

Nomina dubia in the genus *Theridion* resulting from errors in instalment six of Carl Wilhelm Hahn's "Monographie der Spinnen" (Araneae: Theridiidae)

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Abstract. An overlooked error in the correlation of new scientific names with the spider images on plate 4 in Carl Wilhelm Hahn's sixth instalment of his book "Monographie der Spinnen" led to the notion that at least two of the spiders illustrated on plate 4 cannot be identified and their names are nomina dubia. Here, I draw attention to the fact that, if the names are re-aligned to the images in a meaningful way, then at least three spiders on plate 4 can be identified. *Theridion rufipes* sensu Hahn is a synonym of *Gongylidium rufipes* (Linnaeus, 1758) (**syn. conf.**). In particular, the previous nomen dubium *Theridion tibiale* Hahn, 1831 is a senior synonym of *Lasaeola tristis* (Hahn, 1833) (**syn. nov.**). Evidence is presented that the junior synonym is in prevailing usage and the senior synonym is therefore regarded as **nomen oblitum**.

Keywords: doubtful species, new synonym, nomenclature, reversal of priority

Zusammenfassung. Nomina dubia in der Gattung *Theridion* durch Fehler in Heft 6 von Hahn's „Monographie der Spinnen“ (Araneae: Theridiidae). Ein bislang übersehener Fehler in der Zuordnung der neu beschriebenen wissenschaftlichen Artnamen zu den Spinnenabbildungen auf Tafel 4 des sechsten Heftes von Carl Wilhelm Hahn's „Monographie der Spinnen“ führte zu der Auffassung, dass zumindest zwei der Spinnen auf Tafel 4 nicht identifiziert werden können und die Artnamen Nomina dubia sind. In dieser Notiz möchte ich darauf aufmerksam machen, dass mindestens drei Spinnen auf Tafel 4 identifiziert werden können, wenn man die Zuordnung der Namen zu den Abbildungen in sinnvoller Weise neu durchführt. *Theridion rufipes* sensu Hahn ist ein Synonym von *Gongylidium rufipes* (Linnaeus, 1758) (**syn. conf.**). Insbesondere das bisherige Nomen dubium *Theridion tibiale* Hahn, 1831 ist ein älteres Synonym von *Lasaeola tristis* (Hahn, 1833) (**syn. nov.**). Es werden Belege angeführt wonach das jüngere Synonym in vorherrschendem Gebrauch ist, und das ältere Synonym wird daher als **nomen oblitum** aufgefasst.

The work "Monographie der Spinnen" (i.e. "monograph of spiders") by Carl Wilhelm Hahn ranks among the rarest books in zoology. Only a handful of copies are known to exist worldwide and most of them are not complete (Sacher 1988). The work has been published in eight separate instalments called "Hefte", the first five of which have been authored by Hahn and published by Hahn himself (instalments 1 and 2; Hahn 1820, 1821) and later by the publisher, bookseller and arts dealer Johannes Jakob Lechner (instalments 3 to 5; Hahn 1822, 1826, 1827). The following instalments, i.e. Heft 6, Heft 7, and Heft 8 were published by Lechner without Hahn's consent, obviously as a result of a conflict between Hahn and his publisher. At the time when Heft 6 of the "Monographie der Spinnen" appeared, Hahn had already teamed up with a new publisher, C. H. Zeh

in Nuremberg, and had already started a new book series about spiders titled "Die Arachniden" (see also the detailed reconstruction of the history of Hahn's work by Sacher 1988). Even though Hahn fiercely opposed the publication of his unfinished material that was still in Lechner's possession (Hahn 1831b), he could not prevent Lechner from publishing this material, the first one (Heft 6) still with the signature "Dr Hahn", but the last two (Heft 7 and 8) signed by Lechner himself. The sole author of Heft 6 is unequivocally Hahn himself (Hahn 1831a), even though he did not give his consent for publication. Lechner, however, must be regarded as the author of Heft 7 and 8, but it appears that it was not his intention to also be identified as the author of the species names in these instalments, because he always gives "Hahn" as the authority. Therefore, I regard Lechner as the author of the last two instalments (Lechner 1833, 1836), but Hahn as the author of the species names within these two instalments. Because Lechner was not a specialist for spiders, however, he overlooked several mistakes in Hahn's unfinished manuscripts when he prepared them for publication. In this note,

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I would like to draw attention to a correlation error in the sixth instalment (Hahn 1831a) that resulted in the misidentification of some of the described species.

