Confirmation of *Silometopus curtus* (Araneae: Linyphiidae) in Hungary

Robert Bosmans & Ferenc Samu

Abstract. The presence of *Silometopus curtus* (Simon, 1881) in Hungary is confirmed. Comparative photos of male and female of *S. curtus* and the closely related species *S. ambiguus* (O. Pickard-Cambridge, 1906) are presented. The phenology of *S. curtus* in Hungary is described and its patchy distribution is discussed.

Keywords: faunistics, habitat preference, Kiskunság, salt marsh

*Silometopus* is a genus of small Erigoninae, presently counting 16 Palaearctic species (World Spider Catalog 2020). They are not easy to identify, especially females. Recently, Vidal et al. (2020) contributed significantly to facilitate species identification of this genus. Three species, *Silometopus ambiguus* (O. Pickard-Cambridge, 1906), *S. curtus* (Simon, 1881) and *S. nitidithorax* (Simon, 1915) were often misidentified in the past. The case of *S. nitidithorax*, a species described from the Ardèche in France is treated in a separate paper (Déjean et al. 2020). Denis’ (1950) citations of *S. nitidithorax* in salt marshes in the Camargue based on females appeared to be erroneous and caused much confusion. His specimens appeared to belong to *S. curtus* (Denis 1964). *Silometopus ambiguus* and *S. curtus* also have been confused. This was clarified by Blick (2014) who pointed out that *S. ambiguus* is a species from the temperate region and that all citations from that region are in fact *S. ambiguus*.

The status of *Silometopus curtus* remains to be determined. Females of this species have been illustrated several times, also recently (Denis 1950, Blick 2014, Breitling 2018, 2020). The only older, small pictures of males of *S. curtus* available, are those of Simon (1881, 1926), including the only figure of the male palp. In Hungary, *S. curtus* was included in the bibliographic check list of the Hungarian spider fauna (Samu & Szinetár 1999), but this was based on a doubtful citation of Loks (1991; Blick 2014). The discovery of new material of *S. curtus* in Hungary allows us to present a new diagnosis and new photos of the genital organs of the species and to confirm its presence in Hungary.

Material and methods

The Hungarian material was collected by suction sampling, at two locations in the area of the Kiskunság National Park: i) in the Fehérszék alkaline salt marshes (46.81083°N, 19.18527°E, 92 m a.s.l., near Fülpöszállás), and in the same habitat type in the nearby area of Kunpeszér (47.05916°N, 19.29222°E, 92 m a.s.l.). Sampling sessions took place monthly between 2001 and 2003. There was no sampling in December and January or in either year.

Spider specimens were examined using a Nikon SMZ1270 stereomicroscope. Photographs were taken with a Moticam 5MP camera attached to a Reallux stereoscopic microscope.

Structures of the left palps are depicted. Male palps were detached and transferred to glycerol for examination under the microscope. Female genitalia were excised using sharpened needles. These were then transferred to clove oil for examination under the microscope. Later, palps and epigynes were returned to 70% ethanol.

Results

*Silometopus curtus* (Simon, 1881) (Figs 1-9, 13-15) *Erigone curta* Simon, 1881: 253 (descr. δ). *Cnephaloecus curtus* Simon 1884: 704, figs 565-566 (descr. δ). *Silometopus curtus* Simon 1926: 353, 487, fig. 621 (δ). *Silometopus nitidithorax*; Denis 1950: 66, figs 5-9 (descr. δ; misidentification).

*S. curtus*; Denis 1964: 395, figs 2-3 (δ); Locket, 1964: 265, figs 2A-B, 3D; Blick 2014: 45, figs 2A-B, 3B (δ); Breitling 2018: 9, fig. 20 (ς).

Type material

Type series from France, Bouches-du-Rhône, Martigues and from Spain, Catalonia, Arbucias (Muséum National d’Histoire Naturelle de Paris); not examined.

