

***Atopochthonius artiodactylus* Grandjean, 1948 (Acari: Oribatida) found for the first time in Finland**

Ritva Niemi

Niemi, R. 2001: *Atopochthonius artiodactylus* Grandjean, 1948 (Acari: Oribatida) found for the first time in Finland. — Entomol. Fennica 12: 173–175.

Atopochthonius artiodactylus Grandjean, 1948 has been recorded in central Finland from two different kinds of anthropogenous birch stands and natural deciduous forest. Altogether 270 specimens from nine sites have been found. Three SEM micrographs of the species are given. The updated Catalogue of the Oribatida (Acari) of Finland is available at the website <http://users.utu.fi/ritniemi/ActaZoolFenn207.html>. It currently consists of 310 species.

Ritva Niemi, University of Turku, Zoological Museum, FIN-20014 Turku, Finland; E-mail: ritniemi@utu.fi

Received 17 November 2000, accepted 7 May 2001

1. Introduction

The family Atopochthoniidae Grandjean, 1948 consists of a single genus, *Atopochthonius* Grandjean, 1948 and two species; *A. artiodactylus* Grandjean, 1948 (the type species) and *A. maimaensis* Grishina, 1971. According to Marshall *et al.* (1987) *A. artiodactylus* has been reported from the Holarctic region. In the Nordic countries, it has been found earlier only in Sweden (Forsslund 1956). *Atopochthonius maimaensis* has been recorded in Siberia (Golosova *et al.* 1983).

2. Material and methods

Material was collected from nine study sites in central Finland (Fig. 1). Of these, three were birch plantations established after clear-cutting of spruce stands, three were birch plantations established on arable soil and three were deciduous stands of natural origin. The samples were collected with cylindrical corers and extracted by Macfadyen's (1961) high gradient extractor in the summer of 1998. Some specimens were studied and photographed with a scanning electron microscope, SEM (JEOL JSM-5200). Before SEM, they

were dehydrated by critical point drying method (CPD) and coated with gold. The specimens with exact data of the localities are deposited in the Zoological Museum of the University of Turku (ZMT).

3. Results

3.1. Taxonomy

The description of the species by Grandjean (1948) is almost complete. Additionally, the dorsal and lateral setae with conical or leaflike sheaths are described by Forsslund (1956). Both papers give excellent descriptions of this species, and there is no need for a redescription. However, to complement these papers, three micrographs are reproduced (Figs. 2–4) to help with the identification of *A. artiodactylus*.

3.2. An addition to the Catalogue

The Catalogue of the Oribatida (Acari) of Finland (Niemi *et al.* 1997) is updated as follows.

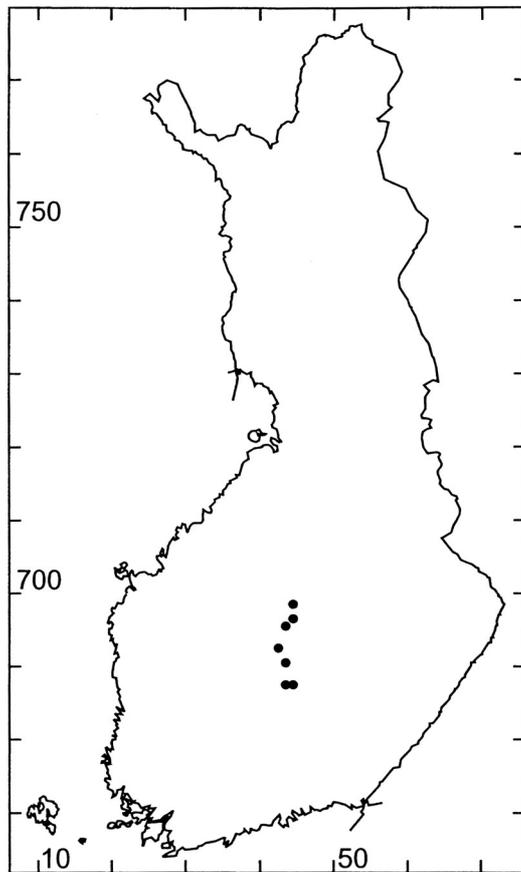


Fig. 1. Location of records of *Atopochthonius artiodactylus*. Grid interval 100 km.

Five lines are added under the cohort Enarthronota Grandjean, 1947 as the last superfamily, before the next cohort Parhyposomata:

- Atopochthonioidea Grandjean, 1948
- Atopochthoniidae Grandjean, 1948
- *Atopochthonius* Grandjean, 1948
- *A. artiodactylus* Grandjean, 1948

The updated version of the catalogue, with 310 oribatid species, is available at the website <http://users.utu.fi/ritniemi/ActaZoolFenn207.html>.

