



<http://dx.doi.org/10.11646/zootaxa.3774.2.2>

<http://zoobank.org/urn:lsid:zoobank.org:pub:BAAD0752-E3B9-4C7A-AC0B-AA7E7E35F402>

New species of the feather mite genus *Protolichus* Trouessart, 1884 (Astigmata, Pterolichidae) from lorries and lorikeets (Aves: Psittaciformes)

SERGEY V. MIRONOV¹, RAINER EHRNSBERGER² & JACEK DABERT^{3*}

¹Zoological Institute, Russian Academy of Sciences, Universitetskaya quay 1, 199034, Saint Petersburg, Russia.

E-mail: astigmata@zin.ru

²Institute of Didactics for Mathematics and Applied Science, University of Vechta, Driverstrasse 22, D-49377, Vechta, Germany.

E-mail: rainer.ehrnsberger@uni-vechta.de

³Department of Animal Morphology, Faculty of Biology, A. Mickiewicz University, Umultowska 89, Poznań, 61-614, Poland.

E-mail: dabert@amu.edu.pl

⁴Corresponding author

Abstract

Five new species of the feather mite genus *Protolichus* Trouessart, 1884 (Astigmata, Pterolichidae) are described from parrots of the subfamily Loriinae (Psittaciformes: Psittacidae): *Protolichus ornatus* sp. n. from *Trichoglossus ornatus* (Linnaeus, 1758), *P. lorinus* sp. n. from *Lorius lory* (Linnaeus, 1758), *P. placentis* sp. n. from *Charmosyna placentis* (Temminck, 1835), *P. pulchellae* sp. n. from *C. pulchella* (Gray GR, 1859), and *P. rubiginosus* sp. n. from *T. rubiginosus* (Bonaparte, 1850). *Protolichus ornatus* belongs to the *brachiatus* species group; the other new species belong to the *crasior* species group.

Key words: Pterolichoidea, Psittaciformes, systematics, new species, host-mite relationships

Introduction

The present paper is a continuation of our taxonomic and biodiversity investigations of feather mites of the *Protolichus* generic group (Astigmata: Pterolichoidea: Pterolichidae) distributed on parrots (Psittaciformes) in the Old World (Mironov *et al.* 2003b, 2011; Dabert *et al.* 2006, 2008; Mironov & Dabert 2007, 2010).

Pterolichid mites restricted in their host-associations to parrots are represented by three morphologically and probably phylogenetically distinct groupings, the *Protolichus*, *Psittophagus* and *Rhytidelasma* generic groups, belonging to the subfamily Pterolichinae (Gaud & Atyeo 1996; Mironov & Pérez 2003; Mironov *et al.* 2003a, b; Dabert *et al.* 2004, 2008). Among these three groups, the *Protolichus* group with about 75 currently described species in 24 genera is the most species-rich and morphologically diverse grouping of pterolichids living on parrots (Gaud & Atyeo 1996; Mironov & Dabert 2010). These mites are characterized relative to the other two pterolichid groups by the following morphological features: in both sexes the body is relatively large and wide (idiosoma length 400–700 micrometers); in males of most genera, one or both anterior pairs of legs are modified compared to these in females, being enlarged and provided with various processes; the corolla of anal suckers has well developed indentations. In addition, in most genera of this group, with the exception of several genera from New World parrots, the paragenital apodemes in males are well developed and represented by very long and heavily sclerotized longitudinal bands (Mironov *et al.* 2003b). Like most pterolichids, these mites inhabit feathers with large, firm vanes, i.e. flight and covert feathers of the wing and tail feathers, where they are located in corridors on the ventral side of vanes.

The first taxonomic revision of the genus *Protolichus* Trouessart, 1884, which included at that time 17 species and 9 subspecies, was provided by Favette and Trouessart (1904). Modern studies of these mites and re-investigations of previously described species began only after a very long gap, since the 1980s. Investigations of *Protolichus*-like mites have been carried out most extensively in South America, and have included establishment

1884, when he discovered that this species actually occurs on loriines of the genera *Chalcopsitta* and *Pseudeos*, and its original finding on a cassowary (Trouessart 1884; Trouessart & Mégnin 1885) was the consequence of museum contamination. This error was not corrected even in the revision of *Protolichus* by Favette and Trouessart (1904). W.T. Atyeo, who examined materials of Trouessart collection in 1980s and further (Gaud & Atyeo 1996), restored the valid name *P. casuarinus*; however for an unclear reason he marked the slide MNHN 34F2 as “syntypes of *P. casuarinus*”. The type series of *P. casuarinus* (slide MNHN 35E4) actually includes a single male, which is a holotype by monotypy (Mironov & Dabert 2010).

