

## Lists of the insect types in the Zoological Museum, University of Helsinki. 6. Collembola

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The types of 118 taxa of Collembola deposited in the Zoological Museum, University of Helsinki, are listed. Essential label data and references to original descriptions, subsequent synonymizations or alterations of status or genus are given. No new designations have been made.

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Index words: Type list, Collembola, Helsinki Museum

The bulk of the type material of Collembola deposited in the museum has been collected and described by W.M. Linnaniemi (= Axelson) and O.M. Reuter. Neither of them designated any types, and the decision whether the specimens in question belong to original series has usually been made by comparing the label data with the information given in the original descriptions and, in many cases, with the detailed data given by Linnaniemi (1912) in his volume on Finnish Apterygota. The present list includes also specimens (mainly of taxa described by contemporaries of Linnaniemi) of which it is not possible with certainty to say that they represent type series, mainly because of insufficient label data. They have been listed among the others as "possible" types. The manner of preservation of the material (whether in alcohol or on slides) is also mentioned in the list.

*affinis* Axelson 1900:15; *Isotoma*. Syntype (alc.) from USSR (Karelsk. ASSR): Östra Finland, K.E. Stenroos. Det. W.M. Axelson. According to the description the specimen was collected in Russian Karelia. Synonym of *Isotoma neglecta* Schäffer, 1900 (Fjellberg 1979).

*agreni* Stach 1956:140; *Bourletiella*. Lectotype ♂ (Ellis 1975, slide) and 24 paralectotypes (slides) from USSR (Karelsk. ASSR): Sortavala, Kirjavalaks, V.1902, W.M. Axelson. A description was published as *Bourletiella pruinosa* (Tullb. Ågr.) by Linnaniemi (1912:296), it was renamed by Stach

(1956) and regarded as synonym of *Bourletiella pistillum* Gisin, 1946 (Ellis 1975).

*albicans* Reuter 1895:20; *Lepidocyrtus*. 4 syntypes (slide) from Finland: Nagu, Reuter. Synonym of *Lepidocyrtus lignorum* (Fabricius, 1793) (Gisin 1965).

*alticola* Uzel 1890:45; *Orchesella*. 3 possible syntypes (alc.) from Czechoslovakia: Riesengebirge. Uzel.

*ammophilus* Börner 1903:165; *Sminthurus*. Possible syntype (alc.) from FRG: Deutschland, Börner. Synonym of *Sminthurus multipunctatus* Schäffer, 1896 (Stach 1956).

*angularis* Axelson 1905:791; *Isotoma*. 4 syntypes (alc.) from Finland: N. Tvärminne, Långholmen, VII.04, W.M. Axelson (2 exx.) and Nyl. Tvärminne, Ramsholmen, 8. VII.04, leg. & det. W.M.A. (2 exx.) Currently *Folsomides angularis* (Axelson) (Poinsot-Balaguer & Barra 1982).

*annulicornis* Axelson 1905:793; *Sminthurides*. Holotype (alc., in poor condition) from USSR (Karelsk. ASSR): Sortavala, A.J. Siilfvenius, det Axelson No 245.

*anophthalma* Axelson 1902:106; *Isotoma*. Holotype (alc.) from USSR (Murmansk. obl.): Kar. Keret. Koutajärvi, 1901, W.M. Axelson. Regarded as a variety of *Folsomia quadrioculata* (Tullberg, 1871) by Linnaniemi (1912) and listed as *Folsomia quadrioculata anophthalma* (Axelson) (Salmon 1964). (Koutajärvi is nowadays called Kovdozero.)

*armatus* Axelson 1903:4; *Xenyllodes*. 11 syntypes from USSR (Leningradsk. obl.): Wiipuri, Rättijärvi, VI.1902, W.M. Axelson (2 exx. slide, 2 exx. alc.) and Uusikirkko, Kirkkojärvi, VI.1902, W.M. Axelson (7 exx. alc.). (Rättijärvi is nowadays called Tsvetotšnoje, and Uusikirkko, Kirkkojärvi Poljanskoje Ozero.)

