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Research Article/Araştırma Makalesi

Confirmation of the Presence of *Dolomedes* Latreille, 1804 in Türkiye (Araneae, Pisauridae) with a New Record

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Abstract: The presence of the spider genus *Dolomedes* Latreille, 1804 in Türkiye is confirmed and first record of *D. plantarius* (Clerck, 1757) is given. *Dolomedes* is known from an old but unverified record in Türkiye and it remains absent from the latest checklists. Here, we briefly summarize the information on this genus in Türkiye with newly collected materials. A morphological diagnosis and comparative photographs of male and female are provided for *D. plantarius*. Also, an updated map of its distribution in Türkiye is given.

Keywords: Spider, fauna, distribution, Anatolia.

Yeni Bir Tür Kaydı ile *Dolomedes* Latreille, 1804 Cinsinin (Araneae, Pisauridae) Türkiye'deki Varlığının Doğrulanması

Öz: Örümcek cinsi *Dolomedes* Latreille, 1804'in Türkiye'deki varlığı doğrulanmış ve *D. plantarius* (Clerck, 1757) türüne ait ilk kayıt verilmiştir. *Dolomedes* cinsi, Türkiye'de eski fakat doğrulanmamış bir kayıttan bilinmektedir ve güncel kontrol listelerinde yer almamaktadır. Bu çalışmada, Türkiye'de bu cinse ait bilgiler, yeni toplanan materyallerle birlikte özetlenmiştir. *Dolomedes plantarius* türü için morfolojik bir tanımlama ve erkek ile dişinin karşılaştırmalı fotoğrafları sunulmuştur. Ayrıca, türün Türkiye'deki dağılımını gösteren güncel bir harita verilmiştir.

Anahtar kelimeler: Örümcek, fauna, dağılım, Anadolu.

1. Introduction

Dolomedes Latreille, 1804 is the most speciose genus in Pisauridae Simon, 1890 with 105 described species and is distributed worldwide except for Antarctica (WSC, 2024). Members of the genus are generally known as "raft spiders" or "fishing spiders" (Roberts, 1995). They are semi-aquatic wandering spiders and form an important component of aquatic ecosystems. Being large and iconic, with semi-aquatic lifestyles and often predators of freshwater vertebrates in addition to invertebrates, *Dolomedes* species are model organisms in diverse fields such as behavioral ecology (Helsdingen, 1993).

There are two *Dolomedes* species in Europe: *D. fimbriatus* (Clerck, 1757) and *D. plantarius* (Clerck, 1757). *D. fimbriatus* exhibits a broad distribution extending from Europe to Japan, whereas *D. plantarius* is found in a narrower range from Europe to Russia and Kazakhstan (WSC, 2024). Since these two species are closely related and morphologically very similar to each other, the microscopic examination of the genital organs is essential so as to distinguish between the two species. Due to this morphological similarity and the habitat preferences of the genus, the borders of distribution of the two species in Europe and whether both species share the same habitats have not been clarified until recent studies (Helsdingen, 1993; Naumova, 2018).

Despite its wide distribution range, no recent study on *Dolomodes* in Türkiye has been conducted yet. The first record of the genus from Türkiye was published by Drensky (1915) who reported it from Tekirdağ province on the north-west coast of the Marmara Sea. This study is quite old and was based on only a few immature specimens and Naumova (2018) re-evaluated it stressing the need for a careful review of this record. Consequently, *Dolomedes* remains unlisted in the latest checklists from Türkiye (WSC, 2024).

In this paper, we document the first confirmed record of the genus *Dolomedes* and the first record of *D. plantarius* in Türkiye.

2. Material and Method

The samples examined in this study were collected from Sakarya Province in Marmara region of Türkiye (Figs. 1–2). Spiders were primarily collected using sweep nets on the surface of the Sakarya River. The Sakarya River, one of the major rivers in Türkiye, provides diverse habitats that support a wide range of species. The slow-flowing sections of the river are characterized by the presence of willow trees along the banks and low-growing vegetation. These features offer shade, structural diversity, and a suitable

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environment for *Dolomedes*. Additionally, sub-adult specimens were captured by pitfall traps near the bank of the Sakarya River. Some of the individuals from both sexes were photographed in the natural habitat. All photographs were taken by the first author. They are preserved in 70% ethanol and deposited in the Zoological Museum of Bursa Uludağ University, Türkiye (ZMUU, R.S. Kaya). The digital images were taken with a Leica DFC295 digital camera attached to a Leica S8APO stereo microscope. Measurements were taken from the dorsal side of the body and all measurements are in millimeters. The nomenclature follows World Spider Catalog (2024).

Figure 1. Habitat where the specimens were collected from the Sakarya River.