Diagnosis

Males of *S. ambiguus* and *S. curtus* differ from other *Silometo- pus* species by the absence of a cephalic lobe and differ from each other clearly by the shape of the tibial apophyses in dorsal view (Fig. 10 versus 13). In *S. ambiguus*, the dorsal margin is nearly straight, with one pointed, curved tooth almost in the middle (Fig. 10), in *S. curtus* the dorsal margin is convex, with two larger teeth on both sides (Fig. 13). Females differ by the shape of the median septum in the epigyne. In *S. ambiguus*, there is a median septum (MS) in the shape of a triangle (Figs 11-12), while in *S. curtus* it resembles an hourglass (Figs 14-15).

Material examined

HUNGARY: Kiskunság National Park, Fehérszék (46.81083°N, 19.18527°E, 92 m a.s.l.), alkaline salt marsh, motorised suction sampling, 2 δ, 4 η, 20. Mar. 2003, F. Samu leg. (part of a total of 1258 specimens collected in a faunistic project, see below).
**Silometopus ambiguus** (Figs 10-12): BELGIUM: West-Vlaanderen: Knokke, Zwin Nature Reserve (51.367°N, 3.367°E, 2 m a.s.l.), 2 ♂♂, 6 ♀♀, pitfall traps in salt marsh, 2.–16. Jun. 2014, J. Van Keer leg., R. Bosmans coll.

**Distribution**

*Silometopus curtus* is, for the time, being known with certainty only from salt marshes in the South of France (Simon 1881, 1926, Breitling 2018, 2020) and from salt marshes in Hungary, which is the most northern locality. The only citation from Spain in Arbucias in Catalonia (Simon 1881) is an inland locality at an altitude of 300 m. This is probably a misidentification. Recently, Barrientos et al. (2020) cited *S. ambiguus* from hollow trees in Spain, qualifying this by saying it could be confused with *S. curtus*. In our opinion it is neither of these two because both species are limited to salt marshes.

Citations from Malta (Kritscher 1996) are from a dry valley and a Karst landscape and not from salt marshes, thus these records are most probably misidentifications. Citations from Egypt, Alexandria in the Nile Delta (Simon 1881) could be correct but need to be confirmed.

**Ecology of Silometopus curtus in Hungary**

During a faunistic project focusing on the Kiskunság region, the middle, dry area of the Hungarian Great Plain, we collected with motorised suction sampling 1258 specimens of *S. curtus* between 2001 and 2003 (Samu et al. 2008; identified as *S. ambiguus*). Seventy percent of the collected specimens were females, 30% males. As for the phenology of the spider, the species is predominantly winter active (Fig. 16), with ⅔ of the catches in February and March, albeit with no sampling performed in December and January. Except for a single specimen in the nearby area of Kunpeszérl, all other specimens were caught in the Fehérzsék marshes. The species was recorded only from the above-mentioned locations, despite that during the overall project we extensively sampled several locations in the Kiskunság region and over the years had a vast number of samples from similar habitats from all over Hungary (unpublished data and personal information from C. Szinetár). The Fehérzsék marshes is a large area, with a mosaic of habitats, laying at an altitude of approximately 100 m a.s.l. (Samu et al. 2008). There is a very fine elevational difference, typically in the range of only a couple of 10 centimetres, between the habitat patches of the area. The lowest areas are wet alkaline salt marshes characterised by *Bolboschoenus maritimus* (L.) Palla vegetation with periodical water cover. We caught 1.5% of *S. curtus* specimens in this habitat. Next higher is a dry alkaline salt marsh with sparse grass cover. These areas have rather low floristic diversity due to high abiotic stresses of the habitat (very wet in spring, dry during summer and the salt concentration is high all over the year). However, its two-layered vegetation with *Puccinellia limosa* (Schur) Holmb. (upper layer) and *Lepidium crassifolium* Waldst. & Kit. (lower layer) provides a notable structure, where an overwhelming majority (94% of the specimens) were captured. Four percent of the specimens were caught in the “highest” elevation steppic grassland patches, characterised by a higher and denser grassland vegetation with diverse dicotyledon flora (Samu et al. 2008). Finally, 0.5% of *S. curtus* (three males and three females) was recovered from nearby wheat and alfalfa fields. While these data indicate a modest ecological flexibility of the species, we have currently no explanation for its unique distribution in the region and in Hungary.
Acknowledgements