The sixth instalment comprises a single text page and 4 colourised plates. It figures 13 taxa, nine of which are newly described by Hahn. The identity of the taxa figured on plates 1 to 3 is undisputed, but the four taxa figured on plate 4 are problematic. The plate shows four spiders, each figured in three separate drawings (see Fig. 1A-D):

- (1) a sketch in natural size labelled with a lower case letter (a-d)
- (2) a magnified colourised figure labelled with an upper case letter (A-D)
- (3) a drawing of the abdomen in lateral aspect, labelled with arabic numerals (1-4).

The plate legend identifies the species on plate 4 as follows:

- Fig. aA1 is identified as "*Theridion nebulosum*, Hahn"
- Fig. bB2 is identified as "*Theridion dorsiger*, Hahn"
- Fig. cC3 is identified as "*Theridion tibiale*, Hahn"
- Fig. dD4 is identified as "*Theridion rufipes*, Linn."

By contrast, the text on the single text sheet of this instalment gives another combination and thus partially correlates the images with other names:

- Fig. aA1 is identified as "*Theridion dorsiger*, mihi"
- Fig. bB2 is identified as "*Theridion nebulosum*, mihi"
- Fig. cC3 is identified as "*Theridion tibiale*, mihi"
- Fig. dD4 is identified as "*Theridion rufipes*, Linn."

This mismatch between the text sheet and the plate legend indicates a problem with the correlation between the name descriptions and the images on the plate and there is no indication from the text or the plate that one of them is clearly a misprint. Therefore, the identity of all four taxa on plate 4 has to be re-considered de novo.

1. *Theridion dorsiger*

(dorsum = "back, ridge"; gerere = "to carry, bear, wear")

For this taxon Hahn uses the German name "hellrückige Webespinne" (i.e. "light-backed spider"). Thus, this name cannot refer to the spiders shown in Fig. cC3 and Fig. dD4, because they do not have a light-coloured back. The spiders in Fig. aA1 and Fig. bB2 fit better, but Fig. bB2 obviously fits best. Thus, the

correlation of the name *Theridion dorsiger* with Fig. bB2 as given in the plate legend appears to be correct, and the correlation of *Theridion dorsiger* with Fig. aA1 in the text sheet must be erroneous. The spider figured in Fig. bB2 clearly belongs to *Neottiura bimaculata* (Linnaeus, 1767) as stated by Menge (1866) and Bonnet (1959), and therefore *Theridion dorsiger* is correctly listed as a junior synonym of *N. bimaculata* in the World Spider Catalog (2015).

2. *Theridion nebulosum*

(nebulosus = "foggy, cloudy, murky")

The German name coined by Hahn for this taxon is "wolkige Webespinne" (i.e. "cloudy spider"). The only spider on plate 4 that may correlate with this name is the spider in Fig. aA1, because this figure shows a marbled-reticulate or "clouded" pattern on the opisthosoma. Thus, the correlation as given in the plate legend is correct, and the correlation in the text sheet is erroneous. The identity of this taxon is regarded as unclear and it is listed as a nomen dubium in the World Spider Catalog (2015). The figure shows that *Theridion nebulosum* is a small spider of about 3 mm body length, with a dark prosoma, pedipalps, and legs. The opisthosoma is whitish brown with an intricate mesh of darker lines, and is conspicuously round and looks so swollen that it partially hides the prosoma. The animal somewhat resembles a female of *Theridiosoma gemmosum* (L. Koch, 1877), but the similarity is not compelling enough to suggest a formal synonymy and I therefore retain the status of *Theridion nebulosum* as a nomen dubium.

