

Oribatids from Switzerland XIII
(Acari: Oribatida: Brachychthoniidae).
(Acarologica Genavensia CVII)

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Oribatids from Switzerland XIII (Acari: Oribatida: Brachychthoniidae). (Acarologica Genavensia CVII). – All published records and newly determined Swiss moss mites belonging to the family Brachychthoniidae are listed, discussed or described. From the 25 named species in the literature 16 are confirmed after critical discussion. New identifications of 28 species are given: 2 of which (*Liochthonius tumidus* sp. n. and *Liochthonius tumulosus* sp. n.) are new to science, 15 species are new for the Fauna of Switzerland and 5 are confirmations for the Swiss territory of doubtful species in the literature. As a synthesis a preliminary list of 36 Brachychthoniidae species belonging to 8 genera from Switzerland is given.

Keywords: Acari - Oribatida - Brachychthoniidae - taxonomy - new species - Switzerland.

INTRODUCTION

In continuing the study of the Swiss oribatids, the project that had been outlined in several earlier papers (e.g. Mahunka & Mahunka-Papp, 2003), this time we elaborated the species belonging to the family Brachychthoniidae Thor, 1934. The species of this group are well distributed in Switzerland and were investigated by several authors (Schweizer, 1922, 1948, 1956, 1957; Bader, 1963; Niedbała, 1972, 1974, 1976; Moritz, 1976a, 1976b; Evison, 1981; Borcard, 1991a, 1991b, 1993; Mahunka, 1993; Borcard & Matthey, 1995). So far, the presence of 25 species is recorded. The number of valid species is 16 belonging to six genera.

The species number of this family in Switzerland is also comparatively high like in Austria (see Schatz, 2004), but there are some old and unsolved problems and numerous misidentifications (Schweizer, 1922, 1948, 1956, 1957) in the literature. In the meantime these problems were partly solved by several authors, e.g. Niedbała (1972, 1974) and Moritz (1976a, 1976b).

We are able to add new identifications of 28 species, found on the territory of Switzerland. Among them 2 are new for science, 15 are new for the Fauna of Switzerland and 5 are confirmations for the Swiss territory of doubtful species in the literature.

HITHERTO PUBLISHED SPECIES FROM SWITZERLAND

The following chronological list recapitulates all recorded species with the published name and the actual valid name or, in the case of misidentifications, the correct species.

SCHWEIZER, 1922

p. 74; 101: *Brachychthonius brevis* (Mich.) Berl. [*Liochthonius brevis* (Michael)] = ?

SCHWEIZER, 1948

pp. 5; 8; 17: *Brachychthonius berlesei* Willm. = ?

pp. 10; 11; 17: *Brachychthonius horridus* Sellnick [*Liochthonius horridus* (Sellnick)] = ?

pp. 10; 11; 17: *Brachychthonius perpusillus* Berl. [*Liochthonius brevis* (Michael)] = ?

pp. 8; 9; 10; 11; 12; 17: *Brachychthonius brevis* (Mich.) [*Liochthonius brevis* (Michael)] = ?

pp. 11; 17: *Brachychthonius laetepictus* Berl. = species inquirenda

p. 28: *Brachychthonius gisini* n. sp. = ***Liochthonius gisini*** (Schweizer)

SCHWEIZER, 1956

pp. 225; 370: *Brachychthonius gisini* Schweizer = ***Liochthonius gisini*** (Schweizer)

pp. 225-226; 370: *Brachychthonius sellnicki* Sig Thor = ***Liochthonius sellnicki*** (Thor)

pp. 226-227; 370: *Brachychthonius oudemansi* v. d. Hammen [*Eobrachychthonius oudemansi* Hammen] = ?

pp. 227; 370: *Brachychthonius immaculatus* Forsslund [*Sellnickochthonius immaculatus* (Forsslund)] = ?

pp. 227; 370: *Brachychthonius neosimplex* n. sp. = species inquirenda

pp. 227-228; 370: *Brachychthonius perpusillus* Berlese [*Liochthonius brevis* (Michael)] = ?

pp. 228-229; 370: *Brachychthonius laetepictus* Berlese = species inquirenda

pp. 229; 370: *Brachychthonius scalaris* Forsslund [*Liochthonius sellnicki* (Thor)] = ?

pp. 229; 370: *Brachychthonius hystricinus* Forsslund [*Liochthonius hystricinus* (Forsslund)] = ?

pp. 230; 370: *Brachychthonius berlesei* Willmann = ?

pp. 230-231; 370: *Brachychthonius helveticus* n. sp. = ***Brachychthonius bimaculatus*** Willmann

SCHWEIZER, 1957

pp. 37; 43; tab. VII: *Brachychthonius sellnicki* = ***Liochthonius sellnicki*** (Thor)

pp. 43; 48; tab. VII: *Brachychthonius perpusillus* [*Liochthonius brevis* (Michael)] = ?

p. 43; tab. VII: *Brachychthonius scalaris* [*Liochthonius sellnicki* (Thor)] = ?

pp. 45; 54; tab. VII: *Brachychthonius laetepictus* = species inquirenda

p. 47; tab. VII: *Brachychthonius neosimplex* = species inquirenda

p. 49; tab. VII: *Brachychthonius oudemansi* [*Eobrachychthonius oudemansi* Hammen] = ?

tab. VII: *Brachychthonius gisini* = ***Liochthonius gisini*** (Schweizer)

tab. VII: *Brachychthonius immaculatus* [*Sellnickochthonius immaculatus* (Forsslund)] = ?

tab. VII: *Brachychthonius hystricinus* [*Liochthonius hystricinus* (Forsslund)] = ?

tab. VII: *Brachychthonius berlesei* = ?

tab. VII: *Brachychthonius helveticus* = ***Brachychthonius bimaculatus*** Willmann