- armatus* var. *cuspidata*; *Achorutes* — see *cuspidata*.
- armatus* var. *inermis*; *Achorutes* — see *inermis*.
- armatus* var. *inermis*; *Onychiurus* — see *inermis*.
- atra* var. *flavescens*; *Dicyrtoma* — see *flavescens*.
- aureus* var. *dorsalis*; *Sminthurinus* — see *dorsalis*.
- aureus* var. *transversalis*; *Sminthurinus* — see *transversalis*.
- balazuci* Delamare Deboutteville 1951:116; *Typhlogastrura*. Syntype (slide) from France: Saint-Alban sous Sampzon (Ardèche), 27.VI.50, Balazuc.
- bilineata* Axelson 1903:13; *Sminthurides* Schötti var. 29 syntypes (alc.) from Finland and USSR (Leningradsk. obl.): Kokkola VIII.1902, W.M. Axelson (10 exx.); Ristiina VII.1902, W.M. Axelson (2 exx.); Pielavesi, Tuovilanlaks VIII.1902, W.M. Axelson (1 ex.); Iisalmi, Nerkoo, 1902, W.M. Axelson (1 ex.); Ulvila, Pori, 1902, W.M. Axelson (1 ex.); Tampere, Messukylä, 1902, W.M. Axelson (3 exx.); Sa, Joutseno, Karsturanta, VI.02, W.M. Axelson (1 ex.); Uusikirkko, Kirkkojärvi, VI.02, W.M. Axelson (5 exx.) and Wiipuri, VI.1902, W.M. Axelson (5 exx.).
- bimaculata* Axelson 1902:110; *Sminthurinus igniceps* var. 5 syntypes (alc.) from USSR (Murmansk. obl.): Ks, Kuusamo, Paanajärvi, 9.IX.01, WMA (2 exx.); Im, Tshuinatunt. 28.VIII.01, WMA (2 exx.) and Kar. Keret. Koutajärvi, 5.IX.01, WMA (1 ex.). Currently *Sminthurinus bimaculatus* Axelson (Stach 1956).
- binoculatus* Linnaniemi 1912:273; *Arrhopalites*. 172 syntypes (alc.) from Finland and USSR (Karelsk. ASSR, Leningradsk. and Murmansk. obl.): Kuusamo, Paanajärvi, 10.IX.01, WMA (2 exx.); Nyl. H-ki, Meilans, WMA (4 exx.); Joutseno, VI.1902, WMA (5 exx.); Kajaani, VII.1902, WMA (6 exx.); Ristiina, VII.1902, WMA (8 exx.); Pielavesi, Tuovilanlaks, VII.1902, WMA (12 exx.); Iisalmi, Nerkoo, VII.1902, WMA (9 exx.); Sotkamo, VII.1902, WMA (4 exx.); Waasa, VIII.1902, WMA (3 exx.); Kokkola, VIII.1902, WMA (5 exx.); Utajärvi, Vaala, VIII.1902, WMA (4 exx.); Tampere, Messukylä, 1902, WMA (4 exx.); Ulvila, Pori, 1902, WMA (4 exx.); Ylitornio, 1903, WMA (1 ex.); Turtola, Pello, 1903, WMA (2 exx.); Rovaniemi, 1903, WMA (35 exx.); Finström, 1903, WMA (1 ex.); Pallastunturi, 1903, WMA (5 exx.); Muonio, 1903, WMA (1 ex.); Kolari, 1903, WMA (5 exx.); Kittilä, 1903, WMA (30 exx.); Im, Tshuinatunt., 28.VIII.01, WMA (3 exx.); Im, Kannanlaks, 1–3/IX.01, WMA (2 exx.); Uusikirkko, Kirkkojärvi, VI.1902, WMA (3 exx.); Wiipuri, Rättijärvi, VI.1902, WMA (4 exx.). Described as *Arrhopalites binoculatus* (Börner, 1901) by Linnaniemi (1912) but made valid later, redescribed, and the name *binoculatus* being preoccupied, renamed *Arrhopalites principalis* by Stach (1945). (Kannanlaks is nowadays called Kandalakša.)
- binoculatus* var. *grisea*; *Arrhopalites* — see *grisea*.
- binoculatus* var. *pallida*; *Arrhopalites* — see *pallida*.
- bipunctata* Axelson 1903:9; *Isotoma*. 4 syntypes (alc.) from USSR (Leningradsk. obl.): Uusikirkko, Kirkkojärvi, VI.1902, W.M. Axelson. Currently *Cryptopygus bipunctatus* (Axelson) (Fjellberg 1980).