3. *Theridion rufipes*

(rufus = "red, dark orange"; pes = "foot")

The German name for this taxon is "rotfüßige Webespinne" (i.e. "red-footed spider"). The only spider on plate 4 with red legs is the one in Fig. cC3. Thus, the correlation of the name *Theridion tibiale* with the spider in Fig. cC3 must be an error, both in the text sheet as well as in the figure legend. The identity of Hahn's *Theridion rufipes* is currently unclear. Hahn himself credits this name to Linnaeus, and indeed: the spider in Fig. cC3 perfectly resembles a female of the species currently identified as *Gongylidium rufipes* (Linnaeus, 1758). Thus, Hahn identified this species correctly and transferred it to the genus *Theridion*. The World Spider Catalog (2015) does not list Hahn's *Theridion rufipes*, neither in the genus *Theridion*, nor under *Gongylidium rufipes*. Roewer (1955: 1684)

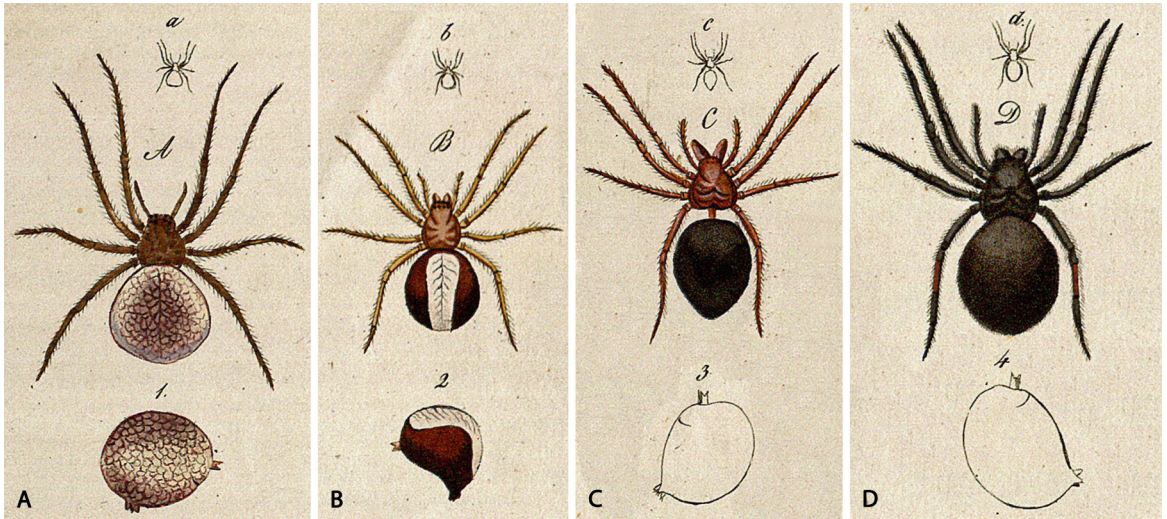


Fig. 1: The four spiders figured on plate 4 of the sixth instalment of “Monographie der Spinnen” (Hahn 1831a). **A** shows the spider with the original denotation “Fig. aA1” that is here associated with the taxon name *Theridion nebulosum*, a nomen dubium. **B** shows the spider with the original denotation “Fig. bB2”, which is correlated with the name *Theridion dorsiger*, a synonym of *Neottiara bimaculata*. **C** shows the spider with the original denotation “Fig. cC3” that is here associated with the name *Theridion rufipes*, currently placed in the genus *Gongylidium*. **D** shows the spider with the original denotation “Fig. dD4”. This animal is here identified as the taxon *Theridion tibiale* and placed in the synonymy of *Lasaeola tristis*.

