In the course of recent investigations, our knowledge of the Slovak spider fauna has increased significantly (Šestáková et al. 2018, Gajdoš et al. 2019a). The number of recorded spider species in Slovakia is currently 969 (Gajdoš et al. 2018). Two independent studies, focusing on investigating spider assemblages in threatened and synanthropic habitats in the Danube Plain, discovered two spider species hitherto unknown in Slovakia. The first of these is *Clubiona pseudoneglecta* Wunderlich, 1994 belonging to the family Clubionidae. In Slovakia, 28 species of this family have previously been documented (Gajdoš et al. 2018, Nentwig et al. 2020). The second new record is *Paratrachelas maculatus* (Thorell, 1875) from the family Trachelidae. Only one species from this family, *Cetonana laticeps* (Canestrini, 1868), had previously been recorded in Slovakia (Gajdoš et al. 2018). The genus *Paratrachelas* is thus new to the Slovakian spider fauna. The aim of our study was to provide new information on the distribution and habitats of these two very rare spider species in Central Europe.

### Material and methods

The study sites are situated in the Pannonian Region of the Danubian Lowland (south-western Slovakia). According to Pecho et al. (2008) climate in the Danubian Lowland has recently begun to show some features typical for the Mediterranean region with its warmer spells and aridization trends.

The presented species were recorded at the following four studied sites (Figs 1, 2):

1. **A. Šenkvice cattle farm** (48.3402°N, 17.3606°E, 175 m a.s.l.) – Šenkvice cadastre. The farm consists of several cattle shelters. Malaise traps were placed in nitrophilous ruderal vegetation with shrubs near a dunghill. Four traps were used from May to Oct. 2015 and two traps from May to Aug. 2016. Their detailed location, along with habitat characteristics, was published by Semelbauer & Vidlička (2015) and Majšan & Vidlička (2016).

2. **B. Tomášikovský pretep Natural Monument** (48.0863°N, 17.6728°E, 110 m a.s.l.) – rural area of Tomášikovo cadastre. The habitat was an abandoned and partly excavated sand dune (used as a sand pit) with psammophilous grasslands located in the intensively used agricultural landscape. Pitfall traps were set from 14. Feb. to 8. Nov. 2019. Their detailed location, along with habitat characteristics and composition of ground living spider community was published by Gajdoš et al. (2019b).

3. **C. Nature Reserve Síky** (48.2208°N, 17.8972°E, 115 m a.s.l.) – rural area of Močenok cadastre. The habitat consists of grass-herb stands on strongly saline soils located near the agricultural landscape. Pitfall traps were set from 17. Apr. 2018 to 16. Apr. 2019.

4. **D. Urban parks in the town of Galanta** (48.1844°N, 17.7355°E, 123 m a.s.l.) – urban park of the Neo-Gothic castle of Galanta (the oldest and largest park in the city with a rich collection of trees). Bark trapping was used during the winter of 2017/2018 (3. Dec. 2017 – 20. Jan. 2018). Corrugated cardboard trap bands were placed around the trunk (Szinétár & Horváth 2006).

Specimens were identified to species level using the determination keys in Nentwig et al. (2020). Nomenclature follows the World Spider Catalog (2020). The epigyne of *C. pseudoneglecta* was cleared and photographed in lactic acid, then returned to 70% ethanol. Pictures of spiders were taken using different stereomicroscopes: an Olympus SZX16 with an Olympus SC 100 camera and Olympus Stream basic software; a Nikon SMZ18 with NIS-Elements software; and an Intraco Micro STM 823 5410 with a Canon EOS 100D camera using EOS Utility software. Photos were stacked using Zerene Stacker and edited in Adobe Photoshop®, all measurements were made from photographs using Axio Visi on v.4.6. The specimens were stored in 70% ethanol and have been deposited in the collections of P. Gajdoš at the Institute...
Results and discussion

*Clubiona pseudoneglecta* Wunderlich, 1994

**Material.** SLOVAKIA, Šenkvice, farm, Malaise trap 10. – 30. Jun. 2016, 4 ♀♀, leg. O. Majzlan, det. P. Gajdoš; Síky Nature Reserve, pitfall traps, 7. Jul. – 8. Aug. 2018, 1 ♂, leg. and det. P. Gajdoš; Tomášikovský presyp Natural Monument, pitfall traps, 24. Jun. – 8. Jul. 2019, 1 ♂, leg. P. Gajdoš & P. Purgat, det. P. Gajdoš.

