

CLOSING THE GAPS: NEW REMOTE LOCALITIES OF *IURUS DUFOUREIUS* (SCORPIONES: IURIDAE) FROM PELOPONISSOS, GREECE

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Abstract

Iurus dufourei is reported as new for Eparchia Mantinias and Eparchia Epidauro Limiras. The habitus is imaged, habitats are discussed and an updated map of distribution is provided. A female specimen from Pigaza Cave raises questions about the taxonomic status of the scorpion populations of SE Peloponnisos and Kithira.

Key words: *Iurus dufourei*, scorpion, faunistics, Greece, Peloponnisos, Kithira, new records.

Introduction

The scorpion genus *Iurus* Thorell, 1876 is restricted to the Aegean Area (Peloponnisos, Kithira Island, Kriti isl., Gavdos isl., Samos isl., Fourni isl. and West-Central Turkey) and contains three species, two of them endemic to Greece. It is closely related to *Protoiurus* Söleglad, Fet, Kovařík & Yağmur, 2012, which is restricted to Southeastern Aegean (Rodos, Karpathos, Kasos, Saria, Kastelorizo and South Turkey) and contains five species, two of them endemic to Greece. Both genera contain scorpions of large size (8.5-10 cm), dark brown to black (Söleglad et al. 2012).

Iurus dufourei (Brullé, 1832), is endemic to Peloponnisos and Kithira. The vast majority of the known localities are from Nomoi Lakonias, Messinias and Ilias, thus south and west Peloponnisos. Only five localities exist so far from Nomos Arkadias (from Eparchia Megalopolis and Eparchia Gortinias), in close proximity to Nomos Ilias. A remote locality was added recently by Facheris (2006, 2007) for the first time from northern Peloponnisos (Nomos Achaïas, Vouraikos Gorge, Kato Zachlorou).

The specimens of *Iurus* examined for the present study are deposited in the Zoological Museum of the University of Athens (ZMUA), Greece and the personal collection of the first author (cSA), Athens, Greece.

