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First records of *Saitis tauricus* (Araneae: Salticidae) from Italy in South Tyrol

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Abstract. From 2016 to 2018, four males of *Saitis tauricus* Kulczyński, 1905 were recorded in the northernmost province of Italy, Bozen – South Tyrol. These findings were made by chance in urban areas of the capital city of Bozen/Bolzano and the city of Meran/Merano, and represent the first findings of this species for South Tyrol and Italy. No females were recorded so far. Photos of the habitus and pedipalps are given. We assume that the specimens could have been imported several times from Balkan countries such as Bulgaria, Greece, Macedonia and Turkey, or from Hungary. They may have formed a short-time population of *S. tauricus* for South Tyrol, as the findings of the males were made in three consecutive years. These findings are very similar to those of *S. barbipes* in Germany, Belgium and the Netherlands. More investigations are needed to understand how this species arrived in the area of South Tyrol and if it has established successfully.

Keywords: Alto Adige, Eurac Research, imported species, jumping spider, new findings, *Saitis barbipes*

Zusammenfassung. Erste Nachweise von *Saitis tauricus* (Araneae: Salticidae) in Italien aus Südtirol. Von 2016 bis 2018 wurden vier Männchen von *Saitis tauricus* Kulczyński, 1905 in der nördlichsten Provinz Italiens, Bozen – Südtirol, nachgewiesen. Diese Zufallsfunde wurden in urbanen Gegenden in der Hauptstadt Bozen und in der Stadt Meran gemacht und stellen die ersten Funde für Südtirol und Italien dar. Es wurden bis jetzt keine Weibchen nachgewiesen. Fotos des Habitus und der Pedipalpen werden präsentiert. Wir nehmen an, dass die Art mehrmals aus Balkanstaaten wie Bulgarien, Griechenland, Mazedonien und Türkei, oder aus Ungarn importiert wurde. Es könnten sich kurzfristig etablierte Populationen von *S. tauricus* gebildet haben, da die Funde in drei aufeinanderfolgenden Jahren erfolgten. Diese Funde sind mit Nachweisen von *S. barbipes* in Deutschland, Belgien und den Niederlanden vergleichbar. Weitere Untersuchungen sind nötig, um zu verstehen wie die Individuen nach Südtirol gekommen sind und ob sie sich erfolgreich etabliert haben.

The genus *Saitis* (Araneae: Salticidae) is represented by six species in Europe and 32 species worldwide (Nentwig et al. 2018, World Spider Catalog 2018). The European species include *S. ariadneae* Logunov, 2001, *S. barbipes* (Simon, 1868), *S. graecus* Kulczyński, 1905, *S. imitatus* (Simon, 1868), *S. sengeti* (Metzner, 1999) and *S. tauricus* Kulczyński, 1905. For Italy, only *S. barbipes* (Simon, 1868) is known so far; *S. imitatus* was omitted in Pantini & Isaia (2018) because, besides Simon (1871), no recent record is known and its unconfirmed listing for Italy might be due to mistakes in localisation and from regions of Dalmatia (Croatia) that were formerly part of Italy (Dobroruka 2004).

For the northernmost province of Italy, Bozen – South Tyrol, *S. barbipes* was reported from multiple observations (FloraFaunaSüdtirol 2018). Here we present the first findings of another species of the genus *Saitis*, *S. tauricus* Kulczyński, 1905, for South Tyrol and for Italy. In the last two decades, since the last published checklist (Noflatscher 1996), over 200 new species records of Araneae for South Tyrol were made (e.g. Ballini & Steinberger 2009, Stauder et al. 2010, Ballini et al. 2011, 2013, 2015, 2017, Ballini unpubl.). This includes mostly species already known from neighbouring countries such as Austria and Switzerland [e.g., Linyphiidae: *Erigone dentigera* O. Pickard-Cambridge, 1874, *Thyreosthenius biovatus* (O. Pickard-Cambridge, 1875), Lycosidae: *Pardosa agrestis* (Westring, 1861), Araneidae: *Leviellus stroemi* (Thorell, 1870), Gnaphosidae: *Parasyrisca vinosa* (Simon, 1878), Philodromidae: *Thanatus arenarius* (L. Koch, 1873)], invasive Mediterranean species coming from the South [e.g., Zoropsidae: *Zoropsis spinimana* (Dufour, 1820)] or imported species [e.g., Salticidae: *Hasarius adansoni* (Audouin, 1826), Dictynidae: *Cicurina japonica* (Simon, 1886)].