The figures have been taken from the digital scan of the Heidelberg copy of Hahn (1831a) which is available online under <http://digi.ub.uni-heidelberg.de/diglit/hahn1820> (Source: University of Heidelberg, under Creative Commons-Licence CC-BY-SA 3.0 DE). The original figures have been cropped to remove unnecessary white space around them and have been newly rearranged into the four panels A-D using Adobe Photoshop CS5.

mentions “*Theridion rufipes* Hahn, 1831” as “nicht zu deuten” (i.e. as a nomen dubium), but the synonymy was listed correctly in Bonnet (1957, 1959), which is confirmed herewith (**syn. conf.**). The secondary homonymy of Hahn’s *Theridion rufipes* with *Theridion rufipes* Lucas, 1846 can be disregarded, because both taxa are not currently considered as congeneric.

4. *Theridion tibiale*

(tibialis = “shin-boned, tibial”)

The German name for this taxon is “Schienen-Wespinne” (i.e. “tibia-spider”), thus pointing to some peculiarity of the tibiae in this species. Indeed, the animal figured in Fig. dD4 is all black, but has red tibiae on the fourth pair of walking legs. Therefore, this must be the animal denoted by the name *Theridion tibiale*, and the correlation of Fig. dD4 with the name *Theridion rufipes* both in the text sheet and in the figure legend must be erroneous. This mistake has confused earlier authors, and a wrong synonymy with *Centromerita bicolor* (Blackwall, 1833) has been suggested (Bonnet 1956, 1959). The taxon is currently listed in the World Spider Catalog (2015) as a

nomen dubium. In fact, however, the figured animal very closely resembles *Lasaeola tristis* (Hahn, 1833), except that it has only the tibia of the fourth walking legs red, whereas *Lasaeola tristis* usually has the tibia and the femur of the fourth walking legs (partially) red. This error might be attributed to Lechner who likely did not know the species from his own experience and was only working from incomplete notes by Hahn when instructing the colourist who colourised the figures. Hahn (1831b) had already warned his readers that such errors would occur should his material eventually be published by Lechner: “[ich] finde mich aber nun gezwungen ferner zu erklären, dass die vielleicht vom Herrn Lechner unter seinem Namen erscheinenden Hefte mit Abbildungen derjenigen Spinnen, wovon er noch Originalzeichnungen von mir in Händen hat, ohne meine Zustimmung geschehen, und dass die fraglichen Zeichnungen noch mancher Verbesserung bedürfen” (i.e. “[I] feel impelled to declare now, that those instalments that may be published in the future by Mr. Lechner under his own name and containing figures of those spiders of which he still has my original drawings in

his possession, will be published without my consent, and that the drawings in question still require quite some corrections"). When one compares the original descriptions of *Theridion tibiale* and *Theridion triste* (i.e. *Lasaeola tristis*), both authored by Hahn, then similarities in the phrasing are evident:

- (1) *Theridion tibiale*: "Auf Föhren und Fichten gemein um Nürnberg" (i.e. "on pine trees and Norway spruce common around Nuremberg") (Hahn 1831a).
- (2) *Theridion triste*: "Auf niedern Föhrenbüschen an den Rändern der Wälder im Sommer in den Umgebungen von Nürnberg gar nicht selten" (i.e. "On lower pine bushes at the forest fringes in the summer in the surroundings of Nuremberg not rare at all") (Hahn 1833).

The close association of *Lasaeola tristis* with conifers, especially pine trees, is well known (e.g. Palmgren 1974, Heimer & Nentwig 1991). Thus, both Hahnian taxa obviously represent the same species (**syn. nov.**), but at different "stages" of Hahn's work. The image and short description of *Theridion tibiale* in Hahn (1831a) can be viewed as a preliminary draft (published without Hahn's approval), whereas *Theridion triste* (i.e. *Lasaeola tristis*) in Hahn (1833) is the final version with a longer descriptive text, a new, accurate figure, and a new name. The name coined in the "Monographie der Spinnen" is the older name and has priority, but should be regarded a **nomen oblitum** for lack of usage.