BADER, 1963:

pp. 67-68: *Brachychthonius gygeri* n. sp. = ***Sellnickochthonius immaculatus*** (Forsslund)

EVLSON, 1981

pp. 225-227: ***Liochthonius andrewi*** n. sp.

pp. 227-229: *Mixochthonius moritzi* n. sp. = species inquirenda according to Weigmann, 2006

BORCARD, 1991a

pp. 177; 181: *Brachychochthonius cricoides* Weis-Fogh = ***Sellnickochthonius cricoides*** (Weis-Fogh)

pp. 171; 183-184: *Brachychochthonius* cf. *immaculatus* Forsslund = ***Sellnickochthonius immaculatus*** (Forsslund)

- pp. 177; 184: *Brachychochthonius zelawaiensis* (Sellnick) = *Sellnickochthonius zelawaiensis* (Sellnick)
 pp. 177; 184-185: *Brachychthonius berlesei* Willmann
 pp. 177; 185 *Eobrachychthonius latior* (Berlese)
 pp. 177; 185: *Eobrachychthonius* cf. *oudemansi* van der Hammen = *Eobrachychthonius oudemansi* Hammen
 pp. 177; 185: *Liochthonius alpestris* (Forsslund)
 pp. 177; 186: *Liochthonius peduncularis* (Strenzke)
 pp. 177; 186: *Liochthonius perfusorius* Moritz
 pp. 177; 186: *Liochthonius tuxeni* (Forsslund)
 pp. 177; 186-187: *Mixochthonius pilosetosus* (Forsslund)

BORCARD, 1991b

Liochthonius perfusorius Moritz, 1976

Brachychochthonius zelawaiensis (Selln.) 1928 = *Sellnickochthonius zelawaiensis* (Sellnick)

BORCARD, 1993

- pp. 179; 180; 181: *Brachychochthonius zelawaiensis* (Sellnick) 1928 = *Sellnickochthonius zelawaiensis* (Sellnick)
 pp. 179; 180: *Brachychthonius berlesei* Willmann 1928
 pp. 179; 180: *Liochthonius alpestris* (Forsslund) 1958
 pp. 179; 180: *Liochthonius perfusorius* Moritz 1976

BORCARD & MATTHEY, 1995

- pp. 229; 230: *Liochthonius perfusorius* Moritz, 1976
 pp. 229; 230: *Brachychochthonius zelawaiensis* (Sellnick, 1928) = *Sellnickochthonius zelawaiensis* (Sellnick)
 pp. 229; 230: *Brachychthonius berlesei* Willmann, 1928
 p. 230: *Eobrachychthonius* cf. *oudemansi* van der Hammen, 1952 = *Eobrachychthonius oudemansi* Hammen

MAHUNKA, 1993

- p. 226: *Verachthonius laticeps* (Strenzke)

CRITICAL REMARKS ON EARLIER DATA

SCHWEIZER (1922, 1948, 1956, 1957)

In general, his data are unreliable and not well acknowledged. In his publication from 1922 he mentioned only one species: *Brachychthonius brevis* (Mich.) Berl. This reference has never after been referred to either by him or others. Since this species may easily be confused with several species (e.g. *B. pius* Moritz, 1976b, *B. impressus* Moritz, 1976b) it should be deleted from the Swiss fauna list.

A number of Brachychthoniidae species was listed in his paper from 1948, while in the „Nachtrag” attached to this paper he described a new species: *Brachychthonius* (= *Liochthonius*) *gisini*. Some of the listed species have been newly confirmed for Switzerland, but the data of Schweizer lacking authentic specimens are considered to be uncertain. Several authors (e.g. Niedbała, 1972, 1974; Moritz, 1976a) accept *Liochthonius gisini* as valid species, as we do also after having studied the holotype (Mahunka, 1969).

The identification of the following species notated in the paper from 1956 belonging in the family of Brachychthoniidae are unambiguous:

Brachychthonius (= *Liochthonius*) *sellnicki* (Thor, 1934): Moritz (1976a) accepted the reference of Schweizer, as we do.

Brachychthonius helveticus Schweizer, 1956: without doubt it is identical (see Niedbała, 1974 and Moritz, 1976b) with *Liochthonius bimaculatus* Willmann, 1936. The figure of Schweizer subscribes to it.

On the other hand, we could not evaluate the following species (neither were these mentioned by Niedbała, 1972, 1974, nor by Moritz, 1976a, 1976b). Some of the names are among the species incertae sedis:

Brachychthonius berlesei Willmann, 1928

Brachychthonius immaculatus Forsslund, 1942

Brachychthonius (= *Liochthonius*) *laetepictus* Berlese, 1910

Brachychthonius (= *Liochthonius*) *neosimplex* Schweizer, 1956

Brachychthonius (= *Liochthonius*) *perpusillus* Berlese, 1910

Brachychthonius (= *Eobrachychthonius*) *oudemansi* Hammen, 1952

BADER, 1963

He described a new species found in the legacy of Schweizer under the name of *Brachychthonius gygeri*, however, this species is identical with *B. immaculatus* Forsslund, 1942. Subsequently, several authors accepted this synonymisation.

EVISON, 1981

Weigmann (2006) considered *Mixochthonius moritzi* Evison as «species inquirenda».

BORCARD (1991a, 1991b, 1993), BORCARD & MATTHEY, 1995

When writing his works he was aware of and he also used the recent literature (Niedbała, 1972b; Moritz, 1976a, 1976b; Balogh & Mahunka, 1983), thus his data are correct and may be referred to, excepting those with cf., but with our present study of new materials, we can confirm the presence of these species in Switzerland.

MAHUNKA, 1993

This is still the only record of *Verachthonius laticeps* (Strenzke, 1951) for Switzerland.

Neither NIEDBAŁA nor MORITZ described a new species from the territory of Switzerland, they simply investigated those already known.