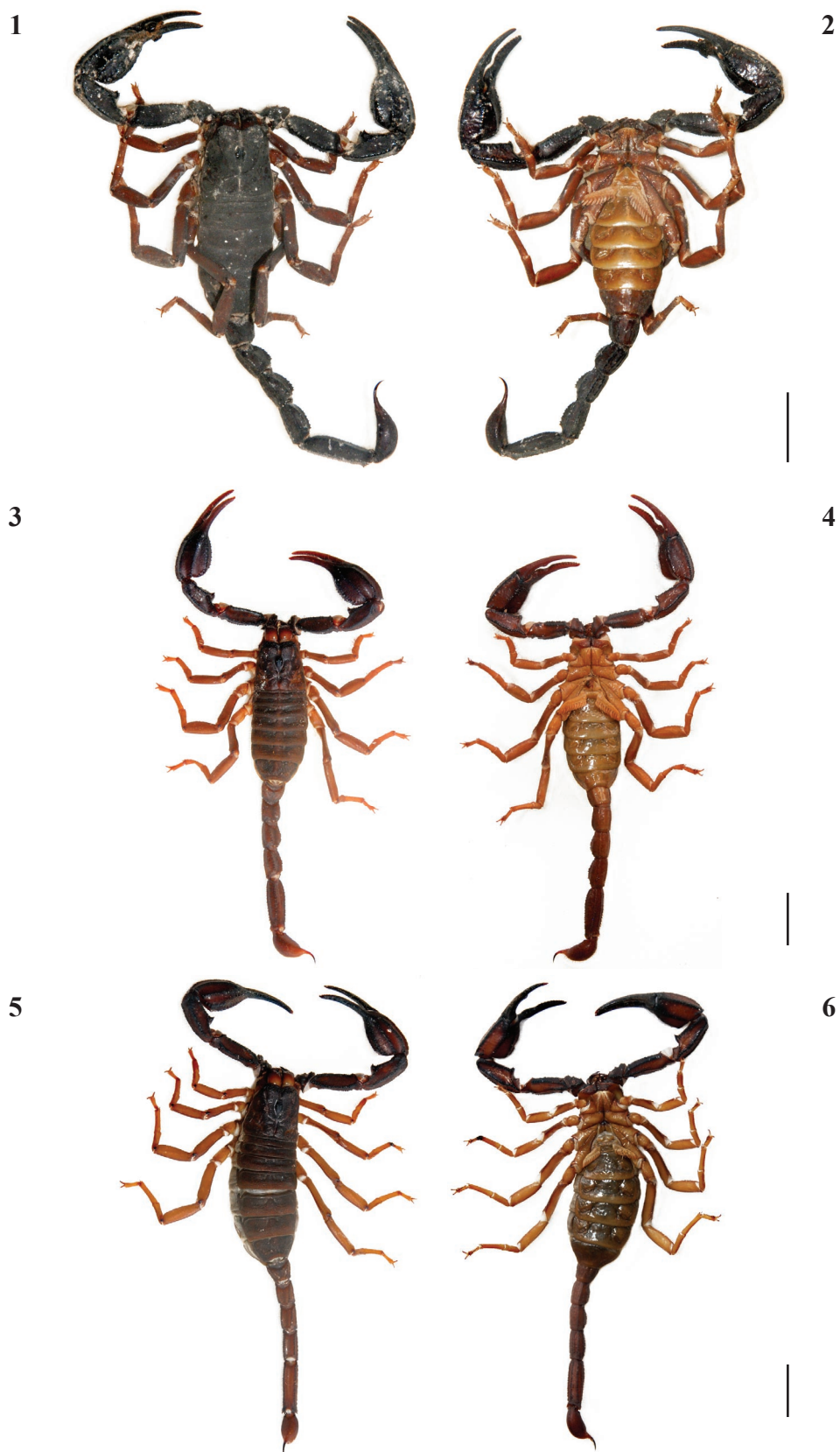


Fig. 1. *Iurus dufourei* - 1,2: male, outside Kapsia Cave, Nomos Arkadias, dorsal view and ventral view: 3,4: male, Agion Anargiron Cave, Nomos Lakonias, dorsal view and ventral view: 5,6: female, Pigaza Cave, Nomos Lakonias, dorsal view and ventral view: (scale bar = 1cm).

Results

Iurus dufourei (Brullé, 1832) (Figs 1, 5, 6)

Material examined: Greece, Peloponnisos: Nomos Arkadias, Eparchia Mantinias, Kapsia, outside of Kapsia Cave, 637m a.s.l., N 37°37'25.63", E 22°21'14.00", 14.I.2015, 1 ♂, G. Kofinas leg., ZMUA; Nomos Lakonias, Kountourianika, Agion Anargiron Cave, 177m a.s.l., N 36°34'20.06", E 22°58'42.94", 21.I.2015, 1 ♂, G. Kofinas leg., cSA; Nomos Lakonias, Velies, Pigaza Cave, 115m a.s.l., N 36°43'15.43", E 22°58'11.75", 21.I.2015, 1 ♀, G. Kofinas leg., ZMUA.

Discussion

New for Eparchia Mantinias and Eparchia Epidaurou Limiras. The Kapsia locality expands for the first time the known distribution of *Iurus dufourei* to Eparchia Mantinias, thus at the North-Central Peloponnisos (Fig. 2). The area is situated at the high plateau of Mantinia, east of Menalon Mountain. The two localities of the Eparchia Epidaurou Limiras are situated at the Maleas Peninsula of Peloponnisos, thus connecting the scorpion populations of the island of Kithira with those of Peloponnisos (Fig. 2).

