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***Charinus ioanniticus* (Amblypygi: Charinidae), first record of a whip spider from Jordan**

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**Abstract:** The Eastern Mediterranean amblypygid *Charinus ioanniticus* (Kritscher, 1959) is recorded from Jordan for the first time, which represents the first record of an amblypygid for the country. This expands the known distribution of the order Amblypygi and of the family Charinidae in the region.

**Keywords:** amblypygid, distribution, Eastern Mediterranean, new record

**Zusammenfassung. *Charinus ioanniticus* (Amblypygi: Charinidae), Erstnachweis einer Geißelspinne aus Jordanien.** Die ostmediterrane Geißelspinnenart *Charinus ioanniticus* (Kritscher, 1959) wird erstmals für Jordanien nachgewiesen und stellt den ersten Fund dieser Tiergruppe für das Land dar. Dies erweitert die bekannte Verbreitung der Ordnung Amblypygi und der Familie Charinidae in der Region.

Whip spiders belong to the order Amblypygi with its 220 extant species inhabiting mostly tropical and subtropical regions (Weygoldt 2000, Harvey 2013, Miranda et al. 2018). Charinidae is the most diverse family and is the only one that has parthenogenetic species (e.g., Armas 2000, 2005, Weygoldt 2007, Seiter & Wolff 2014).

*Charinus ioanniticus* (Kritscher, 1959) is one of the amblypygid species with all-female clonal reproduction, although a few males are known from collections (Weygoldt 2005, 2007, Miranda et al. 2016). The species is known from the Eastern Mediterranean including Egypt (Rosin & Shulov 1960, Kovarik & Vlasta 1996, El-Hennawy 2002, 2019, Miranda et al. 2016) and recently was recorded from Athens, Greece (Agapakis & Miranda 2019). *Charinus ioanniticus* was originally described from the Greek islands of Rhodes and Kos (Kritscher 1959). Further findings in different countries such as Turkey, Israel and Egypt make *C. ioanniticus* one of the species with the widest distribution in the family. Blick & Seiter (2016) summarised the distribution of the species and speculated on its occurrence in Jordan as well as in Lebanon and Syria.

In this study, the order Amblypygi and *Charinus ioanniticus* are recorded for the first time from Jordan.

### Material and methods

The specimen was examined under a stereomicroscope and photographed using a Canon EOS 40D camera with 100 mm Macro lens. Measurements were taken using an eyepiece reticule attached to a Leica Wild M3Z stereomicroscope. It was identified according to Miranda et al. (2016). The specimen is deposited at the Entomology Museum, Faculty of Agriculture, the Jordan University, Amman.

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### Results

*Charinus ioanniticus* (Kritscher, 1959) (Fig. 1)

**New record.** JORDAN, Irbid, Al Barha, 32.5722°N, 35.8375°E, altitude 591 m a.s.l., 1 ♀, 16. Aug. 2019, wall of a bathroom, leg. M. Shakhathrah.

**Measurements** (in mm). Pedipalp: coxa 1.0, trochanter 0.56, femur 0.94, patella 1.25, tibia 0.56, tarsus+claw 0.55. Carapace length 2.05, width 2.81; opisthosoma length 3.4, width 23.27. Leg 1 (whip) coxa (not measured because it is covered by carapace), trochanter 0.56, femur 3.86, tibia I 7.95 (22 segments), tarsus I 7.53 (37 segments). Leg 2 coxa 1.0, trochanter 0.54, femur 2.27, patella 0.45, basitibia 1.81, distitibia 1.36, first tarsal segment 0.43, second tarsal segment 0.43. Leg 3 coxa 1.36, trochanter 0.68, femur 2.95, patella 0.68, basitibia 2.27, distitibia 1.36, first tarsal segment 0.56, second tarsal segment 0.37. Leg 4 coxa 1.36, trochanter 0.68, femur 2.81, patella 0.54, basitibia 1.18, distitibia I 0.37, distitibia II 0.50, distitibia III 0.56, distitibia IV 1.35, first tarsal segment 0.56, second tarsal segment 0.50.