Pierre Oger is thanked for his excellent photographs, and Sylvain Déjean and Samuel Danflous for additional information on the subject. We are grateful for technical assistance and most of the identification provided by Erika Botos and for botanical characterisation of the area by Péter Csontos. We thank Csaba Szinetár for information on unpublished data.

References

Barrientos JA, Hernández-Corral J & Micó Balaguer E 2020 Linyphiidae (Araneae) inhabiting hollow oaks in Mediterranean forests: new descriptions and temporal distribution of remarkable species. – Arachnologische Mitteilungen 59: 97-107 – doi: 10.30963/armit5912

Blick T 2014 The long-lasting story of the wrong naming of Silometopus ambiguus as S. curtus (Araneae: Linyphiidae). – Arachnologische Mitteilungen 47: 45-48 – doi: 10.5431/aramit4707

Breitling R 2018 Eric Duffey’s spider collection in the Manchester Museum – an update. – Newsletter of the British Arachnological Society 141: 5-9

Breitling R 2020 South European spiders from the Duffey collection in the Manchester Museum (Arachnida: Araneae). – Arachnology 18: 333-362 – doi: 10.13156/arac.2020.18.4.333

Déjean S, Danflous S & Bosmans R 2020 Redescription de Silometopus nitidithorax Simon, 1915 (Araneae, Linyphiidae) et description de Silometopus gracius sp. nov. de Grèce. – Revue arachnologique, série 2, 7: 8-16

Denis J 1950 Araignées de France. III. Araignées de Camargue. – Bulletin de la Société Zoologique de France 88 (1963): 392-398

Kritscher 1996 Ein Beitrag zur Kenntnis der Spinnen-Fauna der Maltesischen Inseln (Chelicerata: Araneae). – Annalen des Naturhistorischen Museums in Wien, Serie B 98: 117-156

Locket GH 1964 Type material of British spiders in the O. Pickard-Cambridge collection at Oxford. – Annals and Magazine of Natural History (13) 7 (77): 257-278 – doi: 10.1080/00222936408656035

Loksa I 1991 Über einige Arthropoden-Gruppen aus dem Pilis-Biosphären-Reservat (Ungarn). 2. Die Diplopoden, Chilopoden, Weberknechte und Spinnen aus dem Gebiet zwischen Kakas-Berg (Pílliszentkereszt) und Ispán-Wiese (Mikulaharaszt). – Opuscula Zoologica Budapest 24: 129-141

Samu F & Szinetár C 1999 Bibliographic check list of the Hungarian spider fauna. – Bulletin of the British Arachnological Society 11: 161-184

Samu F, Csontos P & Szinetár C 2008 From multi-criteria approach to simple protocol: assessing habitat patches for conservation value using species rarity. – Biological Conservation 141: 1310-1320

Simon E 1881 Description d’espèces nouvelles du genre Erigone. – Bulletin de la Société Zoologique de France 6: 233-257

Simon E 1884 Les arachnides de France. Tome cinquième, deuxième et troisième partie. Roret, Paris. pp. 180-885

Simon E 1892 Les arachnides de France. Synopsis générale et catalogue des espèces françaises de l’ordre des Araneae. Tome VI. 2e partie. Roret, Paris. pp. 509-532

Vidal E, Déjean S, Danflous S & Oger P 2020 Découverte en France de Silometopus bonessi Casemir, 1970 (Araneae, Linyphiidae). – Revue Arachnologique, série 2, 7: 2-7

World Spider Catalog 2020 World spider catalog. Version 21.5. Natural History Museum, Bern. – Internet: https://wsc.nmbe.ch (29. Jul. 2020) – doi: 10.24436/2