The cave of Kapsia is a pothole, located 14 km north of Tripolis, well known for its anthropological findings. It is located at the east edge of the humid Mantinia Plateau and surrounded by several more natural sinks that drain the plateau when it floods after heavy rain. The second author (G.K.), collected a single male specimen a few meters away from the entrance of the cave, under a stone (Fig. 3). It should be noted that the entrance of the cave is artificially closed. At the time of the collection, early in the morning, the scorpion showed very low mobility. Next to the cave is a rocky hill, covered with shrub vegetation (mostly *Quercus coccifera* shrubs) (Fig. 3). Most probably, the scorpions live in the cracks of this rocky hill.

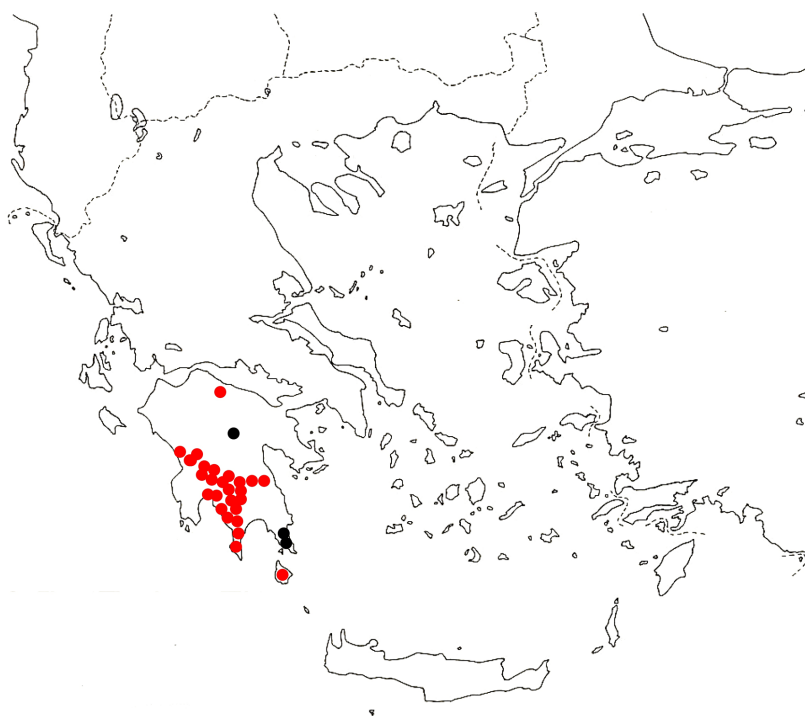


Fig. 2. Geographic distribution of *Iurus dufourei* (● literature records, ● new records).

New remote localities of *Iurus dufourei* from Peloponnisos

During his regular speleological survey, the second author found and collected two specimens from inside two caves of Maleas Peninsula (SE Peloponnisos), Eparchia Epidaurou Limiras, Nomos Lakonias. Caves Agion Anargiron and Pigaza are situated a few kilometers away from each other, in the area between Molai and Monemvazia. In the first cave, only one male individual was observed and collected, a few meters from the entrance and from inside a wall crevice (Fig. 3). Some other fauna elements observed were the cavernicolous Orthoptera *Dolichopoda* cf. *unicolor* and several *Rhinolophus ferrumequinum* bats.

At Pigaza Cave, two individuals were observed a few meters from the entrance and from inside a wall crevice, one female that was collected (Fig. 3) and one juvenile. In this cave we also observed *Dolichopoda* cf. *unicolor* and *Rhinolophus* sp. bats.

