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ORIBATIDS FROM SWITZERLAND XI (ACARI: ORIBATIDA: CEPHEIDAE AND NIPHOCEPHEIDAE) (*ACAROLOGICA GENAVENSIA* CIII)

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ABSTRACT

Oribatids from Switzerland XI. (Acari: Oribatida: Cepheidae and Niphocepheidae) (*Acarologica Genavensia* CIII). - Earlier published and newly determined Swiss oribatids belonging to Cepheidae Berlese, 1896 and Niphocepheidae Travé, 1961 are listed, discussed and a new species (*Hypocepheus helveticus* sp. n.) is described. The number of known species is now 12, of which 1 is new for science and 3 are new for the fauna of Switzerland. A key for the species of the genus *Hypocepheus* Krivolutsky, 1971 is given.

Key-words: Acari, Oribatida, Cepheidae, Niphocepheidae, Taxonomy, New species, Biogeography, Switzerland.

INTRODUCTION

This paper is a continuation of the study (initiated in July 1982) of the Swiss oribatids, dealing with the families Cepheidae Berlese, 1896 and Niphocepheidae Travé, 1961 (e.g. MAHUNKA & MAHUNKA-PAPP, 2001). The systematic position of the genus *Niphocepheus* Balogh, 1943 is uncertain (see MARSHALL *et al.*, 1987: 346) and is usually placed in an independent family (Niphocepheidae Travé, 1961). Nevertheless, we discuss its species here.

The species of Cepheidae are widely distributed in the Palaearctic Region, being found less often in other zoogeographical areas, or missing entirely. The investigations carried out so far in Switzerland (SCHWEIZER, 1922, 1948, 1956; GRANDJEAN, 1964; BORCARD, 1988, 1991a, 1991b, 1991c, 1992, 1993; MAHUNKA, 1993) have proved the presence of 8 species belonging to 5 genera, listed as follows:

Cepheus cepheiformis (Nicolet, 1855):
SCHWEIZER, 1922 [*Tegeocranus cepheiformis* Nic.]; SCHWEIZER, 1956; BORCARD, 1991a; BORCARD, 1991b; BORCARD, 1991c.

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Cepheus dentatus (Michael, 1888):
SCHWEIZER, 1922 [*Tegeocranus dentatus* Mich.]; SCHWEIZER, 1948.

Cepheus latus C. L. Koch, 1835:
SCHWEIZER, 1922; SCHWEIZER, 1956; BORCARD, 1991c; BORCARD, 1992.

Cepheus tuberculosus Strenzke, 1951:
GRANDJEAN, 1964.

Conoppia palmicincta (Michael, 1880):
BORCARD, 1992 [*Conoppia microptera* (Berl.)]; MAHUNKA, 1993 [*Conoppia microptera* (Berl.)].

Protocepheus hericius (Michael, 1888):
SCHWEIZER, 1922 [*Tegeocranus hericius* Mich.].

Tritegeus bisulcatus Grandjean, 1953:
SCHWEIZER, 1922 [*Cepheus bifidatus* Nic.]; SCHWEIZER, 1948 [*Tritegeus bifidatus* (Nic.)]; SCHWEIZER, 1956 [*Tritegeus bifidatus* Berl.]; BORCARD, 1991c; BORCARD, 1992.

Niphocepheus nivalis (Schweizer, 1922):
SCHWEIZER, 1922 [*Cepheus nivalis* sp. n.]; SCHWEIZER, 1956.

We have found all theses species excepted *Cepheus tuberculosus* and *Protocepheus hericius*. However, we have also ascertained the presence of a more easterly distributed *Cepheus* species (*Cepheus grandis* Sitnikova, 1975), also the type-species of *Ommatocepheus* Berlese, 1913 [*Ommatocepheus ocellatus* (Michael, 1982)]. Furthermore, it has been quite a surprise to find the third species of the again more easterly occurring genus *Hypocepheus* Krivolutzky, 1971 (*Hypocepheus helveticus* sp. n.).

LIST OF LOCALITIES

AG-5 SWITZERLAND: **Argovia:** Densbüren, old beech stumps; 4.X.1975; leg. C. Besuchet — (160).

AP-1 SWITZERLAND: **Appenzell:** Hoher Kasten, sifting, 1600-1700 m; 18.VIII.1982; leg. C. Besuchet — (86).