**Distribution.** Morocco, Algeria, Europe, Caucasus (World Spider Catalog 2020). This species has been reported in many European countries, but seems to be lacking in the northern part of Europe, including the Baltic region and Scandinavia.
It was first found and described in Germany (Wunderlich 1994), and thereafter recorded in Europe in Hungary (Mikhailov & Szinetár 1997), Belgium and the Netherlands (Roberts 1998), Ukraine, Bulgaria and Moldavia (Mikhailov 2003, Polchaninova & Prokopenko 2019), Switzerland (Pozzi & Hänggi 1998), Great Britain and France (Merrett 2001), Czechia (Buchar & Růžička 2002), Slovenia (Kuntner 1997), Serbia (Grbić & Savić 2010), the European part of Russia (Ponomarev & Polchaninova 2006, Sozontov & Esyunin 2012, Ponomarev & Khnykin 2013), the European part of Turkey (van Helsdingen 2013), North Macedonia (Komnenov 2014), Spain and Greece (Bosmans et al. 2017), Croatia and Bulgaria (Blagoev et al. 2018), Italy (Pantini & Isaia 2019), Cyprus (Bosmans et al. 2019) and now in Slovakia. Bosmans et al. (2017) inadvertently confused the country names Slovenia and Slovakia, thus giving the impression that the occurrence of this species in Slovakia had already been published by Kuntner & Šereg (2002).

The species has so far been confirmed in Slovakia at three of the localities described above, but we consider it likely that *C. pseudoneglecta* might have been mistaken in the past with the very similar species – *C. neglecta*. A review of old records of *C. neglecta* in Slovakia is therefore called for. This has already been done elsewhere: the first reports of *C. pseudoneglecta* from Great Britain included reassignment of older reports of *C. neglecta* (Merrett 2001).

**Body size.** Female: body length 5.94–7.41 mm; prosoma length 2.38–2.47 mm, width 1.85–1.94 mm; opisthosoma length 3.72–5.14 mm, width 2.29–2.98 mm. General appearance of the female from dorsal and ventral side is as depicted in Figs 3–4 and its epigyne as in Figs 5–6.

Male: body length 5.01 mm; carapace length 2.40 mm, width 1.78 mm; opisthosoma length 2.36 mm, width 1.60 mm. General appearance of the male from dorsal side as depicted in Fig. 7; its bulb is shown in Fig. 8 and details of the tibial apophysis in Fig. 9.

**Habitats.** This species is classified as xerophilic and thermophilic (Buchar & Růžička 2002, Isaia et al. 2007), but very little is known about its biology. It has been recorded in dry meadows and on warm, south-exposed slopes (Nentwig et al. 2020). In Germany, it was reported from a vineyard fallow adjacent to semi-dry grasslands (Wunderlich 1994). In Britain, it has been recorded on sand dunes with sparse vegetation on fore-dunes and also on dense grassland on stabilised dunes (Merrett 2001). It has also been recorded on sand dunes in Belgium and the Netherlands (Russell-Smith 2009). However, further south in Europe, it was collected in oak forests in France (Le Peru 2007), in deciduous woodland forest edges in Serbia (Grbić & Savić 2010), and from relatively dry to mesophilic grassland habitats in Germany and Hungary (Russell-Smith 2009) and Serbia (Grbić & Savić 2010). Russell-Smith (2009) collected this species in a sycamore woodland on the Mediterranean coast of Turkey. In the European part of Turkey, it was found in a wet area with *Juncus* sp. (van Helsdingen 2013). Italian specimens were recorded on low vegetation in meadows (Isaia et al. 2007). Other specimens were collected in ungrazed dry grassland (Milasowszky et al. 2016) and from salt meadows in Austria (Milasowszky & Waitzbauer 2008).