According to Sogleglad et al. (2012), the chelal movable finger lobe plays an important role in species differentiation inside *Iurus* genus. According to the same study, the development of the movable finger lobe of female *I. dufourei* is weak, whereas the development of the movable finger lobe of female *I. dekanum*, species endemic to Kriti, is quite well developed. The scorpion population from Kithira, an island in between Peloponnisos and Kriti, is assigned to *I. dufourei* and has an intermediate movable finger. The newly collected female specimen from Pigaza Cave raises questions about the taxonomic status of the scorpion populations of SE Peloponnisos and Kithira. With respect to the development of the movable finger lobe of the female, the Pigaza female has the movable finger lobe clearly weakest than the rest of the Peloponnisos scorpions and of the same size as those from Kithira. So, with respect to that feature, the two populations (Pigaza Cave and Kithira) seem to be related and separated from those of the rest of Peloponnisos (Fig. 4). But no solid conclusion can be reached, as the populations from Kithira and Pigaza Cave are represented by only one female specimen each and



Fig. 3. - 1: photograph of live *Iurus dufourei*, outside of Kapsia Cave; 2: collection locality of *I. dufourei*, outside of Kapsia Cave; 3: live male *I. dufourei*, Agion Anargiron Cave; 4: live female *I. dufourei*, Pigaza Cave.

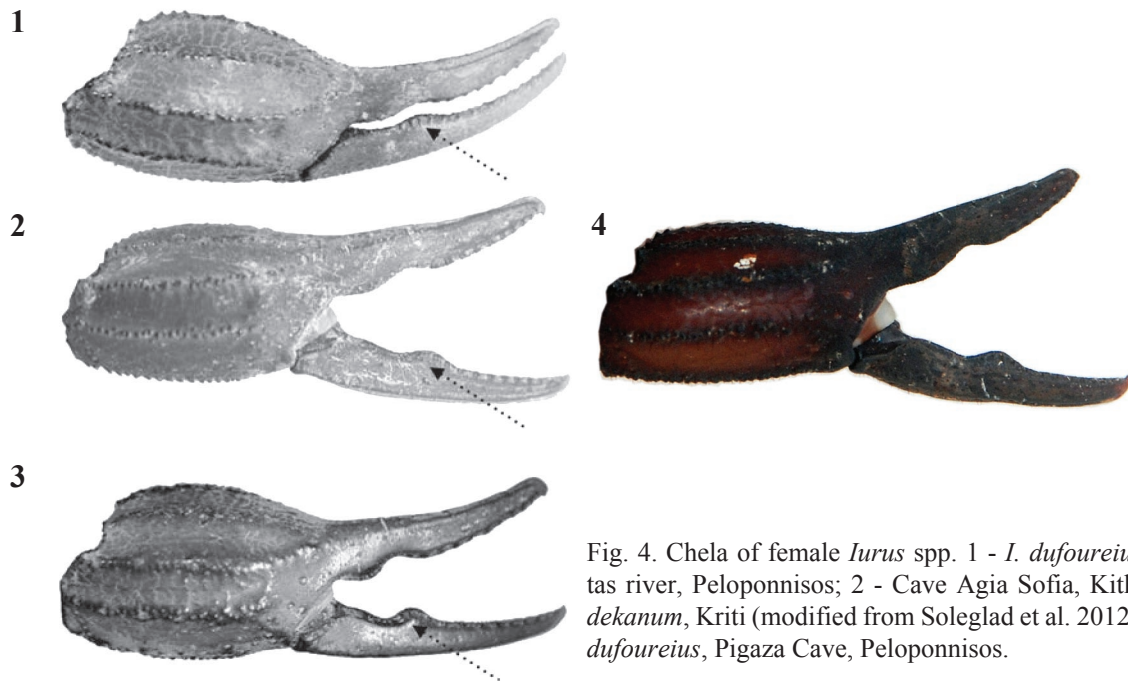


Fig. 4. Chela of female *Iurus* spp. 1 - *I. dufourei*, Nedon-tas river, Peloponnisos; 2 - Cave Agia Sofia, Kithira; 3 - *I. dekanum*, Kriti (modified from Soleglad et al. 2012) and 4 - *I. dufourei*, Pigaza Cave, Peloponnisos.

the Agion Anargiron Cave specimen is a male. In conclusion, more specimens (males and females) are needed from SE Peloponnisos and Kithira, to clarify the situation.