AP-2 SWITZERLAND: **Appenzell:** Säntis, 2450m; 10.VII.1967; leg. A. Commellini — (161).

AP-4 SWITZERLAND: **Appenzell:** Schwägalp, 1400m; 26.VII.2001; leg. C. Besuchet — (196).

BL-1 SWITZERLAND: **Basle-Land:** "Reinacher-Heide" near Reinach, Nature Reserve, xerothermic meadows, sifting, 600-700 m; 12.X.1989; leg. C. Besuchet — (85).

GE-2 SWITZERLAND: **Geneva:** Bois de Jussy, waterlogged mosses; 30.VI.1983; leg. C. Besuchet — (35).

GE-5 SWITZERLAND: **Geneva:** Malval, mosses and grass; 22.X.1982; leg. C. Besuchet — (31).

GL-3 SWITZERLAND: **Glarus:** Klöntal above Riedern, old tree stumps, 700m; 30.VIII.1980; leg. C. Besuchet — (1).

GR-8 SWITZERLAND: **the Grisons:** Samnaun, alpine meadows with *Rhododendron* sp., sifting, 2050m; 26.VIII.1968; leg. C. Besuchet — (26).

GR-9 SWITZERLAND: **the Grisons:** Santa Maria – Umbrail Pass, sifting, 2000m; 5.VIII.1974; leg. C. Besuchet — (37).

GR-11 SWITZERLAND: **the Grisons:** Untervaz near Chur, mosses; 29.IX.1983; leg. C. Besuchet — (126).

GR-13 SWITZERLAND: **the Grisons:** Val Bregaglia: Val Bondasca, dead leaves and mosses at base of alders (*Alnus* sp.), 1400m; 19.VII.1984; leg. C. Besuchet — (59).

GR-20 SWITZERLAND: **the Grisons:** Val Poschiavo, above Selva, mosses and dead leaves at base of rocks, 1800m; 28.VIII.1983; leg. C. Besuchet — (152).

JU-4 SWITZERLAND: **Jura:** Montfaucon, mosses in old peat-bog; 5.VII.2000; leg. C. Besuchet — (206).

LU-1 SWITZERLAND: **Lucerne:** Eigenthal, peat-bog Forenmoos near the village of Eigenthal, *Sphagnum* sp., 970m; 2.VIII.1996; leg. C. Besuchet — (108).

LU-2 SWITZERLAND: **Lucerne:** above Gettnau (between Zell and Willisau), old ant-hill of *Formica rufa*; 1.VIII.1996; leg. C. Besuchet — (107).

SO-1 SWITZERLAND: **Solothurn:** Ammansegg, mosses on floor in deciduous forest; 14.V.1972; leg. S. Mahunka & L. Mahunka-Papp — (10).

SO-6 SWITZERLAND: **Solothurn:** Schnottwil, Bucheggberg, litter in pine wood; 27.IX.1987; leg. S. Mahunka & L. Mahunka-Papp — (48).

SZ-3 SWITZERLAND: **Schwyz:** Pragel pass, mosses in fir forest, 1650m; 25.VIII.1983; leg. I. Löbl — (116).

TG-3 SWITZERLAND: **Thurgau:** Hudelmoos near Hagenwil; peat-bog with *Sphagnum* sp., 600m; 13.IX.1993; leg. C. Besuchet — (88).

TI-5 SWITZERLAND: **Ticino:** Monadello - Moneto, in decaying leaves, 850m; 23.IV.1992; leg. C. Besuchet — (91).

TI-9 SWITZERLAND: **Ticino:** Nufenen pass, leaf litter and rotten wood in larch forest; 15.VI.1979; leg. S. Mahunka & L. Mahunka-Papp — (18).

TI-11 SWITZERLAND: **Ticino:** Rancate, chestnut forest, sifting; 7.IX.1965; leg. C. Besuchet — (25).

TI-21 SWITZERLAND: **Ticino:** Brusino-Arsizio, mosses near rivulet; 20.VII.1990; leg. C. Besuchet — (158).

TI-22 SWITZERLAND: **Ticino:** Cortascio above Brissago, sifting in ravine, 1050m; 22.IV.1992; leg. C. Besuchet — (157).

TI-25 SWITZERLAND: **Ticino:** Centovalli, Moneto, dead leaves, 800m; 23.VII.1983; leg. C. Besuchet — (144).