The only historical record without information on the habitat is from the Czech Republic. A specimen recorded in 1958 in Lednice (south Moravia – the warmest part of Czechia) was discovered in F. Miller’s collection among the material of *C. neglecta* (Buchar & Růžička 2002). All our records are from southern part of Slovakia (Pannonian Region) from areas with very dry and hot climate. Based on published records

Figs 3–6: *Clubiona pseudoneglecta* female from Slovakia. 3. Habitus, dorsal view; 4. Idem., ventral view; 5. Cleared epigyne, ventral view; 6. Idem., dorsal view (photos: A. Šestáková)
and our findings, it has been confirmed that *C. pseudoneglecta* occurs in both natural and anthropogenic habitats, but appears to prefer dry and warm habitats.

**Red list.** *Clubiona pseudoneglecta* was included in the red lists of many countries or regions. In Belgium it is listed in the regional red list of Flanders in category IN (Indeterminate) (Maelfait et al. 1998), in Czechia in the national red list in category CR (Critically Endangered) (Řezáč et al. 2015) and in the regional red list of the Czech Carpathians in category CR (Critically Endangered) (Gajdoš et al. 2014), in Germany in the category G (Generally Threatened) (Blick et al. 2016) and in the regional red list of Bavaria in category 2 (Endangered) (Blick & Scheidler 2004), in the United Kingdom in the national red list in category VU (Vulnerable) (Harvey et al. 2017), in Hungary in the regional red list of the Hungarian Carpathians in category LC (Least Concern) (Gajdoš et al. 2014), and in Slovenia in the national red list in category R (rare) (Uradni list Republike Slovenije 2002).

*Paratrachelas maculatus* (Thorell, 1875)

**Material.** SLOVAKIA, Galanta, urban parks; the specimens were in the bark trap, suggesting that the species lives under the bark of *Tilia cordata* and *Pinus nigra*, 3. Dec. 2017 – 18. Jan. 2018, 2 ♀♀, leg. K. Román & C. Szinetár, det. C. Szinetár.

**Distribution.** This species has been recorded in Europe in ten countries, namely Austria and Germany (Bauer & Grabolle 2012, Bauer & Höfer 2017, Bauer et al. 2019), Bulgaria (Blagoev et al. 2018), France (Bosselaers et al. 2009), Spain – Mallorca (Pons & Palmer 1996), Croatia (Grbac et al. 2019), Hungary (Kolosváry 1932), Italy (Trotta 2005, Pantini & Isaia 2019), Slovenia (Kostanjšek & Kunstner 2015), Ukraine (Kovblyuk & Nadolny 2009), and now in Slovakia. There are also records from Turkey and Israel (World Spider Catalog 2020).

**Body size.** Female: body length 4.20 and 4.82 mm; prosoma length 1.60 and 1.85 mm, width 1.70 and 1.81 mm; opisthosoma length 2.60 and 2.97 mm, width 2.20 mm each.

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**Figs 7-9:** *Clubiona pseudoneglecta* male from Slovakia. 7. Habitus, dorsal view; 8. Bulbus, ventral view; 9. Palpal tibia, retrolateral view (photos: P. Gajdoš, P. Purgat)

**Figs 10-12:** *Paratrachelas maculatus* female from Slovakia. 10. Habitus, dorsal view; 11. Idem., ventral view; 12. Epigyne, ventral view (photos: A. Šestáková)
General appearance of the female from dorsal and ventral side is as depicted in Figs 10-11, and its epigyne as in Fig. 12.