- borealis* Axelson 1905:791; *Isotoma*. 29 syntypes (alc.) from Finland: Pallastunturi, 1903, W.M. Axelson. Currently *Proisotoma borealis* (Axelson) (Linnaniemi 1912).
- börneri* Axelson 1905:789; *Xenylla*. 5 syntypes (alc.) from Finland: Helsinki, W.M. Axelson (3 exx.), the tube carries additional label: "Xenylla börneri n.sp."; Tvärminne, 1904.17.VII (1 ex.) and Tvärminne, Skarfkyrkan, 24.VII.04, W.M. Axelson (1 ex.).
- caerulescens* Börner 1903:156; *Heteromurus*. Possible syntype (alc.) from Italy: Palermo, leg. C. Börner. Synonym of *Heteromurus major* (Moniez, 1889) (Gisin 1960).
- caldaria* Axelson 1905:790; *Isotoma fimetaria* var. 16 syntypes (alc.) from Finland: Nyl. Tvärminne, 1904, WMA (14 exx.) and Tammerfors, E. Bergroth (2 exx.). Synonym of *Folsomia candida* Willem, 1902 (Stach 1947).
- clavata* Schött 1893:73; *Isotoma*. 8 possible syntypes (alc.) from Sweden: "Isotoma clavata Schött. Vecchia Schött."
- clavipila* Axelson 1903:7; *Isotoma*. Holotype (alc.) from USSR (Leningradsk. obl.): Viipuri, Rättijärvi, W.M. Axelson. The specimen bears also labels "Isot. clavipila n.sp." and "Isotoma minuta var. clavipila Axels." Currently *Proisotoma clavipila* (Axelson) (Fjellberg 1973).
- claviveta* Axelson 1900:8; *Friesea*. 2 syntypes (alc.) from Finland: Kuopio, Wäinölänniemi, 25.IV.97, AWD (1 ex.) and Kb, Joensuu, Noro, IX 99, WM Axelson (1 ex.).
- claviveta* Axelson 1902:101; *Börneria*. Holotype (alc.) from Finland: LKem Salla, 1901, W.M. Axelson. Linnaniemi (1912) regarded *Börneria* Axelson, 1902 nec Willem, 1902 a synonym of *Paranura* Axelson, 1902 and considered *claviveta* a variety of *P. sexpunctata* Axelson, 1902.
- cruciatus* Axelson 1905:792; *Sminthurides*. 11 syntypes from Finland and USSR (Karelsk. ASSR): Kemi, Rantaniemi, VIII.1902, W.M. Axelson (3 exx. alc.); Turtola, Pello, 1903, W.M. Axelson (1 ex. alc., 1 ex. slide); Ylitornio, 1903, W.M. Axelson (2 exx. alc.); Sortavala, Airanteenjärvi, 12.VI.02, Silfvenius leg (2 exx. alc.) and Sortavala, VI.02, W.M. Axelson (2 exx. alc.).
- cuspidata* Axelson 1905:788; *Achorutes armatus* var. 8 syntypes (alc.) from Finland: Pallastunturi, 1903, W.M. Axelson (5 exx.) and Kittilä, 1903, W.M. Axelson (3 exx.). Synonym of *Ceratophysella scotica* (Carpenter & Evans, 1899) (Stach 1949).
- decolor* Axelson 1904:69; *Xenylla grisea* var. 5 syntypes (alc.) from Finland: Savonlinna, K.H. Enwald (3 exx.); Oulu, VIII.1902, W.M. Axelson (2 exx.). According to Stach (1949) the variety is just an abnormality.
- denticulata* Schäffer 1896:189; *Isotoma*. 5 possible syntypes (alc.) from FRG: "Hamburg" (1 ex.) and "Bremen" (4 exx.).
- diplophthalma* Axelson 1902:106; *Isotoma*. Holotype (alc.) from USSR (Murmansk. obl.): Kar. Keret. Knjasha, 1901, W.M. Axelson. Currently *Folsomia diplophthalma* (Axelson) (Stach 1947).
- distincta* Linnaniemi 1912:262; *Sminthurides signatus* var. 11 syntypes (slide) from Finland: Kittilä, 1903, W.M. Axelson. Currently *Sminthurides distinctus* Linnaniemi (Stach 1956).

