves partially sclerotized and the conical apical part covered by short bristles.

SHORT NOTE ABOUT THE TYPICAL LOCALITY. The cave "Gedelma magara" is actually known in loco as "Peynirdeligi Magarasi" and is located next to Gedelma village about 10 Km NW of Kemer (fig. 11). There are some Byzantium ruins and historic walls, about 65 m north to the cave. The deepest point of the cave is 25 m and the length is 174 m. At the bottom there is a small lake.

MALE. Measures (mm): body 18,0; pronotum 3,5; fore femora 16,5; middle femora 15,0; hind femora 25,0; fore tibia 18,0; middle tibia 18,0; hind tibia 32,0; hind tarsus 11,0; 1° article of tarsus: fore 8,5, mid 7,0, hind 6,0.

General aspect like the other species of the genus (figs 1, 10). Size relatively big. Body color light testaceous. Legs more yellowish coloured. Vertex rounded. Fastigium verticis pronounced and formed

Tab. 1 – Measures of 11 morphological parameters for *D. lycia* (dimension in mm; means).

Locality	Body	Pron.	Fore Fem.	Mid Fem.	Hind Fem.	Fore Tibia	Mid Tibia	Hind Tibia	Hind Tars.	1°art h. tar.	Ovip.
Gedelma											
♂ (n=6)	18.0	3.5	16.0	15.0	25.0	17.5	18.0	32.0	11.0	5.0	
♀ (n=1)	19.0	3.5	16.5	15.0	25.0	18.0	18.0	32.0	11.0	6.0	13.0
Akyarlar											
♂ (n=1)	20.0	3.5	19.5	19.0	27.0	17.5	17.0	34.0	11.5	6.0	
♀ (n=2)	21.0	4.5	17.0	16.0	28.0	18.0	18.0	35.0	11.0	5.5	14.0

by two conical tubercles longitudinally sulcated. Legs elongated considering the body size. All femurs unarmed below. Fore tibia armed with 3-3 short spines on the upper side and 4-4 spines on both sides of ventral edge. Middle tibia with 6 to 9 spines on upper edges and 4-4 spines on ventral edges. Hind tibia armed with 21-24 spines on the upper edges and 2-2 spines on the ventral edges.

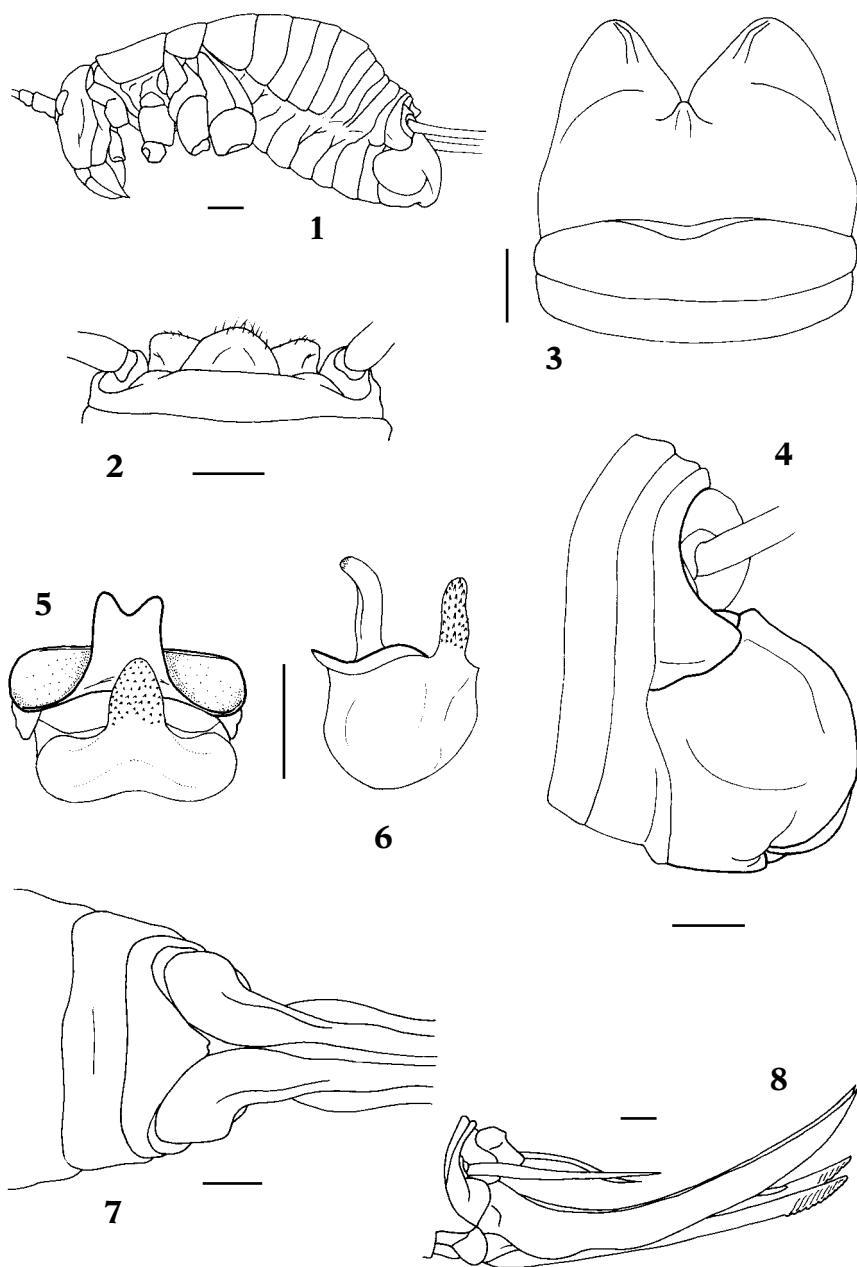
Tenth tergite transverse and short (fig. 2), with a posterior margin straight and two short lateral expansions triangular shaped: tubercles absent.