TI-26 SWITZERLAND: **Ticino:** Valle Onsernone, Spruga, mosses and humus, 1000m; 22.VII.1983; leg. C. Besuchet — (141).

TI-31 SWITZERLAND: **Ticino:** Locarno, Orselina; 29.VII.1972; leg. C. Besuchet — (186).

TI-37 SWITZERLAND: **Ticino:** Rancate, old tree-stump, extraction by flotation of soil; 5.VI.1969; leg. C. Besuchet & I. Löbl (Te-69/34) — (192).

UR-1 SWITZERLAND: **Uri:** Klausen pass, litter of *Rhododendron* sp., 2000m; 23.VIII.1983; leg. I. Löbl — (60).

UR-3 SWITZERLAND: **Uri:** Klausen pass, sifting under alders, 1950m; 24.VIII.1983; leg. C. Besuchet — (150).

UR-4 SWITZERLAND: **Uri:** Oberalp pass, 2040m; 23.IX.1965; leg. A. Comellini — (193).

VD-9 SWITZERLAND: **Vaud:** Vallorbe, source of the river Orbe, roots and soil at base of rocks; 13.V.1982; leg. C. Besuchet & I. Löbl — (81).

VS-4 SWITZERLAND: **Valais:** Daubensee, mosses and grass, 2200m; 11.VIII.1980; leg. C. Besuchet — (32).

VS-5 SWITZERLAND: **Valais:** Fluhalp near Leukerbad, mosses and dead leaves, 2000m; 14.VIII.1980; leg. C. Besuchet — (2).

VS-28b SWITZERLAND: **Valais:** Vouvry, cave "Grotte de la Pierre à Perret" (VS 13), 490m; 10.VIII.1989; leg. B. Hauser — (63b).

VS-31 SWITZERLAND: **Valais:** Val de Bagnes: Fionnay, mosses and dead leaves; 1450m; 15.V.1990; leg. C. Besuchet — (156).

VS-33 SWITZERLAND: **Valais:** Evolène, mosses in swamp, 1350m; 3.IX.2001; leg. C. Besuchet — (198).

LIST OF IDENTIFIED SPECIES

Cepheidae Berlese, 1896

Cepheus cepheiformis (Nicolet, 1855)

Localities: AP-1; BL-1; GE-2; GE-5; GR-8; GR-11; GR-20; TG-3; UR-3; VS-31.

Distribution: Palearctic Region.

Cepheus dentatus (Michael, 1888)

Localities: AP-1; GR-9; SO-1; SO-6; TI-21; TI-37.

Distribution: Palearctic Region.

Cepheus grandis Sitnikova, 1975

Locality: VS-4.

Distribution: Ukraine, Bulgaria; **first record for Switzerland.**

Cepheus latus C. L. Koch, 1835

Localities: GR-20; TI-9; UR-3; VS-5.

Distribution: Holarctic Region?

Cepheus verrucosus Bernini, 1971

Locality: VS-5.

Distribution: south-western Europe; **first record for Switzerland.**

Conopia palmicincta (Michael, 1884)

Localities: AP-2; AP-4; LU-1; TI-25; VS-28b (MAHUNKA, 1993)

Distribution: Holarctic Region

Hypocepheus helveticus sp. n.

Locality: AP-2.

Ommatocepheus ocellatus (Michael, 1882)

Localities: LU-2; TI-5.

Distribution: W-Europe; **first record for Switzerland.**

Tritegeus bisulcatus Grandjean, 1953

Localities: AG-5; AP-1; AP-4; GE-2; GL-3; GR-8; GR-9; Gr-13; JU-4; SZ-3; TI-25; TI-26; TI-37; UR-1; UR-3; VD-9; VS-4; VS-5; VS-31; VS-33.

Distribution: Europe.

Niphocepheidae Travé, 1959

Niphocepheus nivalis (Schweizer, 1922)

Localities: TI-11; TI-22; UR-4.

Distribution: Europe, Japan; an oreophilous superspecies in need of revision.

DESCRIPTION

Hypocepheus helveticus sp. n.

(Figs 1-3)

Material examined: Switzerland: Holotype: Appenzell: AP-2; deposited in the Muséum d'Histoire naturelle, Geneva.