Nomenclatural summary

- *Neottiura bimaculata* (Linnaeus, 1767) = *Theridion dorsiger* Hahn, 1831
- *Theridion nebulosum* Hahn, 1831 (nomen dubium)
- *Gongylidium rufipes* (Linnaeus, 1758) = *Theridion rufipes* (Linnaeus, 1758) (sensu Hahn 1831) **syn. conf.**
- *Lasaeola tristis* (Hahn, 1833) (nomen protectum) = *Theridion tibiale* Hahn, 1831 (nomen oblitum) **syn. nov.**

Justification of reversal of precedence under Article 23.9 of the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature 1999): the younger name is valid, because it is in prevailing usage. To the best of my knowledge the senior synonym has not been used as a valid name after 1899 (Article 23.9.1.1.). The younger name has been used in the following selected publications: Miller 1967, Palmgren 1974,

1980, Roberts 1985, Brüning 1991, Heimer & Nentwig 1991, Hauge & Hansen 1991, Knoflach & Bertrand 1993, Roberts 1995, Kasal 1997, Knoflach & Thaler 1998, Aakra 2000, Horváth & Szinetár 2002, Agnarsson 2004, Knoflach and Pfaller 2004, Trotta 2005, Türkeş and Mergen 2005, Almquist 2005, Szinetár & Horváth 2006, Agnarsson et al. 2007, Lemke 2008, Steinberger 2008, Piterkina 2011, Le Peru 2011, Kovblyuk et al. 2012, Merrett et al. 2014. This list is presented here as evidence that the junior synonym has been used as the valid name in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of no less than 10 years (Article 23.9.1.2.). This fully satisfies all requirements in Article 23.9.1. and follows the procedure set forth in Article 23.9.2.

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References

- Aakra K 2000 New records of spiders (Araneae) from Norway with notes on epigynal characters of *Philodromus fuscomarginatus* (De Geer) (Philodromidae) and *Araneus sturmi* (Hahn) (Araneidae). – Norwegian Journal of Entomology 47: 77-88
- Agnarsson I 2004 Morphological phylogeny of cobweb spiders and their relatives (Araneae, Araneioidea, Theridiidae). – Zoological Journal of the Linnean Society 141: 447-626 – doi: [10.1111/j.1096-3642.2004.00120.x](https://doi.org/10.1111/j.1096-3642.2004.00120.x)
- Agnarsson I, Coddington JA & Knoflach B 2007 Morphology and evolution of cobweb spider male genitalia (Araneae, Theridiidae). – Journal of Arachnology 35: 334-395 – doi: [10.1636/SH-06-36.1](https://doi.org/10.1636/SH-06-36.1)
- Almquist S 2005 Swedish Araneae, part 1: families Atypidae to Hahniidae (Linyphiidae excluded). – Insect Systematics & Evolution Supplement 62: 1-284
- Bonnet P 1956 Bibliographia araneorum. Analyse méthodique de toute la littérature aranéologique jusqu'en 1939. Tomus 2. Part 2 (C-F). Douladoure, Toulouse. pp. 919-1925
- Bonnet P 1957 Bibliographia araneorum. Analyse méthodique de toute la littérature aranéologique jusqu'en 1939. Tomus 2. Part 3 (G-M). Douladoure, Toulouse. pp. 1927-3026
- Bonnet P 1959 Bibliographia araneorum. Analyse méthodique de toute la littérature aranéologique jusqu'en 1939. Tomus 2. Part 5 (T-Z). Douladoure, Toulouse. pp. 4231-5058