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Material and methods

Three of the four specimens of *S. tauricus* were stored in 75 % ethanol until identification under the stereo microscope (Leica M205 C); the fourth specimen was identified alive by holding it in place between cotton in a glass tube. Photos of the left pedipalp were made using a microscope camera (Motic Moticam 5 and the software Motic Images Plus 3.0) and combining 15 photos with stacking software (Helicon Focus version 6.0). Habitus photos of a live specimen were taken by Andreas Hilpold (Canon EOS 5d Mark II).

Results

Saitis tauricus Kulczyński, 1905 (Fig. 1a–d)

Material. ITALY, South Tyrol: Bozen/Bolzano, main building of Eurac Research – Institute for Alpine Environment, 46.4945°N, 11.3461°E, 3 ♂♂, collected manually by chance 15.11.2016, 24.05.2017 and 31.05.2018, leg. M. Steinwandter, collection Museum of Nature South Tyrol, Bozen/Bolzano, Italy (2 ♂♂, N^os. ARV 4459, ARV 4990) and 1 ♂ coll. S. Ballini. Meran/Merano, train station of Untermals/Maia Bassa, 46.6561° N, 11.1483° E, 1 ♂, collected by chance on 11.04.2017, leg. S. Ballini.

Determination. Metzner (1999)

Distribution. *Saitis tauricus* is known from Hungary (Szita et al. 2004), on the Balkan Peninsula from Bulgaria (Deltshev & Blagoev 2001), Macedonia (Komnenov 2005) and Greece (Deltshev & Paraschi 1990, Metzner 1999), from the Marmara Region/Turkey (Topçu et al. 2005, Uyar & Uğurtaş 2012) and from Crimea/Ukraine (Kuvblyuk et al. 2016); see van Helsdingen (2018) and World Spider Catalog (2018). To date, no record is known from Italy (Pantini & Isaia 2018).

Habitat. Three of the four findings were made between November 2016 and May 2018 close to the city centre of the capital Bozen/Bolzano, in the main building of Eurac Research – Institute for Alpine Environment. These occasional records were found on walls and floors close to offices. Specimens were discovered as they were walking on computer screens and separation walls. One further specimen was found



Fig. 1: Habitus. **a.** frontal; **b.** dorsal and left pedipalp; **c.** ventral; **d.** retrolateral of a male *Saitis tauricus* Kulczyński, 1905 from Bozen/Bolzano, Italy (the right leg IV is missing)

in April 2017 at the train station of Untermals/Maia Bassa, a district of the city of Meran/Merano. This specimen was found near benches on the rail tracks.

Faunistics. Places of recent findings were urban areas such as buildings and gardens (Komnenov 2005 and this study). Natural habitats are litter layer and stony surfaces in forests as well as stony riverbanks, most of them close to waterbodies such as waterfalls and rivers (Greece, Metzner 1999). Further, individuals were collected in saltmarsh meadows (Hungary, Szita et al 2004) and under stones (Turkey, Uyar & Uğurtaş 2012). Males were recorded, with some exceptions (e.g. Komnenov 2005 and this study) from April to June with a peak in May, and females from April to July with a peak in June (Metzner 1999, Uyar & Uğurtaş 2012).

Discussion

These findings represent the first known records of *Saitis tauricus* Kulczyński, 1905 for the Autonomous Province of Bozen – South Tyrol and also for Italy. All four findings of males were made by chance in well-frequented urban areas similar to the findings in Macedonia (Komnenov 2005), implying an

adaption to anthropogenic influenced habitats (Fig. 2). These males could have been imported multiple times with goods from the Balkans; no female was found so far. Further, our findings could also indicate a small population that has established itself over a short time, since the males were found in three consecutive years (i.e. 2016 to 2018). Our findings are very similar to infrequent findings of *S. barbipes* in urban areas in Belgium (Lambeets et al. 2007), Germany (Bauer & Höfer 2017, Arachnologische Gesellschaft 2018) and the Netherlands (van Helsdingen 2000), where imports from excursions were discussed. However, more findings and research are needed to understand how *S. tauricus* arrived in the area of South Tyrol and whether it has established successfully.