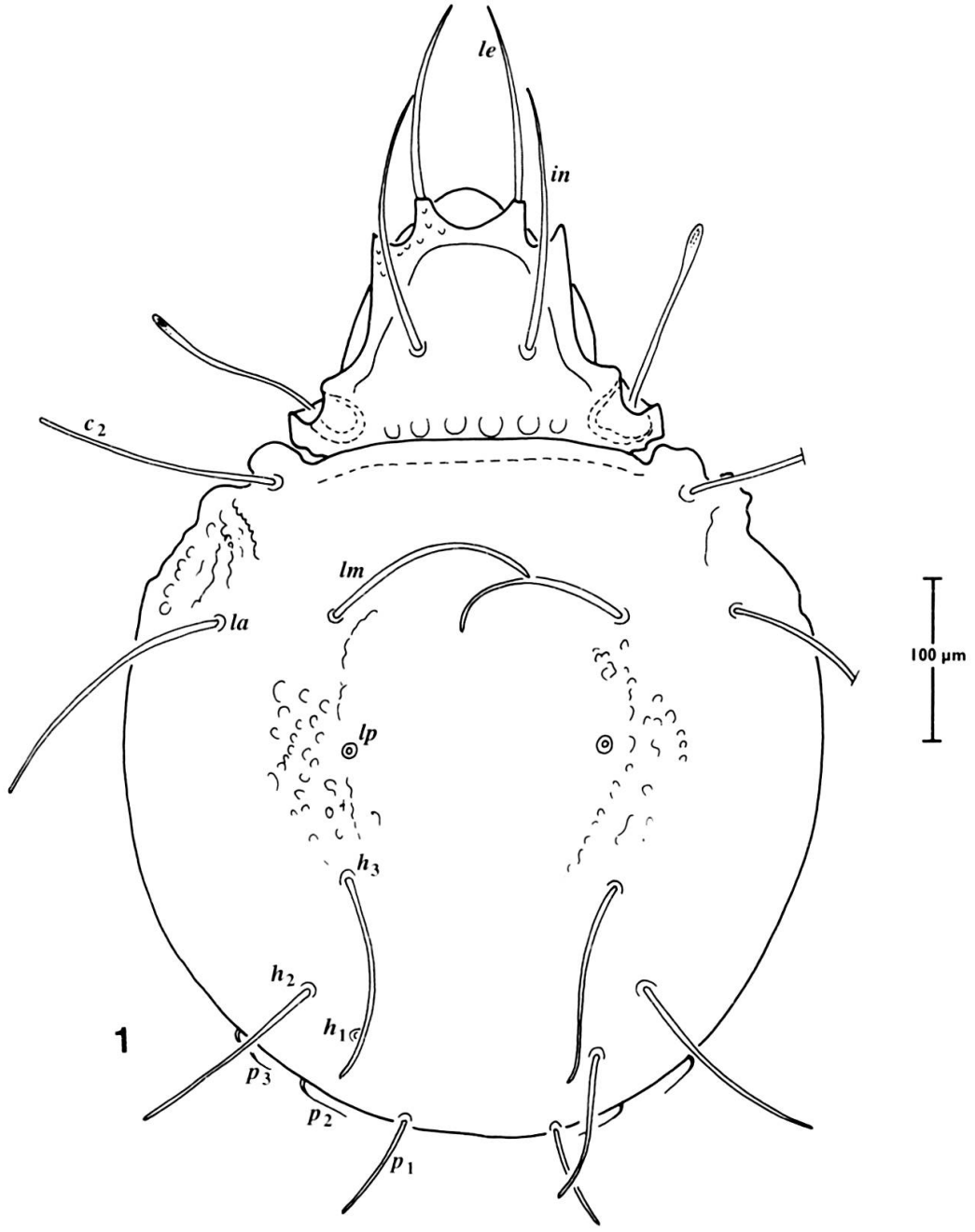


FIG. 1
Hypocepheus helveticus sp. n. — 1: body in dorsal view.

D i a g n o s i s : Lamellae with long cusps and an additional large dens. Translamella present. Prodorsum with 6 tubercles basally. Sensillus long, slightly dilated distally. Ten pairs of notogastral setae, 8 pairs bacilliform, very long, their length strongly varying. Setae *la* approximately three times longer than setae h_1. A pair of large humeral apophyses in sejugal region. Epimeral setal formula: 3 – 1 – 3 – 3. Anogenital setal formula: 6 – 1 – 2 – 3.

M e s a s u r e m e n t s : Length of body: 592 µm, width of body: 437 µm.