Subgenital plate slightly globular with two rounded lobes separated by a deep incision without styli (figs 3-4).

Epiphallus strongly sclerotized, median process flattened and rectangular with bilobate posterior margin and apically curved by lateral view; the accessory apparatus (endophallus) with the basal part divided in two valves partially sclerotized and the conical apical part covered by short bristles. Wide basal process, trapezoidal in shape, with developed lateral processes (figs 5-6).

FEMALE. Similar to the male in the general aspect, legs spinulation and X tergite. Subgenital plate triangular, with the apex moderately incised (fig. 7). Ovipositor long and large at the base, moderately curved (fig. 8), bearing apically 15 denticles on the straight ventral valves. The proximal zone of superior valves has the ventral margin slightly sinuous.

In tab. 1 measures of 11 morphological parameters are given.



Figs 1-8 – *Dolichopoda lycia* (Galvagni, 2006) **comb. nov.**: male body (without appendages) lateral view (1); male X tergite (2), male subgenital plate ventral view (3) and lateral view (4); epiphallus and accessory apparatus, dorsal view (5) and lateral view (6); female subgenital plate (7); ovipositor (8). Scale bar: 1 mm.

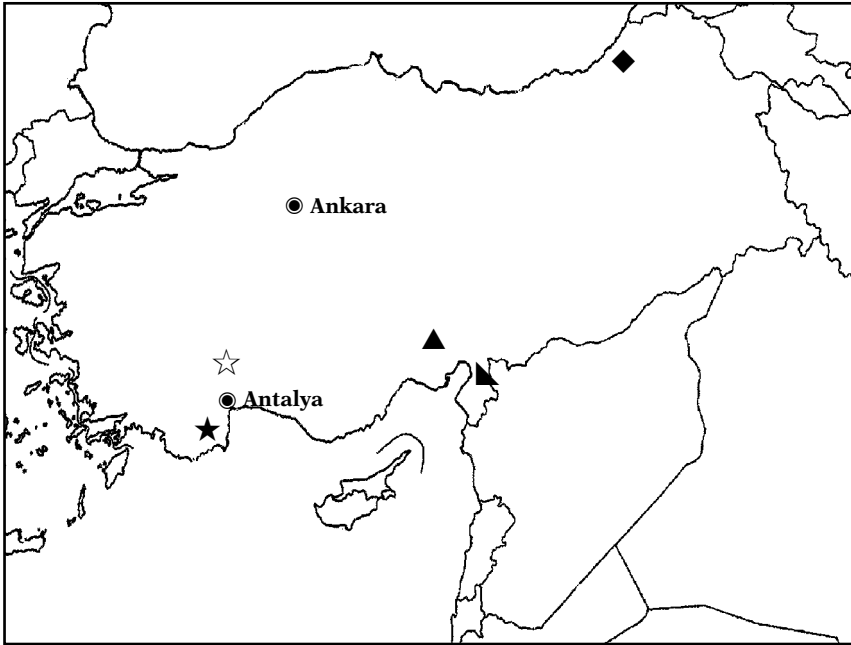


Fig. 9 – Geographical distribution of *Dolichopoda* in Anatolia: ▲ *D. aranea*; ▴ *D. pusilla*; ◆ *D. noctivaga*; ☆ *D. sbordonii*; ★ *D. lycia*.