Males were described to be 3.9 to 4.6 mm in size (the examined specimen in Fig. 1 was 4.6 mm), their prosoma being dark brown with a horn-yellow median stripe and white hairs, the head dorsally light grey (Metzner 1999). The opisthosoma was described as having a beige median stripe with black spots on the side (Metzner 1999), confirmed by our examined specimens (Fig. 1). A prominent characteristic of males from some European species of the genus *Saitis* (e.g. *S. bar-*

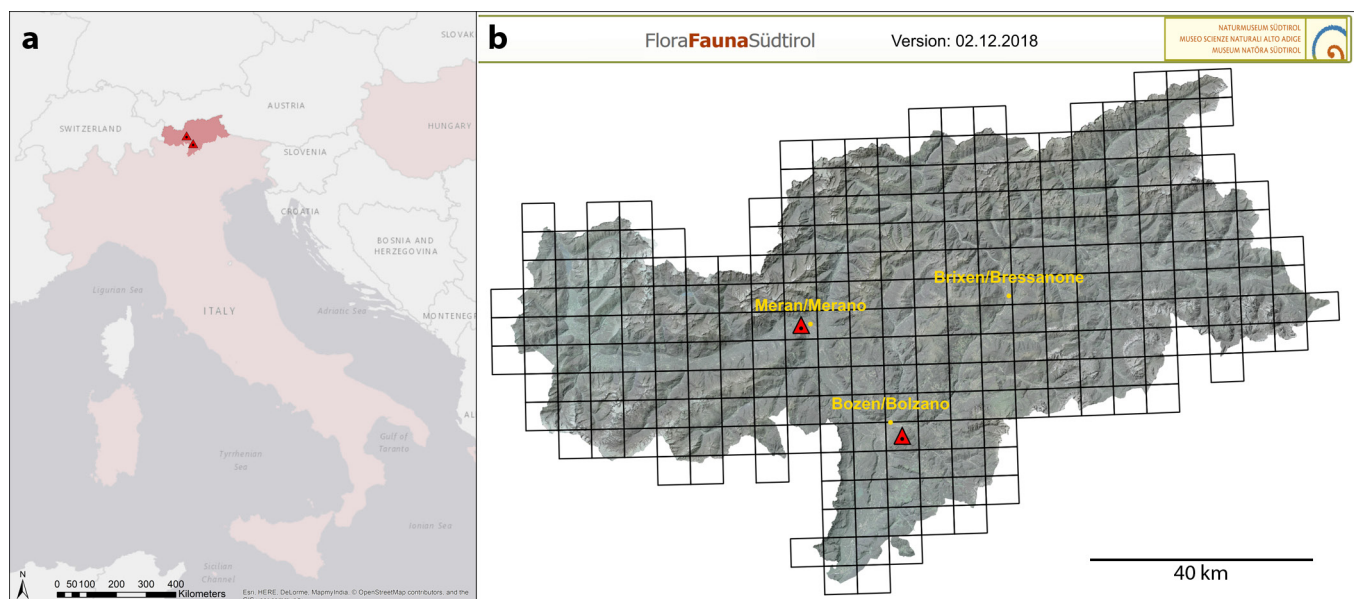


Fig. 2: Records of *Saitis tauricus* Kulczyński, 1905 in **a.** Italy (South Tyrol highlighted); **b.** the northernmost province Bozen – South Tyrol (quadrant size 6.3 × 5.6 km) (FloraFaunaSüdtirol 2018)

bipes, *S. graecus*, *S. tauricus*) are the long, dark, and differently shaped legs III. In detail, *S. tauricus* have red-brown hairs on patella, tibia and metatarsus with black hairs on tibia and metatarsus, and – high in contrast – long white hairs on the tarsus (Metzner 1999, see also Fig. 1). Compared to *S. barbipes* which was also recorded for South Tyrol, legs I and II are not striped and generally the habitus is less colourful.

Until the first finding of *S. tauricus* in November 2016, only the species *S. barbipes* was known from South Tyrol. Findings of *S. barbipes* include the same area as for *S. tauricus* which includes both the cities of Bozen/Bolzano and Meran/Merano, the South Tyrolean Unterland in the south of Bozen/Bolzano, and further up to the north in the Eisack Valley close to the city of Brixen/Bressanone (FloraFaunaSüdtirol 2018).

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