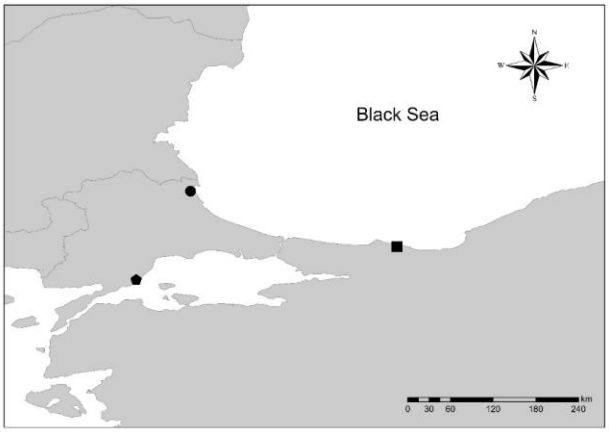

Figure 2. Map showing the distribution of the *Dolomedes* in Türkiye.

Square: *D. plantarius* collected in this study. Circle: Immature samples of *Dolomedes* collected in this study. Pentagon: Locality provided by Drensky (1915).

3. Results

Family Pisauridae Simon, 1890

Genus *Dolomedes* Latreille, 1804

Dolomedes plantarius (Clerck, 1757)

Material examined

1♂, 2♀♀, 4 sub adult ♀: Sakarya Province, Sakarya River, Karasu District, Tuzla Village, 18.08.2020, 41°04'42.6"N, 30°38'43.2"E, 35 m, leg. G. Gündüz; 2♂♂, 4♀♀, 3 sub adult ♂, 3 sub adult ♀: same locality, 07.06.2021, leg. G. Gündüz and F. Eren; 1 sub adult ♀: Sakarya Province, Sakarya River, Karasu District, Camidere Village, 01.04.2018–01.10.2018, 41°49'13"N, 27°56'40"E, 19 m, pitfall traps, leg. G. Gündüz.

Female

Measurements: Total length: 17.5- 22.7. Carapace: 7.5- 9.7 mm long and 6.5- 8.3 mm wide. Abdomen: 10.0-13.0 mm long and 6.2-6.8 mm wide. Femur I: 7.5- 9.7, femur II: 6.5- 8.3, femur III: 6.2- 8.1, femur IV: 7.7- 10.1; patella I: 3.0- 3.9, patella II: 2.5- 3.2, patella III: 2.9- 3.7, patella IV: 3.5- 4.5; tibia I: 7.2- 9.3, tibia II: 6.0- 7.8, tibia III: 5.9- 7.6, tibia IV: 7.1- 9,1; metatarsus I: 7.2- 9.2, metatarsus II: 5.7- 7.4, metatarsus III: 5.1- 6.6, metatarsus IV: 7.3- 9.3; tarsus I: 3.6- 4.6, tarsus II: 3.2- 4.1, tarsus III: 2.8- 3.6, tarsus IV: 3.6- 4.6.

Carapace brown to dark brown with distinct bands of relatively light hairs at margins. Chelicerae brown. Sternum light brown with dark margins. Palp and legs brown. Legs with robust spines and scopulae. Abdomen dark brown with bands of dark yellow hairs at the margins. Spinnerets pale yellow (Figs. 3–6).

Epigyne: Epigynal plate wider than long and clearly with a robust, sclerotized rectangular plate at posteriorly. Atrium tapering anteriorly (Figs. 11A–C).

Figure 3. Female general habitus of *D. plantarius* (Clerck, 1757).

Figure 4. A melanistic female of *D. plantarius* (Clerck, 1757) with its egg sac.

Figure 5. Subadult female of *D. plantarius* (Clerck, 1757).

Figure 6. Subadult female of *D. plantarius* (Clerck, 1757).

Male

Measurements: Total length: 12.9- 15.4. Carapace: 6.2- 7.4 mm long and 5.5- 6.5 mm wide. Abdomen: 6.7- 8.0 mm long and 5.3-5.6 mm wide. Femur I: 7.4- 8.7, femur II: 7.0- 8.3, femur III: 6.1- 7.3, femur IV: 7.6- 9.1; patella I: 2.5- 3.1, patella II: 2.0- 2.3, patella III: 2.4- 2.8, patella IV: 2.8- 3.4; tibia I: 6.0- 7.1, tibia II: 5.3- 6.3, tibia III: 4.3- 5.2, tibia IV: 7.0- 8.3; metatarsus I: 5.6- 6.8, metatarsus II: 5.2- 6.2, metatarsus III: 4.5- 5.4, metatarsus IV: 5.7- 6.8; tarsus I: 3.7- 4.4, tarsus II: 3.5- 4.2, tarsus III: 3.3- 3.9, tarsus IV: 4.0- 4.7.