- Brüning A 1991 The effect of a single colony of the red wood ant, *Formica polyctena*, on the spider fauna (Araneae) of a beech forest floor. – *Oecologia* 86: 478–483 – doi: [10.1007/BF00318313](https://doi.org/10.1007/BF00318313)
- Hahn CW 1820 Monographie der Spinnen. Erstes Heft. Self-published, Nürnberg. 14 pp. (paginated), 2 pp. (unpaginated), 4 plates (unnumbered)
- Hahn CW 1821 Monographie der Spinnen. Zweites Heft. Self-published, München. 3 pp. (unpaginated), 4 plates (unnumbered)
- Hahn CW 1822 Monographie der Spinnen. Drittes Heft. Lechner'sche Buchhandlung, Nürnberg. 2 pp. (unpaginated), plates I–IV
- Hahn CW 1826 Monographie der Spinnen. Viertes Heft. Lechner'sche Buchhandlung, Nürnberg. 2 pp. (unpaginated), 4 plates (unnumbered)
- Hahn CW 1827 Monographie der Spinnen. Fünftes Heft. Lechner'sche Buchhandlung, Nürnberg. 2 pp. (unpaginated), plates I–IV
- Hahn CW 1831a Monographie der Spinnen. Sechstes Heft. Lechner'sche Buchhandlung, Nürnberg. 1 p. (unpaginated), plates 1–4
- Hahn CW 1831b Die Arachniden. Getreu nach der Natur abgebildet und beschrieben. Erster Band [Teil 1]. C. H. Zeh'sche Buchhandlung, Nürnberg. pp. 1–24, Tab. I–VII – doi: [10.5962/bhl.title.43744](https://doi.org/10.5962/bhl.title.43744)
- Hahn CW 1833 Die Arachniden. Getreu nach der Natur abgebildet und beschrieben. Erster Band [Teile 4–6]. C. H. Zeh'sche Buchhandlung, Nürnberg. pp. 77–129, Tab. XIX–XXXVI – doi: [10.5962/bhl.title.43744](https://doi.org/10.5962/bhl.title.43744)
- Hauge E & Hansen LO 1991 Spiders (Araneae) from six small islands in the middle Oslofjord, SE Norway. – *Fauna Norvegica B* 38: 45–52
- Heimer S & Nentwig W 1991 Spinnen Mitteleuropas: Ein Bestimmungsbuch. Paul Parey, Berlin. 543 pp.
- Horváth R & Szinetár C 2002 Ecofaunistic study of bark-dwelling spiders (Araneae) on black pine (*Pinus nigra*) in urban and forest habitats. – *Acta Biologica Debrecina* 24: 87–101
- International Commission on Zoological Nomenclature 1999 International Code of Zoological Nomenclature. Fourth Edition. International Trust for Zoological Nomenclature, c/o The Natural History Museum, London. 306 pp.
- Kasal P 1997 Evolution of tarsal comb in theridiid spiders (Arachnida: Araneae). In: Zabka M (ed) Proceedings of the 16th European Colloquium of Arachnology, Wyzsza Szkola Rolnicko-Pedagogiczna, Siedlce. pp. 133–137
- Knoflach B & Bertrandi F 1993 Spinnen (Araneida) aus Klopffängen an *Juniperus* und *Pinus* in Nordtirol. – *Berichte des naturwissenschaftlich-medizinische Vereins in Innsbruck* 80: 295–302
- Knoflach B & Thaler K 1998 Kugelspinnen und verwandte Familien von Österreich: Ökofaunistische Übersicht (Araneae: Theridiidae, Anapidae, Mysmenidae, Nesticidae). – *Stapfia* 55: 667–712
- Knoflach B & Pfaller K 2004 Kugelspinnen – eine Einführung (Araneae, Theridiidae). – *Denisia* 12: 111–160
- Kovblyuk MM, Marusik YM & Omelko MM 2012 A survey of Transcaucasian *Dipoena* sensu lato (Araneae: Theridiidae) with a description of new species. – *Arthropoda Selecta* 21: 247–254