**Fig. 1:** Female of *Charinus ioanniticus* from Jordan. **a.** dorsal habitus, **b.** dorsal view of carapace and pedipalps, **c.** ventral view of sternum (Scale bars 2 mm)

## Discussion

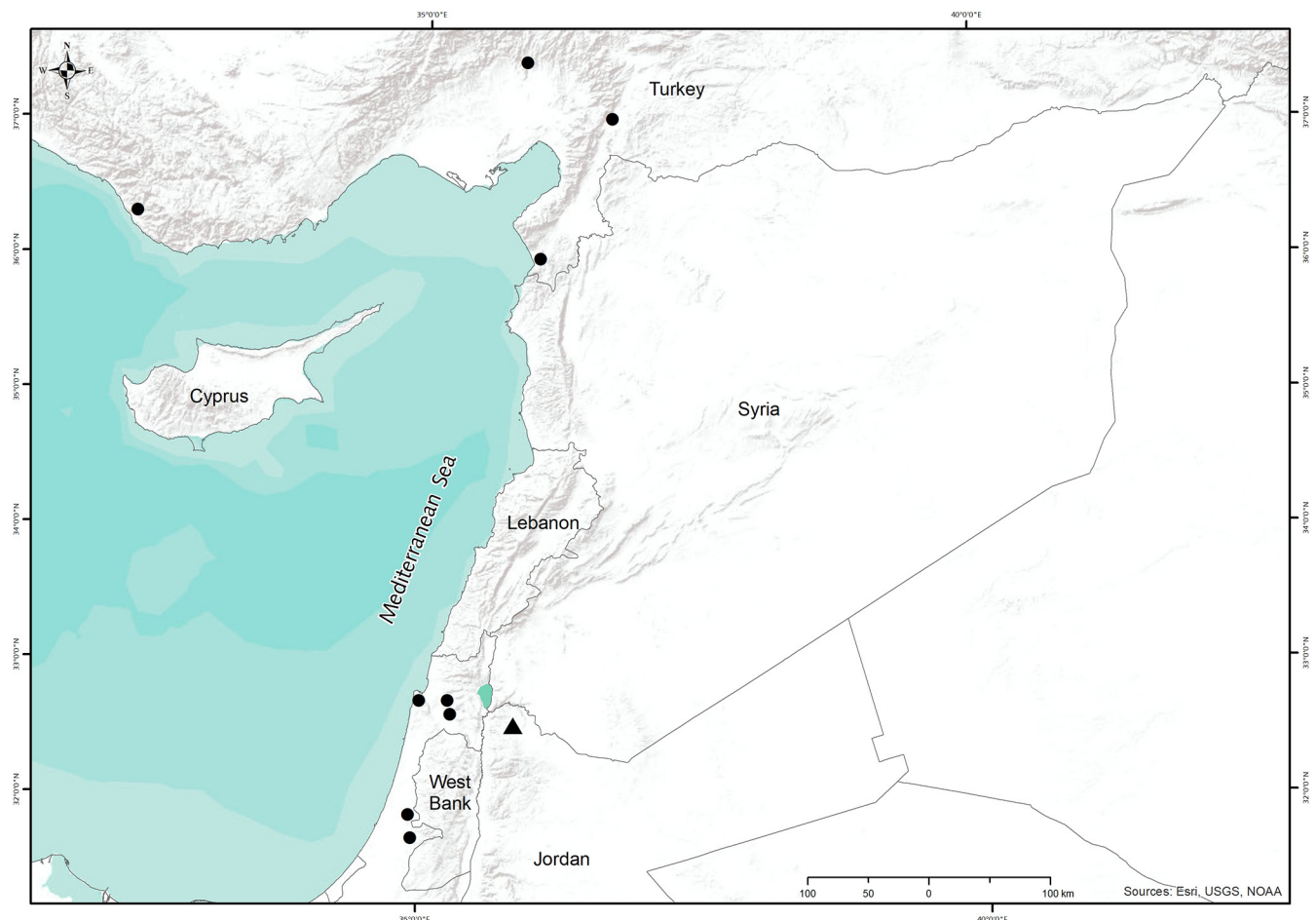
This is the first record of an amblypygid from Jordan and a geographical extension in the distribution of *Charinus ioanniticus* in the Eastern Mediterranean (Fig. 2). The most recent distribution map for *C. ioanniticus* can be found in Agapakis & Miranda (2019) and the geographical data of the localities of most of its distribution range can be seen in Blick & Seiter (2016).