Carapace brown to dark brown with distinct longitudinal stripes of relatively light hairs at margins. Chelicerae brown. Sternum light brown with dark margins. Palp and legs brown. Legs with robust spines and scopulae. Abdomen dark brown with bands of dark yellow hairs at margins. Spinnerets pale yellow (Figs. 7–9).

Palp: Tibia with a row of long bristles ventrally; tibial apophysis bifurcated. Median apophysis thin at the base and curved and thickened towards apex roughly beak-shaped. Conductor membranous. Embolus basally thick, long and curved (Figs 10A–B).

Distribution: Europe, Russia (Europe to South Siberia), Kazakhstan (WSC, 2024), new to Türkiye.

Habitat and Ecology: The sampling of *Dolomedes* was conducted in the slow-flowing sections of the Sakarya River, where the riverbanks are lined with willow trees and dense vegetation. It was observed that immature individuals spent most of their time beneath this dense cover, preying primarily on juvenile heteropterans

Figure 7. Immature male of *D. plantarius* (Clerck, 1757) while waiting for its prey.

Figure 8. Male general habitus of *D. plantarius* (Clerck, 1757).

Figure 9. Male general habitus of *D. plantarius* (Clerck, 1757).

4. Discussion

The only known record of the genus *Dolomedes* in Türkiye was provided by Drensky (1915) who identified several immature specimens collected from Tekirdağ Province in the Thracian part of Türkiye as *D. fimbriatus* (under the name *D. ornatus*). Drensky (1915) also noted: "young specimens at the stage of the last molting, found on the road between Merefle and Ganos which represents a new species for the Balkan Peninsula (Mürefte and Gaziköy, TR)". Recently, Naumova (2018) reviewed the genus in the Balkans and concluded that this record from Türkiye is unreliable as an identification of *D. fimbriatus* (Drensky, 1915; Naumova, 2018).

Figure 10. Male palp of *D. plantarius* (Clerck, 1757).

A. Male palp, ventral view. B. Male palpal tibia, retrolateral view.

Scale bars: A: 0.5, B: 0.1

In Europe, *D. plantarius* is considered rare and endangered. It is listed in the Red Book as vulnerable to extinction in countries such as England, Spain, Russia, Belarus, and Bulgaria (Deltshev, 2015) and is also categorized as vulnerable on the IUCN Red List (World Conservation Monitoring Centre, 1996). More extensive sampling and studies in recent years have provided a better understanding of the distribution, population trends, and habitat preferences of *D. plantarius* and *D. fimbriatus* (Naumova, 2018). Field observations from this study indicated that the *D. plantarius* population in Sakarya is substantial as numerous individuals were observed beyond those captured for sampling. Additionally, a large number of *Pirata piraticus* (Clerck, 1757) (Fig. 12) were also observed in the studied area. These two species share similar coloration and patterns, which may play a crucial role in their ability to camouflage in aquatic environments. Their appearances resemble submerged twigs; adaptations that likely help them avoid predators and improve hunting efficiency.

In addition to the material included in this study, fieldwork conducted in the İğneada Flooded Forests within Kırklareli Province in the Thrace region also yielded immature *Dolomedes* specimens (Fig. 2). Although these samples were not included in the study material due to their immature stage, we considered it valuable to report this information, as it provides significant data.

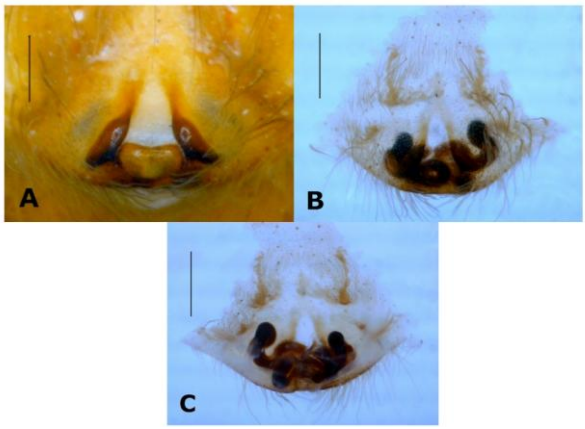

Figure 11. Epigyne of *D. plantarius* (Clerck, 1757).

A. Epigyne, ventral view. B. Macerated epigyne, ventral view. C. Vulva, dorsal view.

Scale bars: 0.1

Fig. 12: Female *Pirata piraticus* (Clerck, 1757) with its egg sac.

Ethics committee approval: Ethics committee approval is not required for this study.

Conflict of interest: The authors declare that there is no conflict of interest.

Author Contributions: Conception – G.G., R.S.K.; Design – G.G., R.S.K.; Supervision – G.G., R.S.K.; Materials – R.S.K., G.G., F.E.; Analysis Interpretation – R.S.K., G.G.; Literature Review R.S.K., G.G., F.E.; Writing – R.S.K., G.G., F.E.; Critical Review – R.S.K., G.G.

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