

***Cheiridium tetrophthalmum* Daday, a new synonym of *Larca lata* (Hansen) (Pseudoscorpiones, Larcidae)**

Mark S. Harvey

doi: 10.5431/aramit4104

Abstract: *Cheiridium tetrophthalmum* Daday, 1889 is removed from the synonymy of *Geogarypus minor* (L. Koch, 1873), and treated as a junior synonym of *Larca lata* (Hansen, 1884). The distribution of *Larca lata* and *Geogarypus minor* is documented, and *L. lata* is recorded from Hungary for the first time.

Key words: Faunistics, *Geogarypus minor*, Hungary

The pseudoscorpion *Cheiridium tetrophthalmum* was described by DADAY (1889) from an unspecified number of specimens collected by Dr Joh. Pável from the Hungarian town of Vadé within Somogy County ("Somogy megye"). Vadé, which is nowadays known as Vadépuszta, is a part of the settlement of Gamás (Dr L. Dányi, Hungarian Museum of Natural History, Budapest, in litt.). Therefore, the type locality of *C. tetrophthalmum* is here regarded as Vadépuszta, Gamás (46°37'N, 17°46'E), Somogy County, Hungary. HARVEY (1991, 2009) inadvertently listed Vadé as occurring in Portugal.

The only other report of *C. tetrophthalmum* as a valid species was by DADAY (1918) who listed it amongst the pseudoscorpion fauna of the Hungarian Empire which at the time spanned several modern day countries in south-eastern Europe. BEIER (1932) treated *C. tetrophthalmum* as a junior synonym of *Geogarypus minor* (L. Koch, 1873), where it has remained ever since. *Geogarypus* was at the time included in Garypidae but has since been placed within Geogarypidae (HARVEY 1986, 2009).

DADAY's (1889) description of *C. tetrophthalmum* is inadequate by modern standards but he was one of the few 19th century pseudoscorpion taxonomists who provided illustrations of some of the taxa he described. The original description was provided in Latin and Hungarian, with illustrations of the pedipalps, carapace, setae, pedipalpal trochanter and cheliceral galea. The type material cannot be located amongst the pseudoscorpions in the Hungarian Museum of Natu-

ral History, Budapest, even though material of other species described by Daday are lodged there (Dányi in litt.). Therefore, it seems that the type material of *C. tetrophthalmum* is either lost or cannot currently be identified amongst the collection.

Cheiridium tetrophthalmum is clearly not a member of the genus *Cheiridium* or even of the family Cheiridiidae as currently defined. No cheiridiid has two pairs of eyes, as all described species have a single pair of small eyes (e.g. BEIER 1932, VITALI-DI CASTRI 1962, BEIER 1963a, BENEDICT 1978, DUMITRESCO & ORGHIDAN 1981, MAHNERT 1982, HARVEY 1992).

BEIER's (1932) decision to include *C. tetrophthalmum* within *G. minor* was undoubtedly based on the presence of four eyes and the strongly triangular carapace. At the time of the synonymy, *G. minor* was known from several southern European countries, so the synonymy was geographically acceptable. The drawings of *C. tetrophthalmum* by DADAY (1889) do not, however, resemble *G. minor* or any other geogarypid. The pedipalpal segments of *G. minor* are relatively robust, e.g. femur 3.3–3.4x and patella 2.8x longer than broad (BEIER 1932, 1963a), whereas the pedipalps of *C. tetrophthalmum* are more slender, e.g. femur 4.4x and patella 3.1x longer than broad (DADAY 1889, calculated from fig. 10). Furthermore the shape of the chelae is totally different. The paraxial face of the chelal hand of *G. minor* and most other geogarypids is noticeably convex, the chelal fingers are slightly curved in dorsal view and are longer than the chelal hand (BEIER 1932, 1963a). In *C. tetrophthalmum* the chelal hand is cylindrical with no trace of a paraxial convexity, the chelal fingers are less strongly curved and the fingers are noticeably shorter than the hand (DADAY 1889).