Habitat: Paratrachelas maculatus was collected using pitfall traps and under tree bark in the sub-Mediterranean parklands of south Crimea (Kovbluyk & Nadolny 2009). Several records point to its synanthropic occurrence in Europe. In Austria, the species was found inside a house, and in Germany in a cellar and bathroom (Bauer & Grabolle 2012, Bauer et al. 2019). Recently, it has been observed on the walls of the buildings in the town centre of Keszthely (Balaton Uplands, Hungary) (B. Keresztes pers. comm.). So far, the species has not been considered a typically bark-dwelling Central European spider (Szinetár & Horváth 2006). Specimens from Slovakia have been found outside buildings under the bark of two different tree species (Tilia cordata, Pinus nigra). The observations of Kovbluyk & Nadolny (2009) and our data from Slovakia support classifying P. maculatus as a facultative bark-dweller, which permanently or seasonally uses tree trunks as typical, but not exclusive, microhabitats. This is similar to other facultative bark-dwellers such as Gnaephosa montana (L. Koch, 1866) or Phrurolithus festivus (C. L. Koch, 1835), for which rocks, cracks in rocks, and artificial walls also constitute typical habitats (Szinetár & Horváth 2006). We assume that this species is already present on the trees of city parks of many other countries in Central Europe. The further spread of P. maculatus to the north and west is to be expected.

Red list: Paratrachelas maculatus has not been included in any Red List, e.g., in the German Red List this species is still stated as not established (Blick et al. 2016). Based on new records Bauer et al. (2019) discussed whether it can be regarded as established, alien species in Germany.

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References
Bauer T & Höfer H 2017 Erstnachweis von Oxyopes lineatus in der Maghreb, with notes on the genevensis group and new records from the Mediterranean Region. – Zootaxa 4353: 1-28 – doi: 10.11646/zootaxa.4353.1.1
Bosmans R, Henard A, Benhalima S & Kherbouch-Abrous O 2017 The genus Clubiona Lateville, 1904 (Araneae: Clubionidae) in the Carpathian Mts. In: Kadlečík J. (ed.) Carpathian red list of invasive alien species (Araneae) of Central and Eastern Europe. – Acta entomologica Serbica 15: 243-260 [in Slovak]
Blagoev G, Deltshev C, Lazarov S & Naumova M 2018 The spiders (Araneae) of Bulgaria. Version: August 2018. National Museum of Natural History, Bulgarian Academy of Sciences. – Internet: http://www.nnmhs.com/spiders-bulgaria/ (3. Sep. 2020)
Blick T, Finch O-D, Harms KH, Kiechle J, Kiellhorn K-H, Kreuels M, Malten A, Martin D, Muster C, Nährig D, Platen R, Rödel I, Scheidler M, Staudt A, Stumpf H & Tolke D 2016 Rote Liste und Gesamtartenliste der Spinnen (Arachnida: Araneae) Deutschlands. – Naturschutz und Biologische Vielfalt 70 (4): 383-510
Blick T & Scheidler M 2004 Rote Liste gefährdeter Spinnen (Arachnida: Araneae) Bayerns. – Schriftenreihe Bayerisches Landesamt für Umweltschutz 166: 309-321
Bosmans R, Van Keer J, Russell-Smith A, Hadjiconstantis M, Kommenov M, Bosselaers J, Huber S, McConway D, Snaszl R, Decea A, Zoumides C, Kiellhorn K-H & Oger P 2019 Spiders of Cyprus (Araneae). A catalogue of all currently known species from Cyprus. – Arachnological Contributions. Newsletter of the Belgian arachnological Society 34, Suppl.: 1-173
Bosselaers J, Urones C, Barrientos JA & Alberdi JM 2009 On the Mediterranean species of Trachelae (Araneae, Clubionidae) with a revision of Trachelae L. Koch 1872 on the Iberian Peninsula. – Journal of Arachnology 37: 15-38 – doi: 10.1636/A08-33.1
Buchar J & Růžička V 2002 Catalogue of spiders of the Czech Republic. Peres Publishers, Praha. 351 pp.
Gajdoš P, Černecká Ľ. & Šestáková A 2019a Pannonic salt marshes of Natural History, Bulgarian Academy of Sciences. – Internet: http://www.european-arachnology.org/wdp/?page_id=59 (3. Sept. 2020)
Kostanjek R & Kunter M 2015 Araneae Sloveniae: a national spider species checklist. – ZooKeys 474: 1-91 – doi: 10.3897/zookeys.474.8474