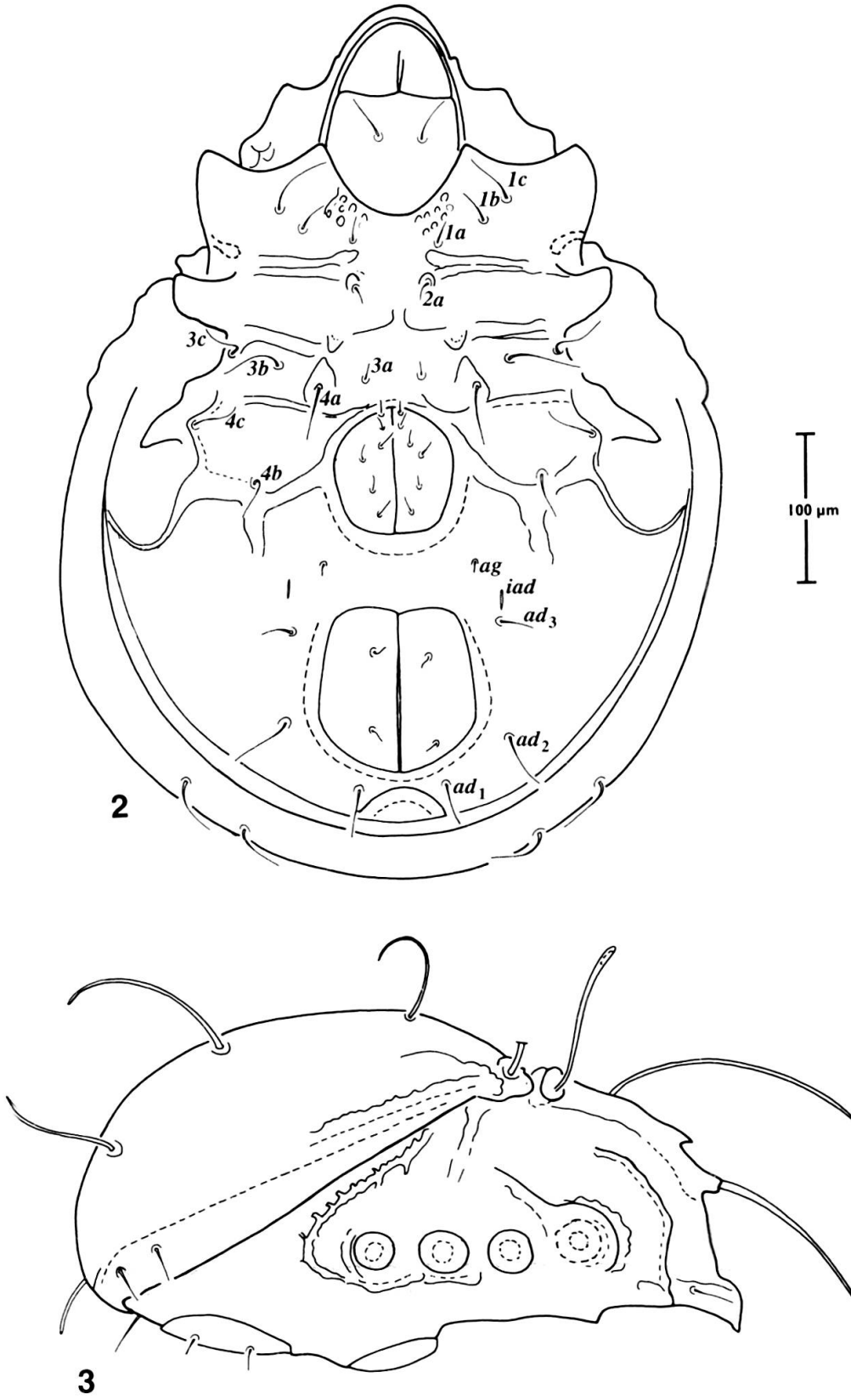
P r o d o r s u m : Whole body surface covered by a cerotegument layer of varying thickness. Rostrum rounded. Lamellae located marginally, long, their surfaces ornamented by large foveolae. Medially narrowing translamella present. Lamellar apices long, bearing very long lamellar setae. Beside them a pair of triangular projections directed anteriorly. Interlamellar setae inserted medially in the posterior third of the prodorsum. Three pairs large tubercles present basally, along the anterior margin of the prodorsum. Bothridium cup-shaped, opening laterally. Sensillus long, directed laterally, bacilliform, hardly dilated distally. Distal end slightly roughened.