It is necessary to add that the slide MNHN 34F2 also contains a *Protolichus* female, but it belongs to the *brachiatus* rather than the *crassior* species group, because it has flattened and expanded setae *e2*. We were not able to identify with certainty the species to which this single female belongs.

Acknowledgements

The authors wish to thank Dr. Peter-René Becker (Übersee Museum, Bremen, Germany) for making the ornithological collection available for our investigation and Dr. Mark Judson (Muséum national d'Histoire naturelle, Paris, France) for lending materials from the Trouessart collection. The study was partly supported for SVM by the Russian Foundation for Basic Research (Grant № 13-04-00608a) and for JD by the Committee of Science Promotion of the University of Vechta (KFN 2005), Germany.

References

- Atyeo, W.T. (1985) A new genus of pterolichid feather mites (Acari) from parrots (Psittacidae). *Journal of Medical Entomology*, 22, 54–57.
- Atyeo, W.T. (1988) Feather mites of the *Aralichus canestrinii* (Trouessart) complex (Acarina, Pterolichidae) from New World parrots (Psittacidae). I. From the genera *Ara* Lacépède and *Anodorhynchus* Spix. *Fieldiana, Zoology, N.S.*, 47, 1–26.
<http://dx.doi.org/10.5962/bhl.title.2982>
- Atyeo, W.T. (1989a) *Aralichus hastifolia* (Mégnin and Trouessart), a species of feather mite (Acarina, Pterolichidae) restricted to species of the parrot genus *Enicognathus* Gray (Aves, Psittacidae). *Journal of the Kansas Entomological Society*, 62, 329–334.
- Atyeo, W.T. (1989b) *Aralichus porrectus* (Mégnin & Trouessart) and related feather mite species (Acarina, Pterolichidae) from parrots of the genus *Brotogeris* Vigors (Aves, Psittacidae). *Systematic Parasitology*, 14, 101–111.
<http://dx.doi.org/10.1007/bf00016904>
- Atyeo, W.T. (1989c) *Pararalichus* gen.n. (Acarina, Pterolichidae) from New World parrots (Aves, Psittacidae). *Zoologica Scripta*, 18, 331–346.
<http://dx.doi.org/10.1111/j.1463-6409.1989.tb00459.x>
- Atyeo, W.T. & Gaud, J. (1987) Feather mites (Acarina) of the parakeet, *Melopsittacus undulatus* (Shaw) (Aves: Psittacidae). *Journal of Parasitology*, 73, 203–206.
<http://dx.doi.org/10.2307/3282367>
- Atyeo, W.T., Gaud, J. & Pérez, T.M. (1984) *Distigmesikya*, a new genus, and five species of feather mites (Acarina: Pterolichidae) from New World parrots (Aves: Psittacidae). *Acarologia*, 25, 67–76.
- Atyeo, W.T. & Pérez, T.M. (1982) New taxa of psittacine feather mites (Acarina, Pterolichidae). *Journal of Parasitology*, 68, 1158–1161.
<http://dx.doi.org/10.2307/3281112>
- Atyeo, W.T. & Pérez, T.M. (1990) Feather mites of the *Aralichus canestrinii* (Trouessart) complex (Acarina, Pterolichidae) from New World parrots (Psittacidae). II. From the genera *Aratinga* Spix, *Deroptylus* Wagler, *Leptopsittaca* Berlepsch & Stolzmann, *Ognorhynchus* Bonaparte, *Pionites* Heine, and *Pyrhura* Bonaparte, and conclusions to the study. *Fieldiana, N.S., Zoology*, 62, 1–30.
- Dabert, J., Mironov, S.V. & Ehrnsberger, R. (2004) New feather mite taxa of the *Rhytidelasma* generic group (Astigmata: Pterolichidae) from the Red-flanked Lorikeet *Charmosyna placensis* (Psittacidae). *Systematic Parasitology*, 58, 91–104.
<http://dx.doi.org/10.1023/b:sypa.0000029424.64857.ce>
- Dabert, J., Mironov, S.V. & Ehrnsberger, R. (2008) Systematic revision of the feather mite genera *Apexolichus* Gaud et Atyeo and *Titanolichus* Gaud et Atyeo (Astigmata: Pterolichidae), parasites of parrots of the Old World (Psittaciformes: Psittacidae). *Acta Parasitologica*, 53, 46–80.
<http://dx.doi.org/10.2478/s11686-008-0007-x>

