

The rediscovery of *Aculepeira armida* (Araneae: Araneidae) in Romania after more than 100 years

Alexandru-Mihai PINTILIOAIE ^{1*} and István URÁK ²

1. SC Biodiversity Research and Consulting SRL, 700638 Iași, Mîrcea cel Bătrîn str. 8, Romania

2. Sapientia Hungarian University of Transylvania, Environmental Science

Department, 400193 Cluj-Napoca, Calea Turzii str. 4, Romania

* Corresponding author, A.M. Pintilioaie, E-mail: alexandrupintilioaie@gmail.com

Received: 14 February 2022/ Accepted: 08 May 2022/ Available online: May 2022 / Printed: June 2022

Abstract. The presence of the orb-weaver spider *Aculepeira armida* (Audouin, 1826) is confirmed in the fauna of Romania, in Deta (Timiș County), after more than 100 years from its first observation in the country. Some data on the ecology and the diagnosis of the species are presented.

Keywords: Arachnida, new record, species distribution, spiders, xerothermic species.

In Romania, the family Araneidae (orb-weaver spiders) consists of 50 species belonging to 17 genera: *Aculepeira* Chamberlin & Ivie, 1942 (3 species); *Agalenatea* Archer, 1951 (1 species); *Araneus* Clerck, 1757 (11 species); *Araniella* Chamberlin & Ivie, 1942 (5 species); *Argiope* Audouin, 1826 (2 species); *Cercidia* Thorell, 1869 (1 species); *Cyclosa* Menge, 1866 (2 species); *Gibbaranea* Archer, 1951 (3 species); *Hypsosinga* Ausserer, 1871 (3 species); *Larinioides* Caporiacco, 1934 (5 species); *Leviellus* Wunderlich, 2004 (2 species); *Mangora* O. Pickard-Cambridge, 1889 (1 species); *Neoscona* Simon, 1864 (3 species); *Nuctenea* Simon, 1864 (1 species); *Singa* C. L. Koch, 1836 (3 species); *Zygiella* F. O. Pickard-Cambridge, 1902 (3 species); *Zilla* C. L. Koch, 1836 (1 species) (Weiss & Urák 2000, Pintilioaie & Urák 2022).

The genus *Aculepeira* comprises six species in Europe (Nentwig et al. 2022), from which only two are recorded in

Romania: *Aculepeira ceropegia* (Walckenaer, 1802), a common and widespread species, and *Aculepeira armida* (Audouin, 1826) (Weiss & Urák 2000).

Aculepeira armida was recorded in Romania only before 1900, from 4 locations: Oradea (Nagyvárad) (Bihar County), Gherla (Szamosújvár) (Cluj County), Alba Iulia (Gyulafehérvár) (Alba County) (Chyzer & Kulczyński 1891) and Sânmartin (Pecze-Szent-Márton) (Bihar County) (Chyzer & Kulczyński 1897), as *Epeira victoria* Thorell, 1870. Due to the lack of new records, the presence of this species in the Romanian fauna was considered doubtful (Weiss & Urák 2000). In 2021 we managed to find one population of *E. armida* in the western part of Romania. The specimens were collected and preserved in 70% ethanol and are housed in the second author's collection. An updated map with its distribution in Romania is depicted in Figure 1.



Figure 1. The distribution of *Aculepeira armida* in Romania

Material examined

2 ♀, Timiș County, Deta (near) (45.390577°N/21.255838°E), 91 m alt., 29.06.2021, leg. Pintilioaie Alexandru-Mihai.

Diagnosis of females

Aculepeira armida (Figure 2) usually have a rather contrasting coloration represented by whitish stripes alternating with

brownish to brick red bands. On the dorsal part of the opisthosoma the edges of the characteristic pattern are angular, like a stylized pine tree, usually with a marked dark border (Szinetár 2006), the patches are elongated and longitudinally connected (Loksa 1972).