It is clear that *C. tetrophthalmum* is not a synonym of *G. minor* or indeed a member of the Geogarypidae. The illustrations depict instead a species of the family Larcidae which have all of the pedipalpal features noted above, as well as four eyes and a triangular carapace. The sole genus of Larcidae reported from Europe is

Mark S. HARVEY, Department of Terrestrial Zoology, Western Australian Museum, Locked Bag 49, Welshpool DC, Western Australia 6986, Australia; Division of Invertebrate Zoology, American Museum of Natural History; California Academy of Sciences, San Francisco; School of Animal Biology, University of Western Australia, Crawley, Western Australia 6009, Australia. E-mail: mark.harvey@museum.wa.gov.au

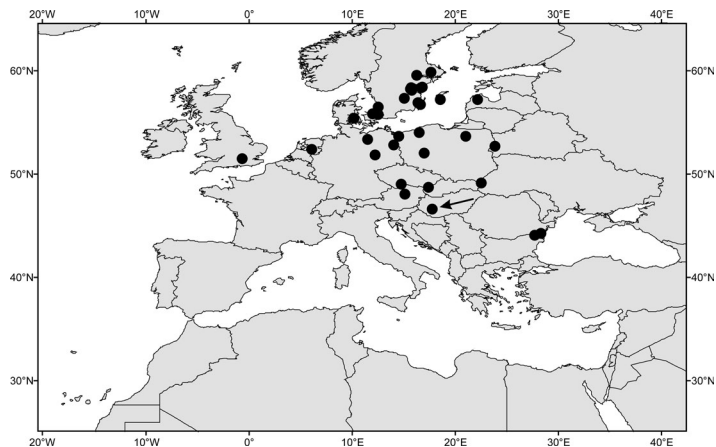


Fig. 1: Recorded distribution of *Larca lata* (Hansen). The type locality of *C. tetrophthalmum* Daday is indicated with an arrow.

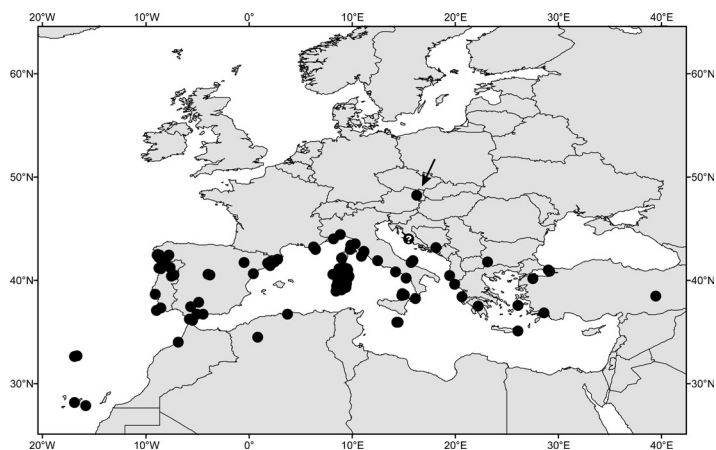


Fig. 2: Recorded distribution of *Geogarypus minor* (L. Koch). The Croatian record (represented by '?') is approximate as it is based on a country record only. The Austrian record (indicated with an arrow) may represent a population that has failed to survive.

Larca which is known from five cave-dwelling species, *L. bosselaersi* Henderickx & Vets, 2002 from Crete, *L. fortunata* Zaragoza, 2005, *L. hispanica* Beier, 1939 and *L. lucentina* Zaragoza, 2005 from Spain, and *L. italica* Gardini, 1983 from Italy, and the epigeal *L. lata* (Hansen, 1884). *Larca lata* is known from a variety of European locations, within the following countries: Austria, Bulgaria, Czech Republic, Denmark, Germany, Latvia, Netherlands, Poland, Romania, Slovakia, Sweden and United Kingdom (HARVEY 2009, CHRISTOPHORYOVÁ et al. 2011) (Fig. 1), and has been most recently redescribed by JUDSON & LEGG (1996), TOOREN (2001) and CHRISTOPHORYOVÁ et al. (2011). A population of an unidentified species of *Larca* has also been reported from a cave in southern France (LECLERC 1979; HEURTAULT 1986). The

only other species of Larcidae are found in North America where five species of *Archeolarca* and four species of *Larca* have been described (HARVEY 2009).