N o t o g a s t e r : Anterior margin of notogaster slightly convex, with well-developed humeral apophyses. Their surface tuberculate and rugose. Median part with irregular, parallel, longitudinal ridges, consisting of thick cerotegument medially. Ten pairs of notogastral setae present. Setae c_2 inserted on the shoulder, setae *lm*, *lp*, h_1 and h_2 arranged in longitudinal rows. Setae c_2 and *la* much longer than the median setae or the sensillus. All these blunt at tip and with a narrow velum. Setae p_2 and p_3 short, setiform, bent inwards.

L a t e r a l p a r t s o f b o d y : Rostrum projecting, beak-like in lateral view. Rostral setae short and fine, arising laterally, along the prodorsal margin. True tutoria absent, in their position irregular crests occur nearly quadrangularly bent, cusps lost. Position of the acetabula of the legs normal. Pedotecta I small, pedotecta II-III and discidia well developed. Exobothridial region somewhat sclerotised. In the place of the circumpedal carina a curved, strong crest running from the acetabula of leg IV, by passing it, anteriorly.

V e n t r a l p a r t s o f t h e b o d y (Fig. 2): Mentum smooth. Epimeral surface ornamented by some foveolae along the mental tectum arranged in two groups. Other surface of ventral regions smooth. Epimeral borders and their apodeme well developed. Pedotecta I-II, pedotecta III and the discidium large, inner margin of discidium undulate. A pair of large tubercles in opposite position present medially, the posterior pair bearing the longest epimeral setae: *3c*. Epimeral setal formula: 3 – 1 – 3 – 3. Setae *1c* arising conspicuously close to setae *1b* on pedotecta I. Setae *4c* arising on the inner part of discidium. Posterior borders of the epimeral region well sclerotised, with a pair of laths directed posteriorly and an other pair of crests along the acetabula IV, directed anteriorly. Genital opening smaller than the anal one. The genital plates with an inwards directed anteromedian crest. Anogenital setal formula: 6 – 1 – 2 – 3. Position of the aggenital setae normal, but lyrifissure *iad* located far anteriorly, between setae *ag* and adanal ad_3. Genital and anal setae simple, fine, two pairs (ad_1 and ad_2) of adanal setae longer and bacilliform, like the notogastral setae, ad_1 in postanal position.

R e m a r k s : The genus *Hypocepheus* Krivolutsky, 1971 formerly comprised 2 species: *Hypocepheus mirabilis* Krivolutsky, 1971 (type species) from Gruzinia and Abhazia (KRIVOLUCKIJ & TARBA, 1971) and *Hypocepheus krivolutskyi* Călugăr, 1976 from Romania (CĂLUGĂR & VASILIU, 1976). It is noteworthy that IVAN & VASILIU (1999) also recorded the type species of *Hypocepheus* from Romania.



FIGS 2-3

Hypocepheus helveticus sp. n. — 2: body in ventral view, 3: body in lateral view.

The new species is readily distinguished from the previously known species by the number of basal tubercles (six) in the basal part of the prodorsum, by the very long, bacilliform sensillus and the notogastral setae of varying lengths, and their form, and the ratio between the sensilli and the notogastral setae (see key below):

1. Six tubercles in the basal part of prodorsum. Sensillus shorter than at least the length of setae c_2 or *la*. Surface of the notogaster smooth . . . . . ***helveticus*** sp. n.
– More than six tubercles in the basal part of prodorsum. Sensillus longer than the notogastral setae c_2, *la* and *h*. Surface of the notogaster alveolate **2**
2. 10 basal tubercles in the basal part of prodorsum. Notogastral setae bacilliform . . . . . ***mirabilis*** Krivolutsky, 1971
– 8 basal tubercles in the basal part of prodorsum. Notogastral setae clavate, distinctly dilate distally . . . . . ***krivolutskyi*** Călugăr, 1976

D e r i v a t i o n o m i n i s : The species is named after its origin.