3.3. Ecology

Altogether 270 specimens from nine localities

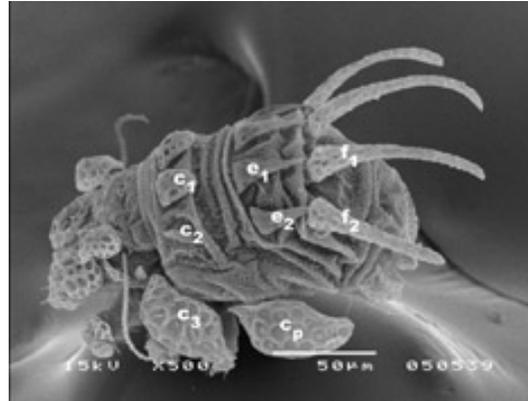


Fig. 2. *Atopochthonius artiodactylus*. Dorso-ventral side of notogaster with setae; c_{1-3} , cp , e_{1-2} , f_{1-2} (SEM).

were found. Of the individuals recorded, 65% occurred in the birch plantations after clear-cutting of spruce, 32% occurred in the deciduous forests and only 3% were found in the birch plantations established on agricultural fields. The majority of the specimens (60%) were extracted from the deep layer (3–6 cm) and the rest from the surface layer (0–3 cm).

It seems that the species prefers spruce and deciduous forests and is able to live from surface to deep soil. The habitat of *A. artiodactylus* in Finland is similar to that described by Forslund (1956) for the species in Sweden. He found the species from raw humus and mineral soil in coniferous forests and particularly in spruce forest from soil up to 40-cm depth.

4. Discussion

The oribatid fauna of Finland has been investigated actively since the 1960's. Many samples have been collected from spruce and deciduous stands. However, *A. artiodactylus* has not been recorded earlier. Considering the large numbers of specimens found and the commonness of these study habitats, it is peculiar that this species has not been found previously in Finland. Most likely the species has simply been overlooked. *Atopochthonius artiodactylus* is, like many other primitive species (e.g. *Palaeacarus* sp., *Aphelacarus*

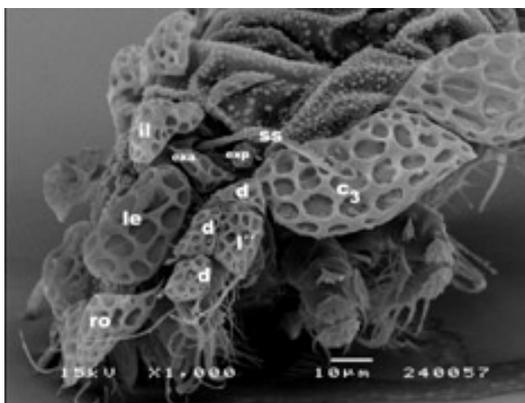


Fig. 3. *Atopochthonius artiodactylus*. Lateral side of prodorsum: il = interlamellar seta, le = lamellar seta, ro = rostral seta, exa = anterior exobothridial seta, exp = posterior exobothridial seta, ss = sensilli. First leg: d = dorsal seta and l'' = lateral seta. c₃ = notogastral setae (SEM).



Fig. 4. *Atopochthonius artiodactylus*. Posterior part of notogaster with setae h₁ and h₂ (SEM).

sp. and *Haplochthonius* sp.), pale, colourless and small. The length of the adult *A. artiodactylus* is only 200 μm. Due to their modesty and minor habitus the specimens can be difficult to find from unsorted material, and it is possible to misidentify them as juveniles of the taxa Prostigmata or Astigmata. Also, many samples have been taken by spade (not corer) from the surface soil, which will leave species preferring deeper layers uncollected.

Acknowledgements. I would like to express special thanks to Dr. Veikko Huhta for the material. It is a part of his ongoing ecological research programme "Decomposer community and its function in anthropogenous birch stands". Additionally, I would like to thank Mr. Veikko Rinne for his technical help.

References

- Forsslund, K. H. 1956: Schwedische Oribatei (Acari). III — Entomol. Tidskr. 77: 210–218.
- Golosova, L., Karppinen, E. & Krivolutsky, D. A. 1983: List of oribatid mites (Acarina, Oribatei) of northern palaeartic region. II. Siberia and the Far East. — Acta Entomol. Fennica 43: 1–14.
- Grandjean, F. 1948: Les Enarthronota (Acariens) (2e série). — Ann. Sci. nat., Zool. Biol. Anim. 11(10): 29–58.
- Grishina, L. 1971: A new species of oribatid mite of the genus *Atopochthonius* (Oribatei, Atopochthoniidae) from Altai. — V sb. "Novye i Maloizvest. Vidy fauny Sibiri" Novosibirsk, Nauka. pp. 71–73.
- Macfadyen, A. 1961: Improved funnel-type extractors for soil arthropods. — J. Anim. Ecol. 30: 171–184.
- Marshall, V. G., Reeves, R. M. & Norton, R. A. 1987: Catalogue of the Oribatida of continental U.S.A. and Canada. — Mem. Entomol. Soc. Canada 139: 1–418.
- Niemi, R., Karppinen, E. & Uusitalo, M. 1997: Catalogue of the Oribatida (Acari) of Finland. — Acta Zool. Fennica 207: 1–39.