

**VICARIANCE OF TWO CLOSELY RELATED SPIDER SPECIES FROM GENUS
PHILODROMUS WALCKENAER, 1826: *P. ALBIDUS* KULCZYNSKI, 1911 AND *P. RUFUS*
WALCKENAER, 1826 (ARANEI, PHILODROMIDAE) IN THE CRIMEA**

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Here we report records of two closely related species of the genus *Philodromus* Walckenaer, 1826: *P. albidus* Kulczynski, 1911 and *P. Rufus* Walckenaer, 1826. *P. albidus* is recorded for the Crimea and Ukraine for the first time. Information on all collected specimens of both species is provided.

P. albidus differs from *P. rufus* in shape of retrolateral tibial apophysis, shape of tegulum and length of embolus, as well as length of copulatory duct of epigyne. Detailed diagnostic drawings of morphological characters for both species are provided.

Seasonal activities of *P. albidus* and *P. rufus* in the Crimea are similar. Adult specimens of *P. albidus* in the Crimea are found in June, like in Adygeya and England. Adult specimens of *P. rufus* in the Crimea are found from April to June and in August. The peak of activity is in May, like in Spain. No significant differences in phenology of both species are found.

Spatial distributions of *P. albidus* and *P. rufus* in the Crimea are different. *P. albidus* is recorded only from the wet nemoral (broadleaved) forests of the northern slope of Crimean Mountains. *P. rufus* was found in true steppes, premontane forest steppes, forests of the southern slope of the Crimean Mountains and sub-Mediterranean vegetation of the southern coast of the Crimea. Therefore, we found spatial vicariance of these closely related species in the Crimea. Landscape distribution of *P. albidus* and *P. rufus* is mapped.

Keywords: spiders, *Philodromus*, vicariance, spatial distribution, phenology, Crimea.

References

1. Kastrygina Z. A., Kovblyuk M. M., A review of the spider genus *Thanatus* C.L. Koch, 1837 in Crimea (Aranei: Philodromidae), *Arthropoda Selecta*, **22** (3), 239 (2013).
2. Kastrygina Z. A., Kovblyuk M. M., The spider genus *Pulchellodromus* Wunderlich, 2012 in the Crimea (Aranei: Philodromidae), *Arthropoda Selecta*, **23** (3), 279 (2014).
3. World Spider Catalog. Natural History Museum Bern, 2016. Database. Version 17.0 (accessed on 29.01.2016). 2016, www.wsc.nmbe.ch.
4. Wunderlich J., Contribution to taxonomy and evolution of the european genera of the spider family Philodromidae (Araneae), *Beiträge zur Araneologie*, **7**, 25 (2012).
5. Kulczyński W., Araneae a Dre G. Horvath in Bessarabia, Chersoneso Taurico, Transcaucasia et Armenia Russica collectae, *Termesztrajzi Fuzetek*, **18**, 3 (1895).
6. Spassky S. A., Materialy k faune paukov Tavricheskoy gubernii, *Izvestiya Donskogo instituta cel'skogo khozyaystva i melioratsii*, **7**, 66 (1927).
7. Charitonov D. E., *Katalog russkikh paukov* [Prilozhenie k tomu 32 Ezhegodnika zoologicheskogo muzeya], 206 p. (Izdatel'stvo Akademii nauk SSSR, Leningrad, 1932).
8. Charitonov D. E., Dopolnenie k katalogu russkikh paukov, *Uchenye zapiski Permskogo universiteta*, **2(1)**, 167 (1936).
9. Bukovski V. I., Naselenie bespozvonochnykh Krymskogo bukovogo lesa (Biotsenologicheski ocherk), *Trudy Krymskogo goszapovednika*, **1**, 3 (1936).
10. Bukovski V. I., Animal population of invertebrates – mainly blight – on oak foliage in the Crimean State Reservation, *Trudy Krymskogo gosudarstvennogo zapovednika*, **2**, 39 (1940).
11. Charitonov D. E., Contribution to the fauna of Crimean spiders, *Festschrift zum 60 Geburstage von Professor Dr. Embrik Strand*, **3**, 127 (1937).
12. Tolstova Yu. S., Atanov N. M., Effect of the chemical means of plant protection on the fauna of arthropods in the orchads. I. Long term application of the pesticides to the agrobiocenosis, *Entomologicheskoe obozrenie*, **61** (3), 441 (1982).
13. Mikhailov K. G., *Catalogue of the spiders of the territories of the former Soviet Union (Arachnida, Aranei)*, 416 p. (Zoological Museum of the Moscow State University, Moscow, 1997).
14. Mikhailov K. G., *Catalogue of the spiders (Arachnida, Aranei) of the territories of the former Soviet Union. Addendum 1*, 50 p. (KMK Scientific Press Ltd, Moscow, 1998).