- distinctus* Axelson 1902:104; *Achorutes*. 6 syntypes (4 exx. alc., 2 exx. slide) from Finland: Kb, Joensuu 12–14.X.01, WMA. Currently *Hypogastrura distincta* (Axelson) (Linnaniemi 1912).
- divergens* Axelson 1900:14; *Isotoma violacea* var. 2 syntypes (alc.) from USSR (Leningradsk. obl.): Ik, Muola, Perkjärvi, 2.VII.1898, T.H. Järvi. Currently *Isotoma divergens* Axelson (Fjellberg 1979). (The locality is nowadays called Kirillovskoje.)
- dorsalis* Axelson 1905:794; *Sminthurinus aureus* var. 38 syntypes (alc.) from Finland and USSR (Karelsk. ASSR and Leningradsk. obl.): Nyl. Helsinki, 28.V.03, WMA (3 exx.); N. Helsinki, Seurasaari, 25.V.03, WMA (1 ex.); Ks, Kuusamo, Paanajärvi, 9.IX.01, WMA (2 exx.); Sb, Pielavesi, Tuovilanlaks., VII.02, WMA (2 exx.); Sa, Ristiina, 3.VII.02, WMA (1 ex.); Kb, Joensuu, 14.–18.X.01, WMA (1 ex.); LKcm, Kittilä, 22.VI.03, WMA (1 ex.); Häiluoto, VIII.1902, W.M. Axelson (1 ex.); Ob, Rovaniemi, 13.VII.03, WMA (1 ex.); Ob, kemi, Ajosaaari, 8.VIII.02, WMA (2 exx.); Nyl. Tvärminne Station, 15.VI.03, W.M. Axelson (1 ex.); Kb, Pielinen-Höytiäinen, kes. 1897, W.M. Axelson (1 ex.); Joutseno, Karsturanta, VI.02, W.M. Axelson (7 exx.); Ab, Finström, 30.VI.03, WMA (1 ex.); Ob, Oulu, Hietasaari, VIII.02, WMA (1 ex.); Kolari, VIII.03, W.M. Axelson (1 ex.); Viipuri, Rättijärvi, VI.02, WMA (4 exx.) and Ik, Uusikirkko, Kirkkojärvi, VI.02, WMA (5 exx.). Listed as *Sminthurinus elegans dorsalis* Axelson (Salmon 1964).
- dorsalis* Reuter 1876:85; *Papirius*. 3 syntypes (alc.) from Finland: Fenn. or., J. Sahlb. Synonym of *Ptenothrix atra* (Linnaeus, 1758) (Linnaniemi 1912).
- dorsalis* Uzel 1890:60; *Entombrya*. 2 possible syntypes (alc.) from Czechoslovakia: Riesengebirge. Uzel. The tube bears also label "Calistella dorsalis Uzel".
- elegantulus* Reuter 1881:204; *Sminthurus*. 3 syntypes (alc.) from Finland: Pargas, Reuter. Listed as *Sminthurides malmgreni elegantulus* (Reuter) (Salmon 1964).
- elongata* Axelson 1903:6; *Isotoma*. Syntype (alc.) from Finland: Joutseno, VI.1902, W.M. Axelson. Preoccupied by *Isotoma elongata* MacGillivray, 1896, and renamed *Isotoma producta* Axelson, 1906.
- fennica* Reuter 1895:27; *Isotoma hiemalis* var. About 2000 syntypes (3 exx. slide, others alc.) from Finland: Halikko, Pattijoki, 1880, Collan. Currently *Isotoma fennica* Reuter (Linnaniemi 1912).
- fennicus* Reuter 1876:83; *Sminthurus flaviceps* var. 4 syntypes (slide) from Finland: Ispois, Reuter. *Sminthurus flaviceps* Tullberg, 1871 is currently *Spatulosminthurus flaviceps* (Tullberg) (Betsch & Betsch-Pinot 1984).