- Lechner JJ 1833 Monographie der Spinnen. Siebentes Heft. Lechner'sche Buchhandlung, Nürnberg. 1 p. (unpaginated), 4 plates (unnumbered)
- Lechner JJ 1836 Monographie der Spinnen. Achtes Heft. Lechner'sche Buchhandlung, Nürnberg. 1 p. (unpaginated), plates 1–4
- Lemke M 2008 Bemerkenswerte Spinnenfunde (Araneae) aus Schleswig-Holstein der Jahre 2004 bis 2007. – *Arachnologische Mitteilungen* 35: 45–50 – doi: [10.5431/aramit3506](https://doi.org/10.5431/aramit3506)
- Le Peru B 2011 The spiders of Europe, a synthesis of data: Volume 1 Atypidae to Theridiidae. – *Mémoires de la Société Linnéenne de Lyon* 2: 1–522
- Menge A 1868 Preussische Spinnen. II. Abtheilung. – *Schriften der Naturforschenden Gesellschaft in Danzig, Neue Folge* 2(1,7): 153–218
- Merrett P, Russell-Smith A & Harvey P 2014 A revised check list of British spiders. – *Arachnology* 16: 134–144 – doi: [10.13156/arac.2014.16.4.134](https://doi.org/10.13156/arac.2014.16.4.134)
- Miller F 1967 Studien über die Kopulationsorgane der Spinnengattung *Zelotes*, *Micaria*, *Robertus* und *Dipoena* nebst Beschreibung einiger neuen oder unvollkommen bekannten Spinnenarten. – *Přírodovědné práce ústavů Československé Akademie Věd v Brně (N.S.)* 1: 251–298, Tab. I–XIV
- Palmgren P 1974 Die Spinnenfauna Finnlands und Ostfennoskandiens. V. Theridiinae und Nesticidae. – *Fauna Fennica* 26: 1–54
- Palmgren P 1980 Some comments on the anatomy of spiders. – *Annales Zoologici Fennici* 17: 161–173
- Piterkina TV 2011 Spatial and temporal structure of the spider community in the clay semi-desert of western Kazakhstan. – *Arachnologische Mitteilungen* 40: 94–104 – doi: [10.5431/aramit4011](https://doi.org/10.5431/aramit4011)
- Roberts MJ 1985. The spiders of Great Britain and Ireland, Volume 1: Atypidae to Theridiosomatidae. Harley Books, Colchester. 209 pp.
- Roberts MJ 1995 Collins Field Guide: Spiders of Britain & Northern Europe. HarperCollins, London. 383 pp.
- Roewer CF 1955 Katalog der Araneae von 1758 bis 1940, bzw. 1954. 2. Band, Abt. b (Salticiformia, Cribellata) (Synonyma-Verzeichnis, Gesamtindex). Institut royal des sciences naturelles de Belgique, Bruxelles. pp. 927–1751
- Sacher P 1988 Kommentar. In: Hahn CW. Monographie der Spinnen (1820–1836). Reprint der Original-Ausgabe. Zentralantiquariat der DDR, Leipzig. pp. 107–143
- Steinberger KH 2008 Spinnen und Weberknechte im Naturpark Schlern-Rosengarten (Arachnida: Araneae, Opiliones) (Italien, Südtirol). – *Gredleriana* 8: 255–286
- Szinetár C & Horváth R 2006 A review of spiders on tree trunks in Europe (Araneae). – *Acta Zoologica Bulgarica, Supplement* 1(2005): 221–257

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

Türkeş T & Mergen O 2005 New records of spiders (Araneae: Theridiidae) for the Turkish fauna. – Israel Journal

of Zoology 51: 237-239 – doi: [10.1560/F4M0-K8QQ-0KNG-6G88](https://doi.org/10.1560/F4M0-K8QQ-0KNG-6G88)

World Spider Catalog 2015 World spider catalog, version 16.0. Natural History Museum Bern. – Internet: <http://wsc.nmbe.ch> (May 3, 2015)