LIST OF THE PUBLISHED SPECIES ACCEPTED FOR THE SWISS FAUNA

Brachychthonius berlesei Willmann, 1928

Brachychthonius bimaculatus Willmann, 1936

Eobrachychthonius latior (Berlese, 1910)

Eobrachychthonius oudemansi Hammen, 1952

Liochthonius alpestris (Forsslund, 1958)

Liochthonius andrewi Evison, 1981

Liochthonius gisini (Schweizer, 1948)

Liochthonius peduncularis (Strenzke, 1951)

Liochthonius perfusorius Moritz, 1976

Liochthonius sellnicki (Thor, 1930)

Liochthonius tuxeni (Forsslund, 1957)

Mixochthonius pilosetosus (Forsslund, 1942)
Sellnickochthonius cricoides (Weis-Fogh, 1948)
Sellnickochthonius immaculatus (Forsslund, 1942)
Sellnickochthonius zelawaiensis (Sellnick, 1928)
Verachthonius laticeps (Strenzke, 1951)

LIST OF LOCALITIES

- BE-12:** SWITZERLAND: **Berne:** Niesen, sifting of mosses, 2300 m; 29.VII.2002; leg. C. Besuchet — (Bp—230).
- BL-1:** SWITZERLAND: **Bâle-campagne:** «Reinacher-Heide» near Reinach, Nature Reserve, xerothermic meadows, sifting, 600-700 m; 12.X.1989; leg. C. Besuchet — (Bp—85).
- GE-9:** SWITZERLAND: **Genève:** Allondon, Les Granges, old tree stump; 30.VI.1982; leg. C. Besuchet — (Bp—208).
- GR-1:** SWITZERLAND: **Grisons:** Gafia St. Antönien, mosses and grass roots; 20.IX.1983; leg. C. Besuchet — (Bp—51).
- GR-9:** SWITZERLAND: **Grisons:** Santa Maria – Umbrail Pass, sifting, 2000 m; 5.VIII.1974; leg. C. Besuchet — (Bp—37).
- GR-15:** SWITZERLAND: **Grisons:** Umbrail Pass, 2000 m; 25.VIII.1968; leg. C. Besuchet — (Bp—149).
- GR-19:** SWITZERLAND: **Grisons:** Val Poschiavo, above Selva, mosses and dead leaves, 1850 m; 28.VIII.1983; leg. C. Besuchet — (Bp—143).
- LU-1:** SWITZERLAND: **Lucerne:** Eigenthal, peat-bog Forenmoos near the village of Eigenthal, *Sphagnum* sp., 970 m; 2.VIII.1996; leg. C. Besuchet — (Bp—108).
- LU-2:** SWITZERLAND: **Lucerne:** above Gettnau (between Zell and Willisau), old ant-hill of *Formica rufa* L.; 1.VIII.1996; leg. C. Besuchet — (Bp—107).
- LU-5:** SWITZERLAND: **Lucerne:** Wohlhusen, old tree stumps; 17.III.1979; leg. C. Besuchet — (Bp—176).
- SO-2:** SWITZERLAND: **Soleure:** Ammansegg, litter and dry leaves in mixed forest; 14.V.1972; leg. S. Mahunka & L. Mahunka-Papp — (Bp—11).
- SO-5:** SWITZERLAND: **Soleure:** Schnottwil, Bucheggberg, mosses on bark of a live deciduous tree; 27.IX.1987; leg. S. Mahunka & L. Mahunka-Papp — (Bp—47).
- SO-6:** SWITZERLAND: **Soleure:** Schnottwil, Bucheggberg, dry needles in pine (*Pinus* sp.) forest; 27.IX.1987; leg. S. Mahunka & L. Mahunka-Papp — (Bp—48).
- SO-7:** SWITZERLAND: **Soleure:** Schnottwil, Bucheggberg, rotten wood and humus from trunk of an old deciduous tree; 27.IX.1987; leg. S. Mahunka & L. Mahunka-Papp — (Bp—49).
- TG-3:** SWITZERLAND: **Thurgovie:** Hudelmoos near Hagenwil, peat-bog with *Sphagnum* sp., 600 m; 13.IX.1993; leg. C. Besuchet — (Bp—88).
- TG-7:** SWITZERLAND: **Thurgovie:** Müllheim, dry leaves in mixed forest; 13.IX.1987; leg. S. Mahunka & L. Mahunka-Papp — (Bp—42).
- TG-8:** SWITZERLAND: **Thurgovie:** Müllheim, rotten trunk with mosses; 13.IX.1987, leg. S. Mahunka & L. Mahunka-Papp — (Bp—43).
- TG-9:** SWITZERLAND: **Thurgovie:** between Bischofszell and Hauptwil, moss on forest floor with ferns; 11.VI.1983; leg. T. & Z. Adamis — (Bp—21).
- TG-10:** SWITZERLAND: **Thurgovie:** between Bischofszell and Hauptwil, moss on forest floor and dry needles in pine (*Pinus* sp.) forest; 11.VI.1983; leg. T. & Z. Adamis — (Bp—22).
- TI-3:** SWITZERLAND: **Tessin:** Bordei at base of Mount Gridone («massif de refuge»), old chestnut stumps in forest, sifting, 700 m; 24.IV.1992; leg. C. Besuchet — (Bp—90).
- TI-5:** SWITZERLAND: **Tessin:** Monadello - Moneto, in decaying leaves, 850 m; 23.IV.1992; leg. C. Besuchet — (Bp—91).
- TI-9:** SWITZERLAND: **Tessin:** Nufenen Pass, dry leaves and rotten wood in larch forest; 15.VI.1979; leg. S. Mahunka & L. Mahunka-Papp — (Bp—18).
- TI-13:** SWITZERLAND: **Tessin:** Scudellate, moss on trees; 14.VI.1979; leg. S. Mahunka & L. Mahunka-Papp — (Bp—13).
- TI-22:** SWITZERLAND: **Tessin:** Cortascio above Brissago, sifting in ravine, 1050 m; 22.IV.1992; leg. C. Besuchet — (Bp—157).