Kovblyuk MM & Nadolny AA 2009 The spider genus Trachelas L. Koch, 1872 in Crimea and Caucasus with the description of Paratrachelas gen. n. (Aranei: Corinnidae). – Arthropoda Selecta 18: 35-46

Kunter M 1997 Prišpevek k poznavanju fajne pajič jugozahodne Slovenije in ugotavljanje vrstnega bogastva pajič gozda na Brkinih (Arachnida: Araneae) [Contribution to the knowledge of the spider fauna of south-western Slovenia with an estimation of spider species richness of a Brkini forest]. In: Bedjanic M (ed.) Raziskovalni tabor študentov biologije Podgrad '96. Zveza organizaci za tehnično kulturo, Gibanje znanost mladini, Ljubljana. pp. 11-32 [in Slovenian]

Kunter M & Šereg I 2002 Additions to the spider fauna of Slovenia, with a comparison of spider species richness among European countries. – Bulletin of the British arachnological Society 12: 185-195

Le Pérou B 2007 Catalogue et répartition des araignées de France. – Revue arachnologique 16: 1-468

Majzlán O & Vidlička Ľ 2016 Osobitná diverzita chrobákov (Coleoptera) v okolí kravín. [Specific diversity of beetles (Coleoptera) near cowsheds]. – Entomofauna carpathica 28: 1-13 [in Slovak]

Macfaiť JP, Baert L, Janssen M & Alderweireldt M 1998 A Red list for the spiders of Flanders. – Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Entomologie 68: 131-142

Merrett P 2001 Clubiona pseudoneglecta Wunderlich, 1994, a clubionid spider new to Britain (Araneae: Clubionidae). – Bulletin of British arachnological Society 12: 32-34

Mikhailov KG 2003 The spider genus Clubiona Latreille, 1804 (Aranei: Clubionidae) in the fauna of the former USSR: 2003 update. – Arthropoda Selecta 11: 283-317

Mikhailov KG & Szinetár C 1997 Spiders of the genus Clubiona Latreille, 1804 (Aranei, Clubionidae) in Hungary. – Miscellanea zoologica hungarica 11: 49-68

Milasowszky N & Wairzbauer W 2008 Die Spinnenfauna (Arachnida, Araneae) beiedweiter und unbewiedeter Trockenrasen und Salzwiesen im Nationalpark Neusiedler See-Seewinkel. – Abhandlungen der Zoologisch-Botanischen Gesellschaft Österreich 37: 107-124

Milasowszky N, Wairzbauer W & Zilka KP 2016 A tale of two plots: Welche Geschichte erzählen zwei Trockenrassen-Spinnengemeinschaften über die Beweidung im Seewinkel? – Acta Zootouralia Austria 153: 107-121

Nentwig W, Blick T, Gloor D, Häggi A & Kropf C 2020 Spider distribution of Europe, version 9.2020. – Internet: http://www.araneae.nmbe.ch (3. Sep. 2020) – doi: 10.24436/1

Pantini P & Isai M 2019 Araneae.it: the online catalog of Italian spiders, with addenda on other arachnid orders occurring in Italy (Arachnida: Araneae, Opiliones, Palpigradi, Pseudoscorpionida, Scorpioidea, Solifugae). – Fragmenta Entomologica 51: 127-152 – doi: 10.4081/fe.2019.374