15. Kovblyuk M. M., Catalogue of the spiders (Arachnida: Aranei) of the Crimea. Voprosy razvitiya Kryma. Nauchno-prakticheskiy i diskussionno-analiticheskiy sbornik, **15**, Problemy inventarizatsii krymskoi bioty, *Tavriya-Plus*, 211 (2004).
16. Kovblyuk M. M., Nadolny A. A., Gnelitsa V. A., Zhukovets E. M., Spiders (Arachnida, Aranei) of the Martyan Cape Reserve (Crimea, Ukraine), *Caucasian entomological bull.*, **4** (1), 3 (2008).
17. Kovblyuk M. M., The preliminary report about spiders (Arachnida, Aranei) in Yalta Mountain-Forest Reserve (Crimea), *Scientific Notes of V.I. Vernadsky Crimean Federal University, Series: Biology, chemistry*, **25** (4), 82 (2012).
18. Kovblyuk M. M., New data about spiders (Arachnida, Aranei) in Crimean Nature Reserve (Crimea), *Scientific Notes of V. I. Vernadsky Crimean Federal University, Series: Biology, chemistry*, **26** (1), 61 (2013).
19. Mikhailov K. G., The spiders (Arachnida, Aranei) of Russia and adjacent countries: a non-annotated checklist, *Arthropoda Selecta, Supplement No.3*, 1 (2013).
20. Kovblyuk M. M., Kastrygina Z. A., Updated catalogue of the spiders (Arachnida, Aranei) of the Crimea, *Ukrainska Entomofaunistyka*, **6** (2), 1 (2015).
21. Kovblyuk M. M., Kastrygina Z. A., On two closely related funnel-web spider species, *Agelena orientalis* C.L. Koch, 1837, and *A. labyrinthica* (Clerck, 1757) (Aranei, Agelenidae), *Arthropoda Selecta*, **20** (4), 273 (2011).
22. Nadolny A. A., Kovblyuk M. M., On two closely related wolf spider species *Alopecosa beckeri* (Thorell, 1875) and *A. taeniolatus* (Kulczynski, 1895) (Aranei, Lycosidae), *Arthropoda Selecta*, **19** (4), 237 (2010).
23. Nadolny A. A., Ponomarev A. V., Kovblyuk M. M., Dvadnenko K. V., New data on *Pisaura novicia* (Aranei: Pisauridae) from eastern Europe, *Arthropoda Selecta*, **21** (3), 255 (2012).
24. Almquist S., Swedish Araneae, part 2: families Dictynidae to Salticidae, *Insect Syst. Evol.*, **63**, 285 (2006).
25. Muster Ch. Bosmans R., Thaler K., The *Philodromus pulchellus*-group in the Mediterranean: taxonomic revision, phylogenetic analysis and biogeography (Araneae: Philodromidae), *Invertebrate Systematics*, **21**, 39 (2007).
26. Muster Ch., Phylogenetic relationships within Philodromidae, with a taxonomic revision of *Philodromus* subgenus *Artanes* in the western Palearctic (Arachnida: Araneae), *Invertebrate Systematics*, **23**, 135 (2009a).
27. Muster Ch., The *Ebo*-like running crab spiders in the Old World (Araneae, Philodromidae), *ZooKeys*, **16**, 47 (2009b).
28. Segers H., A redescription of *Philodromus albidus* Kulczyński, 1911 (Araneae, Philodromidae), *Bulletin of the British Arachnological Society*, **8** (2), 38 (1989).
29. Heimer S., Nentwig W., *Spinnen Mitteleuropas: Ein Bestimmungsbuch*, 543 p. (Verlag Paul Parey, Berlin, 1991).
30. Roberts M. J., *Spinnengids*, 397 p. (Tirion, Baarn, 1998).
31. Helsdingen P. J., 2013. Fauna Europaea: Araneae. <http://www.faunaeur.org>. (Version 2.6.2).
32. Nentwig W., Blick T., Gloor D., Hänggi A., Kropf C., 2016. Spiders of Europe. www.araneae.unibe.ch. (Version 03.2016).
33. Harvey P. R., Nellist D. R., Tefler M. G., *Provisional Atlas of British spiders (Arachnida, Araneae)*. Vol. 1-2, 406 p. (Biological Records Centre, Huntington, 2002).
34. Urones C., La familia Philodromidae (Araneae) en el centro-oeste de la Península Iberica, *Boletín Asoc. esp. Entom.*, **10**, 231 (1986).
35. Kovblyuk M. M., Spiders (Arachnida, Aranei) of Crimea: faunogenesis and hypothesis of Pontida, *Ukrainska Entomofaunistyka*, **5** (2), 29 (2014).