- TI-23:** SWITZERLAND: **Tessin:** Alpe d'Arena above Vergeletto, at base of rocks, 1700 m; 22.VII.1983; leg. C. Besuchet — (Bp—142).
- TI-38:** SWITZERLAND: **Tessin:** Ascona, Mte Verità, dead leaves and soil, 450 m; 5.XI.1984; leg. C. Besuchet — (Bp—210).
- TI-42:** SWITZERLAND: **Tessin:** Cortascio above Brissago, sifting of mosses, 900 m; 20.V.1998; leg. C. Besuchet — (Bp—229).
- UR-4:** SWITZERLAND: **Uri:** Oberalp Pass, 2040 m; 23.IX.1965; leg. A. Comellini — (Bp—193).
- VD-7:** SWITZERLAND: **Vaud:** Le Séchey, lake Ter, under willows (*Salix* sp.), sifting, 1017 m; 21.VI.1989; leg. C. Besuchet — (Bp—82).
- 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 — (Bp—81).
- VS-1:** SWITZERLAND: **Valais:** Bourg-St-Bernard (near Pass of Grand-St-Bernard), roots of stinging nettles (*Urtica* sp.) and a mole nest, 1950 m; 12.X.1994; leg. C. Besuchet — (Bp—94).
- VS-4:** SWITZERLAND: **Valais:** Daubensee, mosses and grass, 2200 m; 11.VIII.1980; leg. C. Besuchet — (Bp—32).
- VS-5:** SWITZERLAND: **Valais:** Fluhalp near Leukerbad, mosses and dead leaves, 2000 m; 14.VIII.1980; leg. C. Besuchet — (Bp—2).
- VS-6:** SWITZERLAND: **Valais:** Fluhalp near Leukerbad, under alders (*Alnus* sp.) and willows (*Salix* sp.), 1950 m; 9.IX.1988; leg. C. Besuchet — (Bp—125).
- VS-8:** SWITZERLAND: **Valais:** Finges Forest, pine (*Pinus* sp.) stumps; 14.VIII.1980; leg. C. Besuchet — (Bp—5).
- VS-10:** SWITZERLAND: **Valais:** Gornergrat, sifting, 3050 m; 15.IX.1982; leg. C. Besuchet — (Bp—27).
- VS-11:** SWITZERLAND: **Valais:** Grammont, sifting of mosses, 2000 m; 30.VI.1989; leg. C. Besuchet — (Bp—79).
- VS-12:** SWITZERLAND: **Valais:** Grand-St-Bernard, mosses on and at base of rocks, 2150 m; 10.IX.1996; leg. C. Besuchet — (Bp—109).
- VS-19:** SWITZERLAND: **Valais:** Praz-de-Fort, mosses and dead leaves, 1200 m; 16.VIII.1989; leg. C. Besuchet — (Bp—80).
- VS-20:** SWITZERLAND: **Valais:** Praz-de-Fort, mosses in swamp, 1200 m; 26.VIII.1989; leg. C. Besuchet — (Bp—95).
- VS-23:** SWITZERLAND: **Valais:** Simplon Pass, mosses in swamp (with *Sphagnum* sp.), 2030 m; 23.VIII.1997; leg. C. Besuchet — (Bp—112).
- VS-24:** SWITZERLAND: **Valais:** Torrenthorn near Leukerbad, alpine meadows, sifting, 2500-2600 m; 12.VIII.1980; leg. C. Besuchet — (Bp—3).
- VS-25:** SWITZERLAND: **Valais:** Vercorin, moss cover on the ground; 30.V.1989; leg. H. Borrer — (Bp—83).
- VS-30:** SWITZERLAND: **Valais:** Torrenthorn above Leukerbad, 2575-2750 m; 6.VIII.1968; leg. C. Besuchet — (Bp—155).
- VS-32:** SWITZERLAND: **Valais:** Zermatt, Riffelberg, mosses, 2500 m; 14.VIII.1969; leg. C. Besuchet — (Bp—148).
- VS-34:** SWITZERLAND: **Valais:** Monthey, outside of the cave «Grotte de Saint-Martin» (VS 1), 540 m; 2.V.1980; leg. P. Strinati & V. Aellen — (Bp—199).
- VS-40:** SWITZERLAND: **Valais:** above Vernayaz, 700 m; 7.X.1980; leg. C. Besuchet — Bp—221).
- VS-41:** SWITZERLAND: **Valais:** Val d'Anniviers, mosses, 1100 m; 11.V.1980; leg. S. Vit — (Bp—222).
- VS-43:** SWITZERLAND: **Valais:** Val de Bagnes, Mauvoisin, waterlogged mosses near spring-head, c. 2000 m; 15.III.1997; leg. C. Besuchet — (Bp—224).
- VS-47:** SWITZERLAND: **Valais:** Val d'Anniviers, St.Jean, ash-tree and *Lasius* sp., 1400 m; 11.V.1980; leg. S. Vit — (Bp—228).
- VS-50:** SWITZERLAND: **Valais:** Grand-St-Bernard, mosses, 2450-2500 m; 24.VI.1976; leg. C. Besuchet — (Bp—239).
- VS-51:** SWITZERLAND: **Valais:** Rotboden below Gornergrat, mosses, grass and saxifrages, 2700-2800 m; 6.VIII.1976; leg. C. Besuchet — (Bp—240).

LIST OF NEWLY DETERMINED SWISS SPECIES

(including also the data already published by Mahunka, 1993)

Brachychthonius* Berlese, 1910Brachychthonius berlesei* Willmann, 1928*Brachychthonius berlesei* Willmann, 1928: 160, fig. 11.