Although the description of *C. tetrophthalmum* by DADAY (1889) lacks sufficient detail to ascertain its true identity, it is reasonable to assume that *Cheiridium tetrophthalmum* is a synonym of *Larca lata*, as there is only one larcid species currently recognised in northern, central and eastern Europe. Accordingly, these two names are considered to be synonyms (**new synonymy**).

The material studied by DADAY (1889) represents the only specimens of *L. lata* thus far recorded from Hungary. The description of *C. tetrophthalmum* in 1889 represents the second published record of a larcid which is only predated by HANSEN's (1884) description of *Larca lata* (as *Garypus latus*) from Denmark. The first North American larcid, *L. granulata* (Banks, 1891) was described two years later from New York (BANKS 1891).

The removal of *C. tetrophthalmum* from the synonymy of *Geogarypus minor* also removes *G. minor* from the Hungarian fauna. HARVEY (2009) reported *G. minor* from a variety of southern European and north African countries, but two entries appear to be incorrect. The record from Sudan is incorrect, and I cannot now find any records from that country. The specimens described as *G. minor* by TULLGREN (1907) from Gebelein, Egypt represent the only record of this species from Egypt. They are considerably larger than *G. minor*, for example, the pedipalpal femur of the Egyptian specimens is reported to be 0.74 (♂) and 0.77 (♀) mm long, whereas *G. minor* has a length of 0.60 mm (BEIER 1963a). Also, the pedipalpal chela shape is quite different with an evenly convex paraxial hand margin in the Egyptian specimens (TULLGREN 1907, fig. 2) and a more angular paraxial margin in *G. minor* (BEIER 1963a). Therefore, the specimens from Egypt are excluded from *G. minor* and this species is excluded from the Egyptian fauna. Tullgren's description seems to better fit that of *G. mirei* Heurtault, 1970 from Chad or *G. pulcher* Beier, 1963 from the Middle East (BEIER 1963b, HEURTAULT 1970), but a more detailed scrutiny of the Egyptian specimens is required to ascertain their actual identity.

The distribution of *G. minor* based on published records is shown in Fig. 2. It ranges from Madeira and the Canary Islands in the west to Turkey in the east, with Austria as the most northerly record. The sole Austrian record, from Dornbach near Vienna (BEIER 1929), was suggested by MAHNERT (2004) to be perhaps based on an introduced population that failed to survive, as no further Austrian specimens have been reported since the original collection. It is likely that some older literature records are based on misidentifications with other species of *Geogarypus*, in particular with *G. nigrimanus* (Simon, 1879) (G. Gardini and J. Zaragoza in litt.).

Acknowledgements

I am very grateful to Dr László Dányi for information on the pseudoscorpions held in the Hungarian Natural History Museum, Budapest, and to Volker Mahnert, Juan Zaragoza and Giulio Gardini and two anonymous referees for their comments on the manuscript.