Ventrally, the opisthosoma has a white or yellowish inverted "Y" pattern, with branches that consist of two pairs of distinct spots (Figure 3). The epigyne (Figure 4) has a moderately wide base with one lateral lobe on each side, a long scape, and a thin elongated lamellae perpendicular to the base (Levi 1977). In contrast, *A. ceropegia* shows bands (Figure 2, specimen from Parâng Mountains, Romania) that

usually are light brownish to greenish yellow and have a marmorated appearance on the sides. The characteristic dorsal pattern of the opisthosoma consists of an oak-leaf-like shape with rounded, lobbed margins, divided in the middle (Szinetár 2006).

The white medial pattern is separated into distinct patches (Loksa 1972). The white or yellowish patterns of the ventral side of the opisthosoma form two symmetrically placed "J" shaped markings with an "I" between them (Figure 3). The base of the epigyne is wider, and the scape is shorter and broader basally, and has a thin and short lamella (Figure 4).



Figure 2. Habitus of *Aculepeira armida* (A) and *Aculepeira ceropegia* (B)

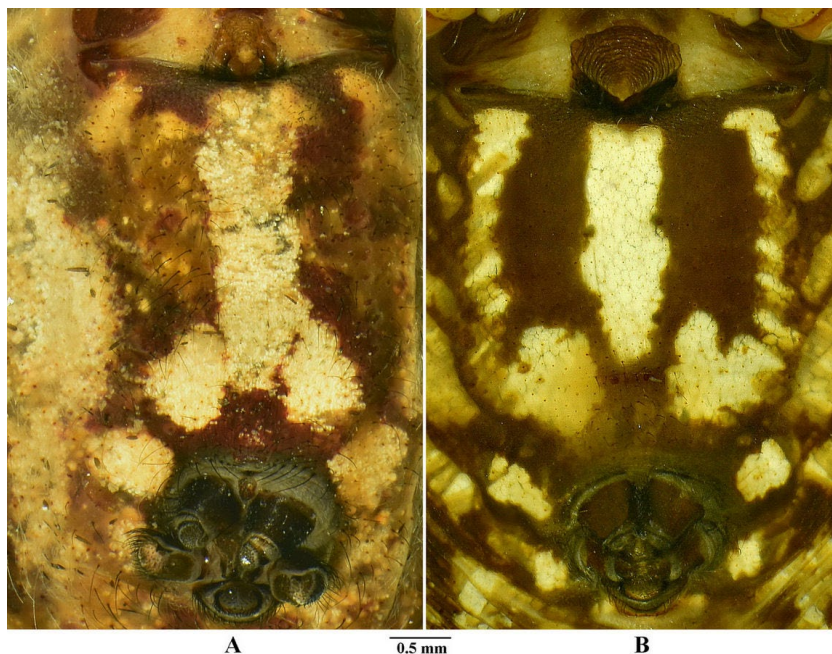


Figure 3. Ventral view of the opisthosoma of *Aculepeira armida* (A) and *Aculepeira ceropegia* (B)

Distribution

So far *Aculepeira armida* has been recorded from Europe (e.g., Bulgaria, Croatia, Hungary, Slovakia, Ukraine) (Nentwig et al. 2022), North Africa, Turkey, Israel, Russia (from Europe to Far East), Iran, from Central Asia to China (World Spider

Catalogue 2022).

Habitat preferences

It seems to be a xerothermic species, inhabiting open or semi-open areas with low vegetation and bushes, but it can

also be found in dry and stony meadows, in limestone areas with holm oaks, even in cereal crops, at altitudes up to 600 meters a.s.l (Levi 1977, Iorio & Herbrecht 2016).

The specimens from Timiș County were found in an

open area with scarce trees and shrubs, with low and dry vegetation (Figure 5). The webs were built a few centimeters above the ground, in herbaceous vegetation, directly exposed to sun.

