Two zoogeographically remarkable mite species from Finland (Acari, Oribatida, Oribotritiidae)

WOJCIECH NIEDBAŁA¹ & RITVA PENTTINEN²

¹Department of Animal Taxonomy and Ecology, Adam Mickiewicz University, Poznań, Poland, and
²Zoological Museum, University of Turku, Turku, Finland

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Abstract

Diagnosis of Maerkelotritia cryptopa (Banks, 1904) and description of a new species Austrotritia finlandica sp. nov. are given. The first-mentioned species, previously recorded from the Nearctic Region, can now be considered as a holarctic species. The second species belongs to the genus Austrotritia Sellnick, 1959 from the southern hemisphere. Thus, it is highly unexpected to find it in Finland.

Keywords: Finland, Oribatid mites, Oribotritiidae, ptyctimous mites, zoogeography

Introduction

The paper reports the finding of two species (in two genera) of oribatid mites which have not been previously reported from Finland. One of the genera, Maerkelotritia Hammer, 1967, represented by Maerkelotritia cryptopa (Banks, 1904), has hitherto been found only from the Nearctic Region (Niedbała 2002). The other genus, Austrotritia Sellnick, 1959, is a typical genus of the southern hemisphere, where it frequently occurs in Oriental and Australian Regions.

Diagnosis and description of species

Maerkelotritia cryptopa (Banks, 1904)

(Figures 1–19)

Measurements of one specimen (in micrometres)

Prodorsum: length 429, width 338, height 172, sensillus 88.5; setae: interlamellar 253, lamellar 177, rostral 121, exobothridial 91.1; notogaster: length 737, width and height 535,
Figures 1–7. *Maerkelotritia cryptopa* (Banks, 1904). (1) Dorsolateral view. (2) Dorsal view. (3) Sensillus, dorsal view. (4) Surface of notogaster. (5) Palpus. (6) Ventral side. (7) Anal and adanal plates.
Figures 8–19. *Maerkelotritia cryptopa* (Banks, 1904). (8–14) Specimen 1 from Finland: (8) prodorsum, dorsal view; (9) prodorsum, lateral view; (10) notogaster; (11) seta c$_1$; (12) mentum of infracapitulum; (13) genital, aggenital, anal, and adanal plates; (14) trochanter and femur of leg I. (15) Specimen 2: genital and aggenital plates. (16) Specimen 3: ventral region. (17) Specimen 4: right side of ventral region. (18) Specimen 5: right side of anal and adanal plates. (19) Specimen 6: right side of anal and adanal plates.
setae: $c_1$ 106, $h_1$ and $ps_1$ 147, genital and aggenital plates $222 \times 106$, anal and adanal plates $353 \times 85.8$.

**Diagnosis**

Prodorsum with setae erect, interlamellar and lamellar setae rigid covered with small spines; rostral setae with flagellate distal tip, rough. Notogaster with rather short ($c_1 < c_1 - d_1$), rigid setae covered sparsely with small spines. Genital plates with 6–10 pairs of setae; anal plates with one, two, or three pairs of setae; adanal plates with four pairs of fairly long setae. Chaetome of legs variable (Table II).

**Remarks**

The specimens from Finland have slightly shorter notogastral setae, wider distance between setae $ad_2$–$ad_3$ than between $ad_1$–$ad_2$ or $ad_3$–$ad_4$, and highly varied number of anal setae.

The species is also characterized by variability in the chaetotaxy of genital setae and chaetome of the setae of the legs (Tables I, II). Number of genital setae is six, eight, nine, or 10. Number of anal setae is one, two, or three pairs; mostly a long $an_1$ in the posterior part of the plate and a short $an_3$ in its anterior part. Two specimens also have a seta $an_2$ in the middle part of the plate and one specimen has only seta $an_3$. Leg chaetome is variable in setae of femora: I (3 or 4), II (3 or 4), III (2 or 3), IV (2 or 3), and genua IV (2 or 3).

**Comparison**

Despite the large variation in the number of genital setae, especially anal setae, this species is distinguishable from the similar *Maerkelotritia kishidai* (Aoki, 1958) by the permanent presence of a short anal setae ($an_3$) in the anterior part of each anal plate. *Maerkelotritia kishidai* always has one pair of anal setae $an_2$ in the middle part of the plate.

Table I. Numbers of setae on left and right sides of the genital and anal plates of seven specimens of *Maerkelotritia cryptopa* (Banks, 1904).

| Specimen | Setae of right genital plate | Setae of left genital plate | Setae of right anal plate | Setae of left anal plate |
|----------|----------------------------|----------------------------|--------------------------|-------------------------|
| Specimen 1 | 6                          | 6                          | $an_3$                   | $an_3$                  |
| Specimen 2 | 8                          | 8                          | $an_1$, $an_2$, $an_3$, $an_1$ | $an_3$                  |
| Specimen 3 | 9                          | 9                          | $an_1$                   | $an_3$, $an_3$, $an_1$ |
| Specimen 4 | 9                          | 10                         | $an_1$, $an_3$           | $an_1$, $an_3$, $an_3$ |
| Specimen 5 | 9                          | 9                          | $an_1$, $an_2$, $an_3$, $an_1$, $an_3$ | $an_3$, $an_3$ |
| Specimen 6 | 9                          | 9                          | $an_1$                   | $an_3$, $an_3$, $an_1$, $an_3$ |
| Specimen 7 | 8                          | 10                         | $an_1$, $an_3$           | $an_3$, $an_3$, $an_1$, $an_3$ |

Table II. Chaetome of legs (without tarsi) of *Maerkelotritia cryptopa* (Banks, 1904).