Localities: LU-5; SO-2; TI-5; UR-4.

Distribution: Holarctic Region.

Brachychthonius impressus Moritz, 1976*Brachychthonius impressus* Moritz, 1976b: 264, figs 9a, 9c, 11a-d.

Localities: LU-2; TG-10; VS-25.

Distribution: Europe; **first record for Switzerland.***Brachychthonius pius* Moritz, 1976*Brachychthonius pius* Moritz, 1976b: 268, figs 12a-c.

Localities: GR-9; VS-24; VS-43.

Distribution: South and Central Europe; **first record for Switzerland.*****Eobrachychthonius* Jacot, 1936***Eobrachychthonius latior* Berlese, 1910*Brachychthonius latior* Berlese, 1910: 220, pl. 19: 38.

Locality: TI-9.

Distribution: Holarctic Region.

Note: The interpretation of the identity of this species varies following the authors. We can confirm that our Swiss material is identical with the specimens from Austria and we thank Dr H. Schatz for checking our specimens.

Eobrachychthonius oudemansi Hammen, 1952*Eobrachychthonius oudemansi* Hammen, 1952: 17, fig. 1b.

Locality: TG-3.

Distribution: Holarctic Region and South America; **confirmation of the Swiss record.**

Liochthonius* Hammen, 1959Liochthonius alpestris* (Forsslund, 1958)*Brachychthonius alpestris* Forsslund, 1958: 78, figs 5-7.

Localities: GR-15; TG-3.

Distribution: Central and North Europe.

Liochthonius brevis (Michael, 1888)*Hypochthonius brevis* Michael, 1888: 539, pl. 49: 14.

Localities: LU-2; TG-9; TI-38; VS-30; VS-51.

Distribution: Holarctic Region; **confirmation of the Swiss record.***Liochthonius clavatus* (Forsslund, 1942)*Brachychthonius clavatus* Forsslund, 1942: 6, fig. 6.

Locality: VS-24.

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

Liochthonius horridus (Sellnick, 1928)*Brachychthonius horridus* Sellnick, 1928: 23.

Locality: TG-7.

Distribution: Europe; **confirmation of the Swiss record.***Liochthonius hystricinus* (Forsslund, 1942)*Brachychthonius hystricinus* Forsslund, 1942: 4, fig. 5.

Localities: SO-5; TI-5; VS-23.

Distribution: Holarctic Region; **confirmation of the Swiss record.***Liochthonius lapponicus* (Trägårdh, 1910)*Hypochthonius brevis* Michael var. *lapponicus* Trägårdh, 1910: 549, fig. 352.

Localities: SO-5; VS-43.

Distribution: Holarctic Region; **first record for Switzerland.***Liochthonius leptaleus* Moritz, 1976*Liochthonius leptaleus* Moritz, 1976a: 45, figs 8a+b.

Locality: SO-2.

Distribution: Central and Western Europe; **first record for Switzerland.***Liochthonius muscorum* Forsslund, 1964*Liochthonius muscorum* Forsslund, 1964: 236, figs 1-5.

Localities: TI-3; TI-42.

Distribution: Palaearctic Region; **first record for Switzerland.***Liochthonius neglectus* Moritz, 1976*Liochthonius neglectus* Moritz, 1976a: 57, figs 12a-b.

Locality: VS-24.

Distribution: Europe; **first record for Switzerland.***Liochthonius sellnicki* (Thor, 1930)*Brachychthonius sellnicki* Thor, 1930: 58, pl. 7: 2.

Localities: TI-22; TI-23; VD-9; VS-1; VS-5; VS-6; VS-8; VS-10; VS-12; VS-23; VS-24; VS-30; VS-32; VS-40; VS-41; VS-50.

Distribution: Holarctic Region.

Liochthonius strenzkei Forsslund, 1963*Liochthonius strenzkei* Forsslund, 1963: 282.

Localities: BE-12; GR-1; GR-19; LU-5; TG-8; TI-13; VD-7; VS-5; VS-6; VS-20; VS-24; VS-41; VS-43; VS-50.

Distribution: Holarctic Region; **first record for Switzerland.***Liochthonius tumidus* sp. n.

Localities: VS-41; VS-43.

Description: see below.

Liochthonius tumulosus sp. n.

Locality: BE-12.

Description: see below.

***Mixochthonius* Niedbala, 1972**

Mixochthonius pilososetosus (Forsslund, 1942)

Brachychthonius pilososetosus Forsslund, 1942: 8, figs 10a-b.

Locality: TI-3.

Distribution: Holarctic Region.

***Poecilochthonius* Balogh, 1943**

Poecilochthonius italicus (Berlese, 1910)

Brachychthonius brevis Michael var. *italicus* Berlese, 1910a: 220, pl. 19: 40.

Localities: VS-20.

Distribution: Holarctic Region; **first record for Switzerland.**

Poecilochthonius spiciger (Berlese, 1910)

Brachychthonius brevis Michael var. *spiciger* Berlese, 1910a: 220.

Localities: BL-1; TI-3; TI-5; TI-22; TI-42; VS-11; VS-20; VS-40.

Distribution: Holarctic Region; **first record for Switzerland.**

***Sellnickochthonius* Krivolutsky, 1964**

Sellnickochthonius hungaricus (Balogh, 1943)

Poecilochthonius hungaricus Balogh, 1943: 23, pl. 4: 9.

Locality: VS-19.

Distribution: Palaearctic Region; **first record for Switzerland.**

Sellnickochthonius immaculatus (Forsslund, 1942)

Brachychochthonius immaculatus Forsslund, 1942: 9, fig. 12.

Localities: BE-12; GR-9; SO-6; TG-8; TG-10; VS-47.