Pech O, Fáško P & Melo M 2008 Precipitation deficit periods in the Danubian lowland in Slovakia. In: Brilly M & Sraj M (eds.) XXIV Conference of the Danubian Countries on the Hydrological Forecasting and Hydrological Bases for Water Management, Bled, Slovenia, 2-4 June 2008. 15 pp. – Internet: http://koh.ffd.unij.lj.si/bled2008/cd_2008_02_Hydro-meteorologica%20extremes,%20floods%20and%20droughts/101_Pecho.pdf (3. Sep. 2020)

Polchaninova N & Prokopenko E 2019 An updated checklist of spiders (Arachnida: Araneae) of Left-Bank Ukraine. – Arachnologische Mitteilungen 57: 60-64 & Appendix – doi: 10.30963/aramit5711

Ponomarev AV & Khnykin AS 2013 Spiders (Aranei) of Volgograd city and its environs. – The South of Russia: ecology, development 4: 109-136 [in Russian, English abstract]

Ponomarev AV & Polchaninova NY 2006 The materials on the fauna of spiders (Aranei) of Belgorod area. – Caucasian Entomological Bulletin 2: 143-164 [in Russian, English abstract]

Pons GX & Palmer M 1996 Fauna endémica de les illes Balears. – Newsletter of the British arachnological Society 12: 32-34

Ponomarev AV & Polchaninova NY 2005 Red List of Czech spiders: 3rd edition, adjusted according to evidence-based national conservation priorities. – Biologia 70: 645-666 – doi: 10.1515/biolog-2015-0079

Semelbauer M & Vidlička Ľ 2015 Tiefvögel (Diptera, Lauxaniidae) a siefokridlovcie (Neuroptera) v areáli PD Šenkcove (Trnavská pahorkatina) [Lauxaniid flies (Diptera, Lauxaniidae) and neuropterans (Neuroptera) in AC Šenckvice area (Trnavská pahorkatina uplands)]. – Entomofauna carpathica 27: 1-9 [in Slovak]

Sozontov AN & Eysunil SL 2012 On the spider fauna (Arachnida: Aranei) of Udmurt Republic. – Arthropoda Selecta 21: 85-95 – doi: 10.15298/arhsel.21.108

Szinetár C & Horváth R 2006 A review of spiders on tree trunks in Europe (Araneae). In: Deltchev C & Stoev P (eds) European Arachnology 2005. – Acta zoologica bulgarcha, Supplement 1: 221-257

Šestáková A, Mock A, Christophoryová J & Gajdoš P 2018 Two subtessaraneean-swirling spiders new to Slovakia (Araneae: Li nephidiidae). – Arachnologische Mitteilungen 55: 25-29 – doi: 10.30963/aramit5504

Trotta A 2005 Introduzione ai ragni italiani (Arachnida Araneae). – Memorie della Società Entomologica Italiana 83: 3-178

Uradni list Republike Slovenije 2002 Pravilnik o uvrstitvi ogroženih rastlinskih in živalskih vrst v rdeči seznam. [Rules on the inclusion of endangered plant and animal species on the red list.] MP82/02: 8893-8975. Version 2002. – Internet: https://www.uradni-list.si/glasiro-uradni-list-rs/vsebina/2002-01-4055?op=2002-01-4055 (3. Sep. 2020) [in Slovenian]

World Spider Catalog 2020 World spider catalog, Version 21.5. Natural History Museum Bern. – Internet: http://wsc.nmbe.ch (3. Sep. 2020) – doi: 10.24436/2

Wunderlich J 1994 Beschreibung der bisher unbekannten Spinnen-Art Clubiona pseudoneglecta der Familie der Sackspinnen aus Deutschland (Arachnida: Araneae: Clubionidae). – Entomologische Zeitschrift 104: 157-160