References

- BANKS N. (1891): Notes on North American Chernetidae. - Canadian Entomologist 23: 161-166
- BEIER M. (1929): Die Pseudoskorpione des Wiener Naturhistorischen Museums. II. Panctenodactyli. - Annalen des Naturhistorischen Museums in Wien 43: 341-367
- BEIER M. (1932): Pseudoscorpionidea I. Subord. Chthoniinea et Neobisiinea. - Tierreich 57: i-xx, 1-258
- BEIER M. (1963a): Ordnung Pseudoscorpionidea (After-skorpione). In: Bestimmungsbücher zur Bodenfauna Europas 1. Akademie-Verlag, Berlin. 313 pp.
- BEIER M. (1963b): Die Pseudoscorpioniden-Fauna Israels und einiger angrenzender Gebiete. - Israel Journal of Zoology 12: 183-212
- BENEDICT E.M. (1978): False scorpions of the genus *Apocheiridium* Chamberlin from western North America (Pseudoscorpionida, Cheiridiidae). - Journal of Arachnology 5: 231-241
- CHRISTOPHORYOVÁ J., FENĎA P. & J. KRÍŠTOFÍK (2011): *Chthonius hungaricus* and *Larca lata* new to the fauna of Slovakia (Pseudoscorpiones: Chthoniidae, Larcidae). - Arachnologische Mitteilungen 41: 1-6 - doi: 10.5431/aramit4101
- DADAY E. (1889): Ujabb adatok o magyar-fauna álskorpíónak ismeretéhez. - Természetrzaji Füzetek 12: 25-28
- DADAY E. (1918): Ordo Pseudoscorpiones. In: A Magyar Birodalom Allatvilága. Regia Societas Scientiarum Naturalium Hungarica, Budapest. Pp. 1-2
- DUMITRESCO M. & T. ORGHIDAN (1981): Représentants de la fam. Cheiridiidae Chamberlin (Pseudoscorpionidea) de Cuba. In: ORGHIDAN T., A. NÚÑEZ JIMÉNEZ, V. DECOU, ST. NEGREA & N. VIÑA BAYÉS (eds): Résultats des Expéditions Biospéologiques Cubano-Roumaines à Cuba, 3. Editura Academiei Republicii Socialiste România, Bucuresti. Pp. 77-87
- HANSEN H.J. (1884): Arthrogastra Danica: en monographisk fremstilling af de i Danmark levende Meiere og Mosskorpioner med bidrag til sidstnaevnte underordens systematic. - Naturhistorisk Tidsskrift (3) 14: 491-554
- HARVEY M.S. (1986): The Australian Geogarypidae, new status, with a review of the generic classification (Arachnida: Pseudoscorpionida). - Australian Journal of Zoology 34: 753-778 - doi:10.1071/ZO9860753
- HARVEY M.S. (1991): Catalogue of the Pseudoscorpionida. Manchester University Press, Manchester. vi, 726 pp.
- HARVEY M.S. (1992): The phylogeny and classification of the Pseudoscorpionida (Chelicerata: Arachnida). - Invertebrate Taxonomy 6: 1373-1435 - doi:10.1071/IT9921373
- HARVEY M.S. (2009): Pseudoscorpions of the World, version 1.2. Western Australian Museum, Perth. - <http://www.museum.wa.gov.au/research/databases/pseudoscorpions>. [accessed 15 February 2011]
- HEURTAULT J. (1970): Pseudoscorpions du Tibesti (Tchad). II. Garypidae. - Bulletin du Muséum National d'Histoire Naturelle, Paris (2) 41: 1361-1366
- HEURTAULT J. (1986): Pseudoscorpions cavernicoles de France: revue synoptique. - Mémoires de Biospéologie 12: 19-32
- JUDSON M.L.I. & G. LEGG (1996): Discovery of the pseudoscorpion *Larca lata* (Garypoidea, Larcidae) in Britain. - Bulletin of the British Arachnological Society 10: 205-210
- LECLERC P. (1979): Les phénomènes de spéciation chez les Pseudoscorpions cavernicoles des karsts de la bordure orientale des Cévennes (France). In: Rapport de DEA de Biologie évolutive des populations et des especes animales 7. Université Paris, Paris.
- MAHNERT V. (1982): Die Pseudoskorpione (Arachnida) Kenyas II. Feaellidae; Cheiridiidae. - Revue suisse de Zoologie 89: 115-134
- MAHNERT V. (2004): Die Pseudoskorpione Österreichs (Arachnida, Pseudoscorpiones). - Denisia 12: 459-471
- TOOREN D. VAN DEN (2001): First record of the pseudoscorpion *Larca lata* in the Netherlands (Pseudoscorpiones: Garypoidea: Larcidae). - Nederlandse Faunistische Mededelingen 15: 33-39
- TULLGREN A. (1907): Solifugae, Scorpiones und Chelonehi aus Ägypten und dem Sudan. In: Results of the Swedish Zoological Expedition to Egypt and the White Nile 1901 under the direction of L.A. Jägerskiöld, (A) 21: 1-12
- VITALI-DI CASTRI V. (1962): La familia Cheiridiidae (Pseudoscorpionida) en Chile. - Investigaciones Zoológicas Chilenas 8: 119-142