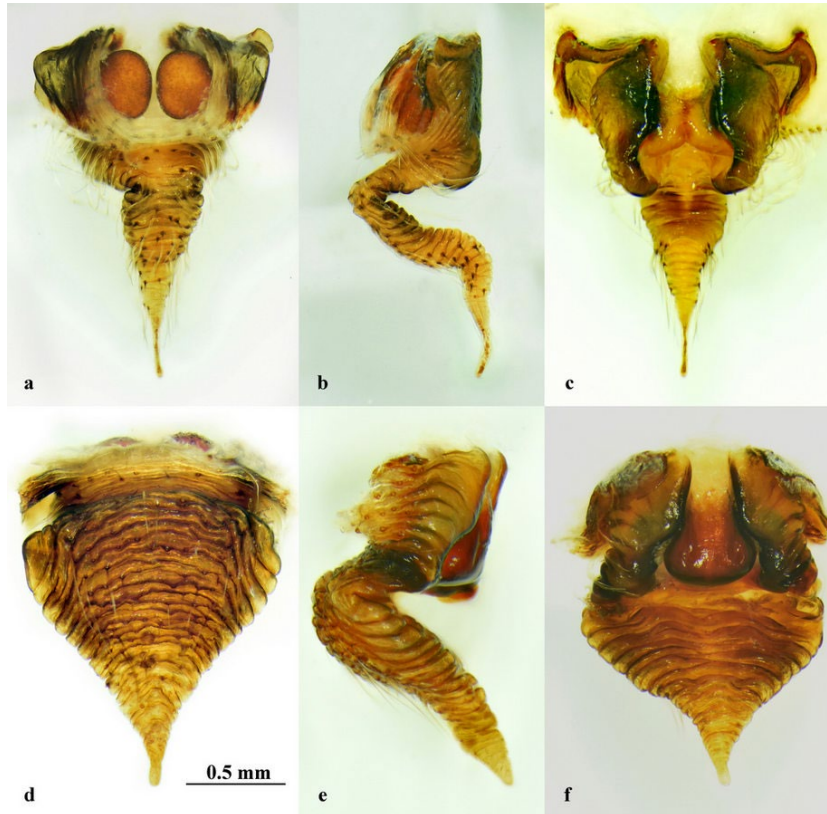


Figure 4. Epigine of *Aculepeira armida* (a - ventral, b - lateral, c - posterior view) and *Aculepeira ceropegia* (d - ventral, e - lateral, f - posterior view)



Figure 5. Habitat of *Aculepeira armida* in Romania, Timiș County

Acknowledgements

The first author is thankful to Petrișor Galan from Biodiversity Research and Consulting and to Călin Hodor from Wildlife Management Consulting for helping with the field campaign. We thank the anonymous reviewers for their comments and suggestions that helped us to improve our manuscript.

References

- Chyzer, C., Kulczyński, W. (1891): Araneae Hungariae. Tomus I. Academia Scientiarum Hungaricae, Budapest.
 Chyzer, C., Kulczyński, W. (1897): Araneae Hungariae. Tomus II. Academia Scientiarum Hungaricae, Budapest.
 Iorio, E., Herbrecht, F. (2016): Découverte d'une araignée thermophile

- remarquable dans le sud-est de l'Anjou: *Aculepeira armida* (Savigny in Audouin, 1825) (Araneae, Araneidae). *Invertébrés Armoricaains* 14: 67-75.
- Levi, H.W. (1977): The orb-weaver genera *Metepeira*, *Kaira* and *Aculepeira* in America north of Mexico (Araneae, Araneidae). *Bulletin of the Museum of Comparative Zoology* 148: 185-238.
- Loksa, I. (1972): Pókok II. - Araneae II. Magyarország Állatvilága. Fauna Hungariae. Akadémiai Kiadó, Budapest.
- Nentwig, W., Blick, T., Bosmans, R., Gloor, D., Hänggi, A., Kropf, C. (2022): Spiders of Europe. www.araneae.nmbe.ch, accessed at: 2022.01.02.
- Pintilioaie, A.M., Urák, I. (2022): First record of *Neoscona byzanthina* (Araneae: Araneidae) in Romania. *Arachnologische Mitteilungen / Arachnology Letters* 63: 1-3.
- Szinetár, C. (2006): Pókok. Keresztespókok, farkaspókok, ugrópókok és rokonaik a Kárpát-medencében. Kossuth Kiadó, Budapest.
- Weiss, I., Urák, I. (2000): Faunenliste der Spinnen Rumäniens (Arachnida: Araneae). www.arachnologie.info/fauna.htm, accessed at: 2022.01.02.
- World Spider Catalog (2022): World Spider Catalog. Version 23.0. Natural History Museum Bern. <http://wsc.nmbe.ch>, accessed on 12.04.2022. doi: 10.24436/2
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