Other scorpion species that have been observed by the second author at the Malea Peninsula are *Mesobuthus gibbosus* (Brullé, 1832) (Buthidae) and *Euscorpius* sp. (Euscorpiidae).



Fig. 5. *Iurus dufourei*, sternopectinal area. 1 - Agion Anargiron Cave; 2 - Pigaza Cave; 3 - outside Kapsia Cave.

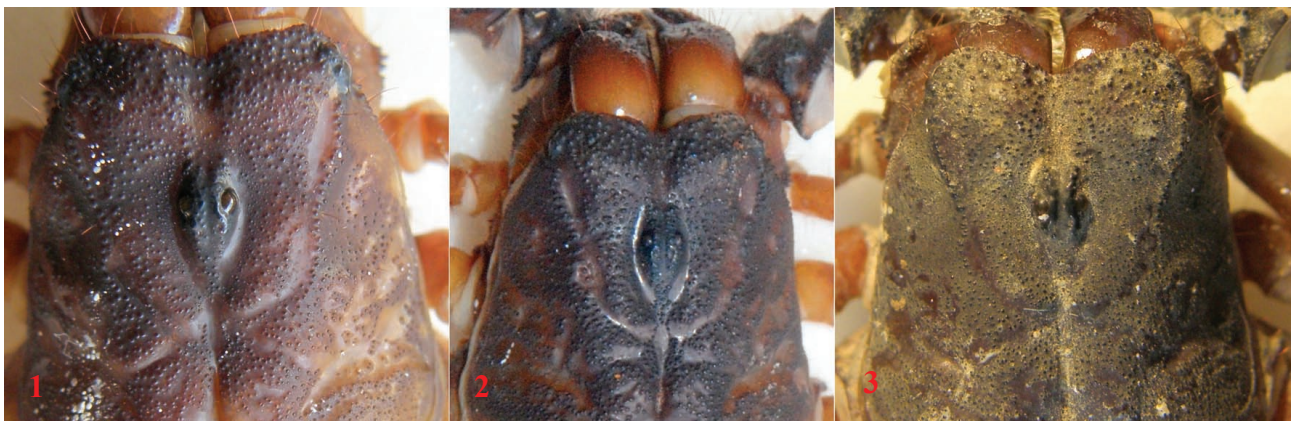


Fig. 6. *Iurus dufourei*, carapace. 1 - Agion Anargiron Cave; 2 - Pigaza Cave; 3 - outside Kapsia Cave.

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Literature

- Facheris, D. 2006. Nuove stazioni di *Iurus dufourei dufourei* (Brullé, 1832) (Scorpiones: Iuridae) nel Peloponneso (Grecia). - Riv. Mus. civ. Sc. Nat. 'E. Caffi' Bergamo, 24: 125-128.
- Facheris, D. 2007. New localities of *Iurus dufourei dufourei* (Brullé, 1832) in the Peloponnese, Greece (Scorpiones: Iuridae). - Euscorpius, 52: 1-4.
- Kovařík, F., Fet, V., Soleglad, M.E., & Yağmur, E.A. 2010. Etudes on iurids, III. Revision of the genus *Iurus* Thorell, 1876 (Scorpiones: Iuridae), with a description of two new species from Turkey. - Euscorpius, 95: 1-212.
- Parmakelis, A., Stathi, I., Spanos, L., Louis, C. & Mylonas, M. 2006. Phylogeography of *Iurus dufourei* (Brullé, 1832) (Scorpiones, Iuridae). - J. Biogeogr. 33: 251-260.
- Soleglad, M.E., Fet, V., Kovařík, F. & Yağmur, E.A. 2012. Etudes on iurids, V. Further revision of *Iurus* Thorell, 1876 (Scorpiones: Iuridae), with a description of a new genus and two new species. - Euscorpius, 143: 1-70.