- Dabert, J., Mironov, S.V. & Proctor, H.C. (2006) Systematics of the feather mite genus *Titanolichus* Gaud & Atyeo, 1996 (Acari: Pterolichoidea) with description of one new species from the orange-bellied parrot *Neophema chrysogaster* (Aves: Psittaciformes) in Tasmania. *Australian Journal of Entomology*, 45, 206–214.
<http://dx.doi.org/10.1111/j.1440-6055.2006.00535.x>
- del Hoyo, J., Elliot, A. & Sargatal, J. (1997) *Handbook of the Birds of the World. Volume 4: Sandgrouse to Cuckoos*. Lynx Editions, Barcelona, Spain, 679 pp.
- Evans, G.O. (1992) Principles of Acarology. CAB International, Wallingford, 563 pp.
- Favette, J. & Trouessart, E.L. (1904) Monographie du genre *Protolichus* (Trt) et revision des Sarcoptides plumicoles (Analgesinae) qui vivent sur les perroquets. *Mémoires de la Société zoologique de France*, 17, 120–166 + pls. V–XV.
- Gaud, J. (1980) Acariens Sarcoptiformes plumicoles parasites sur les oiseaux Psittaciformes, Strigiformes et Caprimulgiformes en Afrique. *Annales du Musée royal de l'Afrique centrale, Séries In-80, Science Zoologique*, 230, 1–106.
- Gaud, J. & Atyeo, W.T. (1996) Feather mites of the World (Acarina, Astigmata): the supraspecific taxa. *Musée Royal de l'Afrique Centrale, Annales, Sciences Zoologiques*, 277, 1–193 (Part 1, text), 1–436 (Part 2, illustrations).
- Mironov, S.V. & Dabert, J. (2007) Three new feather mite genera of the *Protolichus* generic group (Astigmata: Pterolichidae) from parrots (Aves: Psittaciformes) of the Old World. *Acta Parasitologica*, 52, 386–402.
<http://dx.doi.org/10.2478/s11686-007-0042-z>
- Mironov, S.V. & Dabert, J. (2010) A revision of the feather mite genus *Protolichus* Trouessart (Astigmata, Pterolichidae). *Zootaxa*, 2526, 1–36.
- Mironov, S.V., Dabert, J. & Ehrnsberger, R. (2003a) A review of feather mites of the *Psittophagus* generic group (Astigmata: Pterolichidae) with descriptions of new taxa from parrots (Aves: Psittaciformes) of the Old World. *Acta Parasitologica*, 48, 280–293.
- Mironov, S.V., Dabert, J. & Ehrnsberger, R. (2011) A new feather mite species of the genus *Loriprotolichus* Mironov et Dabert, 2007 (Acariformes: Pterolichidae) from the ultramarine lorikeet *Vini ultramarina* (Aves: Psittaciformes). *Acarina*, 19 (1), 77–82.
- Mironov, S.V., Dabert, J. & Proctor, H.C. (2003b) New feather mites of the family Pterolichidae (Acari: Pterolichoidea) from parrots (Aves: Psittaciformes) in Australia. *Australian Journal of Entomology*, 42, 185–202.
<http://dx.doi.org/10.1046/j.1440-6055.2003.00348.x>
- Mironov, S.V. & Pérez, T.M. (2003) A review of feather mites of the *Rhytidelasma* generic group (Pterolichoidea Pterolichidae), specific parasites of parrots (Aves Psittaciformes). *Bulletin de l'Institut Royal des Sciences naturelles de Belgique, Entomologie*, 73, 135–176.
- Trouessart, E.L. (1884) Les Sarcoptides plumicoles. *Journal de Micrographie*, 8, 527–532, 572–579.
- Trouessart, E.L. [1898] (1899) Diagnoses préliminaires d'espèces nouvelles d'Acariens plumicoles. Additions et corrections à la sous-famille des Analgésinés. *Bulletin de la Société d'études scientifiques d'Angers*, 28, 1–62.
- Trouessart, E.L. & Mégnin, P. (1885) *Les Sarcoptides plumicoles ou Analgésinés*. Octave Doin, Paris, 84 pp. + 2 pls.