Distribution: Holarctic Region; **confirmation of the Swiss record.**

Sellnickochthonius oesziae (Balogh & Mahunka, 1979)

Brachychochthonius oesziae Balogh & Mahunka, 1979: 283, figs 1-3.

Locality: SO-2.

Distribution: Central Europe; **first record for Switzerland.**

Sellnickochthonius subcricoides (Balogh & Mahunka, 1979)

Brachychochthonius subcricoides Balogh & Mahunka, 1979: 283, figs 4-6.

Localities: TG-7; VS-4.

Distribution: Central Europe; **first record for Switzerland.**

Sellnickochthonius suecicus (Forsslund, 1942)

Brachychochthonius jugatus Jacot var. *suecica* Forsslund, 1942: 8, fig. 11.

Locality: GE-9.

Distribution: Holarctic Region and New Zealand; **first record for Switzerland.**

Sellnickochthonius zelawaiensis (Sellnick, 1928)

Brachychthonius zelawaiensis Sellnick, 1928: 23.

Localities: LU-5; SO-2; SO-7; TG-9; TI-3; TI-5.

Distribution: Holarctic Region.

Synchthonius Hammen, 1952*Synchthonius crenulatus* (Jacot, 1938)*Brachychochthonius crenulatus* Jacot, 1938: 133, fig. 16.

Locality: LU-1.

Distribution: Holarctic Region; **first record for Switzerland.***Verachthonius* Moritz, 1976*Verachthonius laticeps* (Strenzke, 1951)*Brachychthonius laticeps* Strenzke, 1951a: 240, fig. 5.

Locality: VS-34.

Distribution: Europe and Japan.

DESCRIPTION OF NEW SPECIES

Liochthonius tumidus sp. n.

Figs 1-4

MATERIAL EXAMINED: Switzerland: Holotype: Valais: **VS-43**, 7 paratypes from the same sample and 2 paratypes: **VS-41**. Holotype and 5 paratypes: MHNG¹ and 4 paratypes (1681-PO-04): HNHN².

DIAGNOSIS: Colour light yellow, prodorsal and especially notogastral spots well observable. Prodorsum without transversal ridges, exobothridial tubercle protruding laterally. All prodorsal and notogastral setae slightly dilated, mostly dirk-shaped or phylliform. Clavus of sensillus concave apically.

MEASUREMENTS: Length of body: 210-218 μm , width of body: 124-130 μm .

Prodorsum: Rostrum wide, rounded in dorsal view. Exobothridial tubercle (*op*) large, extremely well developed. Transversal ridge between lamellar setae absent. Four pairs of mostly rectangular spots in interbothridial region, each pair separated transversally from each another, first one located farthest from each other, the third are the nearest (Fig. 3). Some other weak spots present on prodorsal surface. Prodorsal setae long, rostral one longest (23 μm). All setae more or less ensiform, with a thinly developed velum, mostly smooth, sometimes well visibly serrate, primarily on lamellar setae. Sensillus (Fig. 2) of medium length, head concave, seeming to be bifurcate, with well separated spines on its upper part.

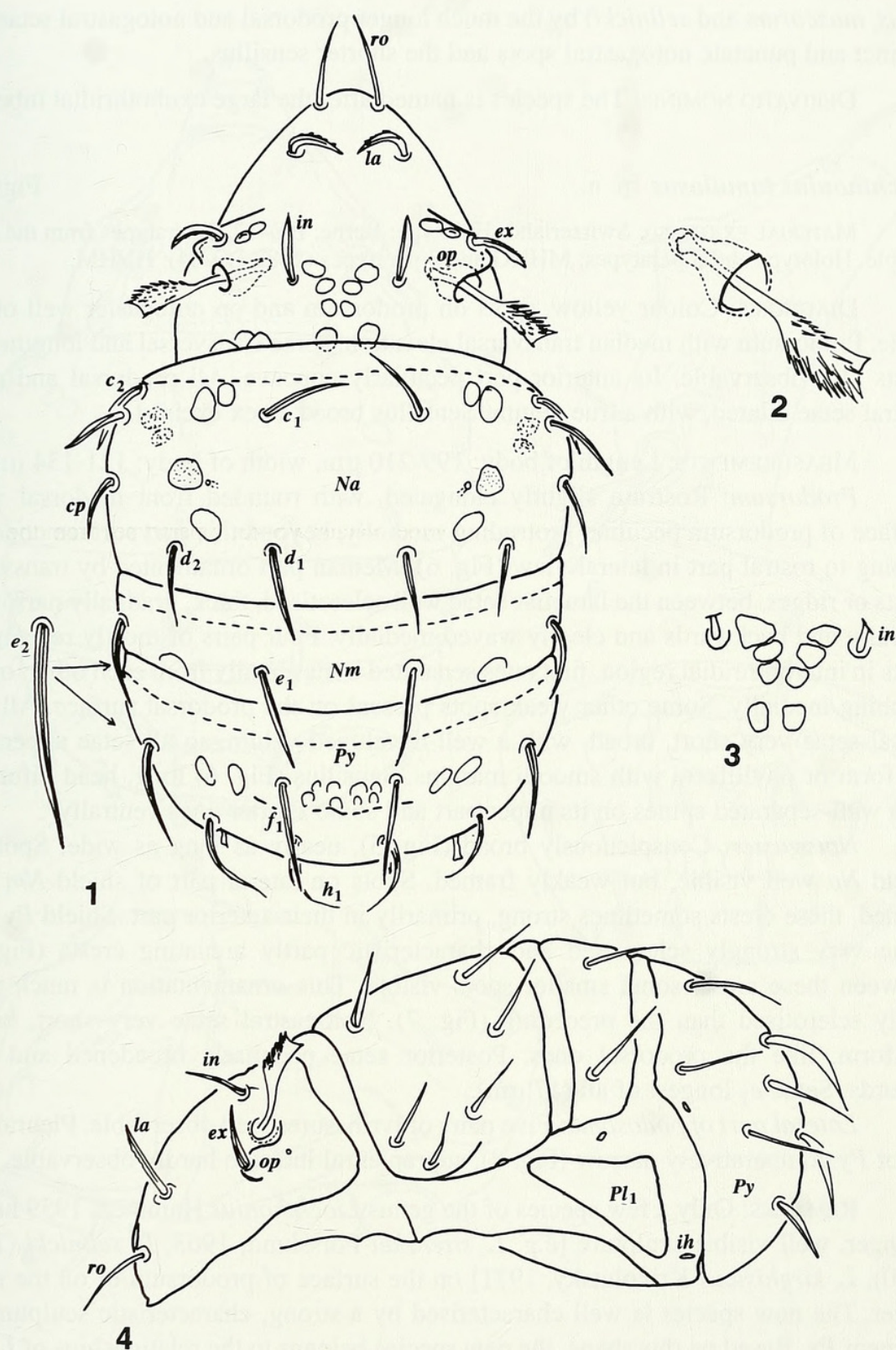
Notogaster: Slightly narrower than broad. Spots on dorsal surface rather distinct, sometimes also punctate (Fig. 1). Some smaller spots present between setae f_1 . Notogastral setae ensiform, dirk-shaped, comparatively long. Setae e_1 and f_1 longest (24-25 μm). Some setae broadened posteriorly, setae h_1 and p_1 much broader than others.