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RÉSUMÉ

ORIBATES DE SUISSE XI (ACARI: ORIBATIDA: CEPHEIDAE ET NIPHOCEPHEIDAE) (*ACAROLOGICA GENAVENSIA* CIII)

Cette étude porte sur les Cepheidae et les Niphocepheidae de Suisse. Parmi les espèces identifiées, 8 avaient déjà été citées dans des travaux précédents, 3 sont reconnues pour la première fois en Suisse, et une nouvelle espèce a été découverte. Celle-ci, *Hypocepheus helveticus* n. sp., est décrite et une clé de détermination est proposée pour les espèces, désormais au nombre de 3, du genre *Hypocepheus*. Dans ces deux familles, le nombre d'espèces connues en Suisse s'élève donc maintenant à 12.

Mots-clés: Acariens, Oribates, Cepheidae, Niphocepheidae, taxonomie, biogéographie, nouvelle espèce, Suisse.

REFERENCES

BESUCHET, C. 2001. André Comellini (1920-2001). Bull. romand Ent. 19: 115-119.

BORCARD, D. 1988. Les Acariens Oribates des sphaignes de quelques tourbières du Haut-Jura suisse. Thèse, Neuchâtel, vol. S: 170 pp. + II, vol. E: 261 pp. + XVI.

BORCARD, D. 1991a. Les Oribates des tourbières du Jura suisse (Acari, Oribatei): Ecologie. I. Quelques aspects de la communauté d'Oribates des sphaignes de la tourbière du Cachot. Revue suisse Zool. 98: 303-317.

BORCARD, D. 1991b. Les Oribates des tourbières du Jura suisse (Acari, Oribatei): écologie. II. Les relations Oribates-environnement à la lumière du test de Mantel. Revue Écol. Biol. Sol 28: 323-339.

BORCARD, D. 1991c. Les Oribates des tourbières du Jura suisse (Acari, Oribatei): Ecologie. III. Comparaison a posteriori de nouvelles récoltes avec un ensemble de données de référence. Revue suisse Zool. 98: 521-533.

BORCARD, D. 1992. Les Oribates des tourbières du Jura suisse (Acari, Oribatei). Faunistique III. Nanhermannoidea, Hermannoidea, Belboidea, Cepheoidea, Liacaroidea. Mitt. schweiz. ent. Ges. 65: 81-93.

BORCARD, D. 1993. Les Oribates des tourbières du Jura suisse (Acari, Oribatei: Ecologie. IV. Distribution verticale. Revue suisse Zool. 100: 175-185.

CĂLUGĂR, M. & N. VASILIU. 1976. Nouvelles espèces d'Oribates (Acari: Oribatidei). Revue roum. Biol. Sér. Zool. 21: 13-17.

GRANDJEAN, F. 1964. Nouvelles observations sur les Oribates (3e série). Acarologia 6: 170-198.

IVAN, O. & M. VASILIU. 1999. Oribatid fauna (Acari: Oribatida) in Romanian Quercus forests. Anuarul Muz. natn. Bucovinei 15: 67-116.

KRIVOLUCKIJ, D. A. & Z. M. TARBA. 1971. Fauna of Oribatei in Abkhasia. Zool. Zh. 50: 1408-1411.

MAHUNKA, S. 1993. Beitrag zur Kenntnis der Höhlen-Oribatiden der Schweiz (Acari: Oribatida). (Neue und interessante Milben aus dem Genfer Museum LI.). Revue suisse Zool. 100: 225-233.

MAHUNKA, S. & L. MAHUNKA-PAPP. 2001. Oribatids from Switzerland V (Acari: Oribatida: Suctobelbidae 2). (*Acarologica Genavensia* XCVII). Revue suisse Zool. 108: 355-385.

MARSHALL, V. G., R. M. REEVES & R. A. NORTON. 1987. Catalogue of the Oribatida (Acari) of continental United States and Canada. Mem. ent. Soc. Can. 139: VI + 418 pp.

SCHWEIZER, J. 1922. Beitrag zur Kenntnis der terrestrischen Milbenfauna der Schweiz. Verh. naturf. Ges. Basel 33: 23-112.

SCHWEIZER, J. 1948. Landmilben aus der Umgebung des schweizerischen Nationalparks. Ergebn. wiss. Unters. schweiz. NatnParks 2 (N.F.)[20]: 1-28.

SCHWEIZER, J. 1956. Die Landmilben des schweizerischen Nationalparkes. *3.Teil*: *Sarcoptiformes Reuter* 1909. Ergebn. wiss. Unters. schweiz. NatnParks 5 (N.F.): 213-377.