| Specimens | Leg I | Leg II | Leg III | Leg IV |
|-----------|-------|--------|---------|--------|
| Specimen 1 | 1-3-4(2)-5(1) | 1-3-4(1)-5(1) | 3-2-3(1)-2(1) | 3-2-2(1)-2(1) |
| Specimen 2 | 1-4-4(2)-5(1) | 1-4-4(1)-5(1) | 3-3-3(1)-2(1) | 3-3-3(1)-2(1) |
| Specimen 3 | 1-4-4(2)-5(1) | 1-4-4(1)-5(1) | 3-3-3(1)-2(1) | 3-2-2(1)-2(1) |
| Specimen 4 | 1-4-4(2)-5(1) | 1-4-4(1)-5(1) | 3-3-3(1)-2(1) | 3-2-2(1)-2(1) |
| Specimen 7 | 1-4-4(2)-5(1) | 1-4-4(1)-5(1) | 3-2-3(1)-2(1) | 3-2-2(1)-2(1) |
Locality

Finland, Hamina, litter of grass, reeds etc. on seashore, 20 June 2004, leg. V. Huhta; seven exx.

Distribution

Holarctic.

_Austrotritia finlandica_ sp. nov.

(Figures 20–30)

Description

Measurements of holotype: prodorsum: length 500, width 353, height 333, sensillus 70.8, setae: interlamellar 35.4, lamellar 98.7, rostral 75.9, exobothridial 75.4; notogaster: length 939, width 667, height 687, setae: c1 157, h1 and ps1 30.4, genitoaggenital plate 252 × 70.7, anal and adanal plates 394 × 50.5.

Sexual dimorphism morphologically not apparent.

Large species. Colour brown. Surface of body finely punctate.

Prodorsum with two pairs of lateral carinae. Sensilli short, rigid, rough. Interlamellar setae short, curved distally, other setae longer,

Notogaster with very fine, short setae, posterior setae shorter than anterior. Setae c1–3 remote from anterior border, setae c1 more than other. One pair of lateral opisthosomal glands on each side, lyrifissures and vestigial setae in normal position.

_Ventral region_. Setae _h_ of mentum longer than distance between them. Palps five-segmented with chaetome: 0-3-0-2-9(1). Genitoaggenital plates with two transversal furrows. Nine pairs of genital setae, two pairs anteriorly of first furrow, two pairs anteriorly of second furrow, and five pairs posteriorly of second row. Two pairs of aggenital setae present. Anal plates with one pair of setae. Adanal plates with three pairs of setae; lyrifissures _iad_ are located laterally between setae _ad2_ and _ad3_.

_Legs_. Formulae of setae and solenidia (without tarsi): I: 1-4-5(2)-5(1); II: 1-4-4(1)-4(1); III: 3-2-3(1)-3(1); IV: 3-2-2(1)-3(1). Tarsi heterotridactylous.

Types

Holotype and two paratypes: Finland, Korppoo Aspö Ormskär, heap of reeds and kelp, 1 August 1985, leg. P. T. Lehtinen. Holotype and one paratype: (ACA.ORI.PAL.0.094) in the Zoological Museum of Turku. One paratype: in the Department of Animal Taxonomy and Ecology, Adam Mickiewicz University, Poznań.

Localities in Finland

Korppoo Vidskär, shore meadow with _Filipendula vulgaris, Rubus idaeus, Alnus_, 13 May to 29 June 1993, leg. S. Koponen, one ex; Korppoo Aspö Ormskär, within stump of decaying alder, 1 August 1984, leg. P. T. Lehtinen, one ex; Korppoo Brunskär Stor-Hästö, litter of _Viburnum opulus_, 30 June 1985, leg. P. T. Lehtinen, six exx; Korppoo Brunskär Stor-Hästö,
litter of *Fraxinus* and *Populus*, 30 June 1985, leg. P. T. Lehtinen, four exx; Korppoo Ávensor Hevoslot, nests of *Lasius* sp. and *Formica sanguinea*, 12 June 1983, leg. P. T. Lehtinen, one ex.

Figures 20–23. *Austrotritia finlandica* sp. n. (20) Dorsoventral view. (21) Dorsal view of prodorsum. (22) Genitoaggenital plates. (23) Ventrolateral view of anoadanal region.
Comparison

The new species is most similar to the Oriental *Austrotitia saraburensis* Aoki, 1965 but can be distinguished by a different shape of sensilli, by different proportion of lengths of prodorsal and notogastral setae, the different arrangement of setae $c_{1-3}$, the similar lengths of setae $c_3$ to other setae of row $c$, by the arrangement of genital setae, and the presence of three pairs of setae on femora of palps.

Distribution

Palaearctic, endemic.
Discussion

The finding of the new species representing the genus *Austrotritia* in Finland is highly unexpected. The species of this genus have previously been recorded from the southern hemisphere, mainly from the Oriental and Australian Regions. However, the ranges of individual species have reached further to the north, namely to the Palaeartic Region and its eastern, southern and western borders, more specifically to the islands of Japan (Aoki 1980, 1988), to Kashmir and Nepal (Niedbała 2000), and to the Canary Islands (Pérez-Íñigo 1986).

*Maerkelotritia cryptopa* has hitherto been known only from the Nearctic Region. The locality in Finland extends its geographic distribution and permits an assumption of it as a holarctic species. The specimens of *Maerkelotritia cryptopa* from Finland differ from the specimens from the Nearctic Region in a few minor morphological features (Niedbała 2002), mainly by the great variation in the number of anal setae. It also differs in the variation of the chaetotaxy of genital setae and the chaetome of leg setae. A constant character is the presence of seta \( an_3 \) in the anterior part of the anal plate.

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