Lateral part of podosoma: Five pairs of lyrifissures well observable. Pleural plates of *Pa* comparatively narrow (Fig. 4). Suprapleural incision normal.

REMARKS: The new species belongs to the vicinity of *L. lapponicus* (Trägårdh, 1910), and is distinguished from the species belonging to this species group (*lapponicus*)

¹ MHNG = deposited in the Muséum d'Histoire naturelle, Geneva.

² HNHN = deposited in the Hungarian Natural History Museum, Budapest, with identification number of the specimens in the Collection of Arachnida.



FIGS 1-4

Liochthonius tumidus sp. n. (1) Body in dorsal view. (2) Sensillus. (3) Median prodorsal spots (4) Body in lateral view.

nicus, *muscorum* and *sellnicki*) by the much longer prodorsal and notogastral setae, the distinct and punctate notogastral spots and the shorter sensillus.

DERIVATIO NOMINIS: The species is named after the large exobothridial tubercle.

Liochthonius tumulosus sp. n.

Figs 5-8

MATERIAL EXAMINED: Switzerland: Holotype: Berne: **BE-12**, 8 paratypes from the same sample. Holotype and 5 paratypes: MHNG and 3 paratypes (1682-PO-04): HHM.

DIAGNOSIS: Colour yellow, spots on prodorsum and on notogaster well observable. Prodorsum with median transversal elevation, some transversal and longitudinal crests also observable. Its anterior part peculiarly concave. All prodorsal and notogastral setae dilated, with a true velum. Sensillus broad, apex excised.

MEASUREMENTS: Length of body: 199-210 μm , width of body: 121-134 μm .

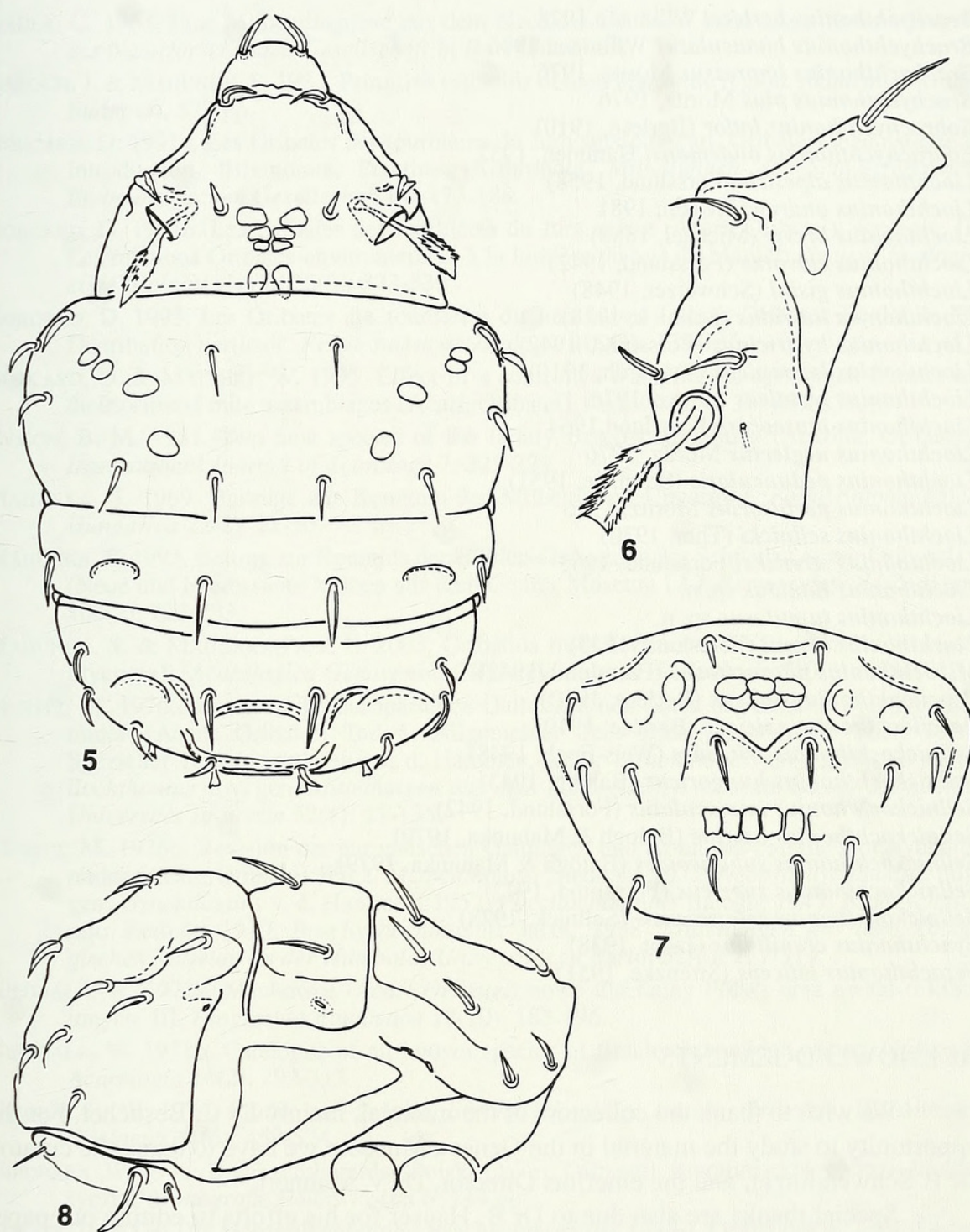
Prodorsum: Rostrum slightly elongated, with rounded front in dorsal view. Surface of prodorsum peculiar, protruding medially, beyond this part surface concave, sloping to rostral part in lateral view (Fig. 6). Median part ornamented by transversal crests or ridges, between the lamellar setae well sclerotised, thick, gradually narrowing laterally and backwards and clearly waved medially. Four pairs of mostly rectangular spots in interbothridial region, first ones separated transversally from each other, others touching medially. Some other weak spots present on the prodorsal surface. All prodorsal setae very short, broad, with a well-developed velum, so all setae appearing ensiform or phylliform with smooth margins. Sensillus (Fig. 6) long, head bifurcate, with well-separated spines on its upper part and some shorter ones ventrally.