The Jordanian specimen has a clear frontal border of carapace projected anteriorly, median eyes well developed and the femur dorsally and ventrally with five spines. It seems that *Charinus ioanniticus*, being synanthropic and parthenogenetic, is well adapted to inhabit areas of high moisture in human habitations. It was previously recovered from bathrooms in Athens, Greece (Agapakis & Miranda 2019), abandoned buildings in Egypt (El-Hennawy 2002, 2019) and man-made caves (Miranda et al. 2016). The species usually lives under stones and may invade human dwellings, seeking humid places, such as bathrooms.

The Jordan specimen is small in size, similar to the specimen collected from Damietta, Egypt (carapace length 2.2 mm, width 3.2 mm) (El-Hennawy 2019) and smaller than *C. israelensis* Miranda, Aharon, Gavish-Regev, Giupponi & Wizen, 2016 (Miranda et al. 2016). *Charinus israelensis* was described from the lower Galilee and the southern Golan Heights, which is about 50 km far from the Irbid area, Jordan (Miranda et al. 2016). Unlike *Charinus ioanniticus*, *C. israelensis* was so far only found in caves (Miranda et al. 2016). All known adult specimens of *C. israelensis* are females and this strongly suggests the capability of this species to reproduce

parthenogenetically, as indicated by Weygoldt (2007) for its closely related species *C. ioanniticus*. Further field surveys along the Jordan Valley and the eastern mountains of Jordan are needed to explore further possible localities of amblypygids in Jordan, and at the same time, areas close to the Golan Heights (i.e., Um Qais, an archaeological site by the Lake Tiberius) should be targeted for the possibility of finding *C. israelensis* and/or *C. ioanniticus*.

Over 70 species of the genus *Charinus* have been described so far, mostly from the Neotropics, with a few species from the Indo-Malayan and Palearctic region (Miranda et al. 2016). Four species of the genus were described from Arabia: *Charinus omanensis* Delle Cave, Gardner & Weygoldt, 2009 and *Charinus dhofarensis* Weygoldt, Pohl & Polak, 2002 from Oman, *Charinus socotranus* Weygoldt, Pohl & Polak, 2002 and *Charinus stygochthobius* Weygoldt & Van Damme, 2004 from Socotra/Yemen (Weygoldt et al. 2002, Weygoldt & Van Damme 2004, Delle Cave et al. 2009). Other amblypygid taxa from the area (all from the southern part of the Arabian Peninsula) are the phrynichids *Phrynichus deflersi deflersi* Simon, 1887 (Yemen, Oman), *P. deflersi arabicus* Weygoldt, 2003 (Saudi Arabia), *P. dhofarensis* Weygoldt, Pohl & Polak, 2002 (Oman), *P. gaucheri* Weygoldt, 1998 (Saudi Arabia), *P. heurtaultae* Weygoldt, Pohl & Polak, 2002 (Socotra/Yemen), *P. jayakari* Pocock, 1894 (Yemen, Oman) and *P. persicus* Miranda & Zamani, 2018 (Iran) (Miranda & Zamani 2018). Further investigations in the area of north-eastern Africa and the Middle East should be performed to uncover possible new records and new species.



**Fig 2:** Records of *Charinus ioanniticus* in the Eastern Mediterranean (records from Egypt not included). ● previous records, ▲ new record

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