DISCUSSION

At present 5 species of *Dolichopoda* inhabit cave habitats in Turkey: *D. lycia* and *D. sbordonii* from Mediterranean area (Antalya province), *D. aranea* and *D. pusilla* on the eastern slope of Taurus: the first one near Karaman-Maras, the second one close to the Syrian border (Akbes, Nur Dagl'ari) and *D. noctivaga* from the pontic area (caves near Trabzon and Artvin) (fig. 9).

Dolichopoda lycia shows a substantial morphological affinity with the geographically close *D. sbordonii* from the Karain cave (Dosemealti village, Antalya); this latter species is well separated from *D. aranae* Bolivar, 1899 and *D. pusilla* Bolivar, 1899 located in the Eastern Turkey (Di Russo & Rampini 2006). In particular the shape of the X tergite, the spinulation and the elongation of the legs as well as the general aspect of the female subgenital plate are very similar to those of *D. sbordonii*. On the other hand *D. lycia* clearly differs from



Fig. 10 – Male habitus of *Dolichopoda lycia* (Photograph: M. Rampini).



Fig. 11 – Entrance of Gedelma cave (Photograph: M. Rampini).

the *sbordonii* species for the bigger size, the absence of styli, the apex of the female subgenital plate slightly incised and the long ovipositor with 15 denticles on the inferior valves. Furthermore *D. lycia* has the median process of the epiphallus wide, rectangular and with a bilobate posterior edge. For this character *D. lycia* could be included in the sub-genus *Petrochilosina* Boudou-Saltet, 1980 having 5 species (*D. petrochilosi* Chopard, 1954, *D. vandeli* Boudou-Saltet, 1970, *D. makrykapa* Boudou-Saltet, 1980, *D. insignis* Chopard, 1955, *D. cassagnai* Boudou-Saltet, 1971) from continental and insular Greece. All the *Petrochilosina* species share the form of the median process of the epiphallus, narrow, elongated with a big or small incision on the acuminate apex (Boudou-Saltet 1983).

However all the other characters showed by *D. lycia* as the X tergite, the male and female subgenital plate and accessory apparatus of genitalia do not show any affinity with the species of *Petrochilosina* group. These data seem to be confirmed by a recent study on the molecular phylogenetic relationships between Greek and Turkish species of *Dolichopoda* (Allegrucci et al. unpublished data). In this essay, as expected, *D. lycia* shows a close genetic affinity with *D. sbordonii* of the Mediterranean Turkey, while appears largely different from the Greek species of the *Petrochilosina* sub genus. Moreover *D. lycia* is well distinct from the trans-caucasian species *D. euxina* Semenov, 1901, *D. hyrcana* Bey-Bienko, 1969 and *D. noctivaga* Di Russo & Rampini, 2007, species morphologically different for their peculiar shape of epiphallus truncated at the apex (Di Russo et al. 2007).

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RIASSUNTO

Viene proposta una **nuova sinonimia** e una **nuova combinazione**: *Hellerina* Galvagni, 2006 = *Dolichopoda* Bolivar, 1880 **syn. nov.**; *Hellerina lycia* Galvagni, 2006 = *Dolichopoda lycia* (Galvagni, 2006) **comb. nov.** Vengono ridescritti i caratteri morfologici fondamentali del maschio e riportati quelli della femmina. In particolare sono discusse le affinità con le altre specie di *Dolichopoda* anatoliche e quelle relative ad alcune specie del sottogenere *Petrochilosina* Boudou-Saltet, 1980 caratterizzate da una biforcazione dell'apice aguzzo dell'epifallo.

SUMMARY

In this paper a **new synonymy** *Hellerina* Galvagni, 2006 = *Dolichopoda* Bolivar, 1880 and a **new combination** *Hellerina lycia* Galvagni, 2006 = *Dolichopoda lycia* (Galvagni, 2006). A redescription of male morphology and female description are reported. The affinity with the other Anatolian *Dolichopoda* and with some species of the sub genus *Petrochilosina* Boudou-Saltet, 1980, characterized by a bifurcated epiphallus, are discussed.

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