Notogaster: Conspicuously broad (Fig. 5), nearly as long as wide. Spots on shield *Na* well visible, but weakly framed. Spots on lateral part of shield *Nm* well framed, these crests sometimes strong, primarily in their anterior part. Shield *Py* with some very strongly sclerotised and characteristic partly arcuating crests (Fig. 5). Between these crests some smaller spots visible. This ornamentation is much more finely sclerotised than the preceding (Fig. 7). Notogastral setae very short, broad, ensiform, like the prodorsal ones. Posterior setae peculiarly broadened and bent inwards. Setae e_1 longest of all (17 μm).

Lateral part of podosoma: Five pairs of lyrifissures well observable. Pleural plates of *Py* comparatively narrow (Fig. 8), suprapleural incision hardly observable.

REMARKS: Only a few species of the genus *Liochthonius* Hammen, 1959 have a stronger, well visible sculpture [e.g. *L. strenzkei* Forsslund, 1963, *L. sellnicki* (Thor, 1930), *L. kirghisicus* Krivolutsky, 1971] on the surface of prodorsum or on the notogaster. The new species is well characterised by a strong, characteristic sculpture on segment *Py*. Based on this shape, the new species belongs to the relationships of *L. kirghisicus* (Krivolutsky, 1971) and is distinguished from those belonging to this species group (*lapponicus*, *muscorum*, *sellnicki* and *strenzkei*) by its much longer prodorsal and notogastral setae, and the shorter sensillus.

DERIVATIO NOMINIS: The species is named after its peculiar projection in the middle of the prodorsum.



FIGS 5-8

Liochthonius tumulosus sp. n. (5) Body in dorsal view. (6) Prodorsum in lateral view. (7) Pygidium in posterior view. (8) Podosoma in lateral view.

A PRELIMINARY LIST OF SWISS BRACHYCHTHONIIDAE

- Brachychthonius berlesei* Willmann, 1928
Brachychthonius bimaculatus Willmann, 1936
Brachychthonius impressus Moritz, 1976
Brachychthonius pius Moritz, 1976
Eobrachychthonius latior (Berlese, 1910)
Eobrachychthonius oudemansi Hammen, 1952
Liochthonius alpestris (Forsslund, 1958)
Liochthonius andrewi Evison, 1981
Liochthonius brevis (Michael, 1888)
Liochthonius clavatus (Forsslund, 1942)
Liochthonius gisini (Schweizer, 1948)
Liochthonius horridus (Sellnick, 1928)
Liochthonius hystricinus (Forsslund, 1942)
Liochthonius lapponicus (Trägårdh, 1910)
Liochthonius leptaleus Moritz, 1976
Liochthonius muscorum Forsslund, 1964
Liochthonius neglectus Moritz, 1976
Liochthonius peduncularis (Strenzke, 1951)
Liochthonius perfusorius Moritz, 1976
Liochthonius sellnicki (Thor, 1930)
Liochthonius strenzkei Forsslund, 1963
Liochthonius tumidus sp. n.
Liochthonius tumulosus sp. n.
Liochthonius tuxeni (Forsslund, 1957)
Mixochthonius pilosetosus (Forsslund, 1942)
Poecilochthonius italicus (Berlese, 1910)
Poecilochthonius spiciger (Berlese, 1910)
Sellnickochthonius cricoides (Weis-Fogh, 1948)
Sellnickochthonius hungaricus (Balogh, 1943)
Sellnickochthonius immaculatus (Forsslund, 1942)
Sellnickochthonius oesziae (Balogh & Mahunka, 1979)
Sellnickochthonius subcricoides (Balogh & Mahunka, 1979)
Sellnickochthonius suecicus (Forsslund, 1942)
Sellnickochthonius zelawaiensis (Sellnick, 1928)
Synchthonius crenulatus (Jacot, 1938)
Verachthonius laticeps (Strenzke, 1951)

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