- fimetaria* var. *caldaria*; *Isotoma* — see *caldaria*.
- fimetarioides* Axelson 1903:8; *Isotoma*. 45 syntypes (alc.) from Finland and USSR (Leningradsk. obl.): Utajärvi, Vaala, VIII.1902, W.M. Axelson (3 exx.); Ulvila, Pori, 1902, W.M. Axelson (1 ex.); Pielavesi, Tuovilanlaks, VII.1902, W.M. Axelson (5 exx.); Iisalmi, Nerkoo, VII.1902, W.M. Axelson (5 exx.); Kokkola, VIII.1902, W.M. Axelson (1 ex.); Uusikirkko, Kirkkojärvi, VI.02, W.M. Axelson (1 ex.) and Wiipuri, Rättijärvi, VI.1902, W.M. Axelson (19 exx.). Currently *Folsomia fimetarioides* (Axelson) (Linnaniemi 1912).
- fjellbergi* Dunger 1982:54; *Proisotoma*. 10 paratypes (3 exx. slide, 7 exx. alc.) from Mongolia: Nr. 768. Central aimak, Pass Zozijn davaa, 1650 m, 1967, leg. Kaszab.
- flavescens* Axelson 1905:794; *Dicyrtoma atra* var. 3 syntypes (alc.) from Finland: Utajärvi, Vaala, VIII.1902, W.M. Axelson (2 exx.) and Oulu, VIII.1902, W.M. Axelson (1 ex.). Listed as *Ptenothrix atra flavescens* (Axelson) (Salmon 1964).
- flavescens* Axelson 1902:111; *Papirius fuscus* var. 2 syntypes (alc.) from USSR (Murmansk. obl.): Kar. Keret. Knjasha, 1901, W.M. Axelson. Listed as *Dicyrtoma fusca flavescens* (Axelson) (Salmon 1964).
- flaviceps* var. *fennicus*; *Sminthurus* — see *fennicus*.
- frigidus* Axelson 1905:788; *Achorutes*. 7 syntypes (alc.) from Finland: Sodankylä, 1883, N. Sundman. The tube bears also label "Hypogastrura lapponica Axelson (f. frigida Ax.) H.P. Leinaas det.". Synonym of *Hypogastrura lapponica* (Axelson, 1902) (Leinaas 1981).
- fucatus* Uzel 1890:52; *Lepidocyrtus*. 4 possible syntypes (alc.) from Czechoslovakia: Riesengebirge, Uzel.
- fucicola* Schött 1893:66; *Isotoma palustris* var. 15 syntypes (alc.) from Finland: Pargas, Reuter. Listed as *Isotomurus fucicola* (Reuter, 1891) by Poinot (1972). For authorship, see additional information, p. 6.
- furcifera* Börner 1901:3; *Aphorura*. 2 possible syntypes (alc.) from FRG: "Deutschland, leg. & Determ. Börner". Currently *Onychiurus furcifer* (Börner) (Linnaniemi 1912).
- fuscus* var. *flavescens*; *Papirius* — see *flavescens*.
- georgiana* Schäffer 1891:197; *Isotoma*. 7 possible syntypes (alc.) from South Georgia Islands: Süd-Georgien, Januar 1883. Currently *Isotomurus georgianus* (Schäffer) (Stach 1947).
- globosus* Axelson 1902:109; *Sminthurides*. Syntype (alc.) from USSR (Karelsk. ASSR): Ks, Kuusamo, Paanajärvi, 9.IX.01, WMA. Synonym of *Sphaeridia pumilis* (Krausbauer, 1898) (Stach 1956).
- grandiceps* Reuter 1891a:229; *Isotoma*. Syntype (slide) from USSR (Tajmyrsk. Aut. Okrug): Tolstoinos, J. Sahlberg. Currently *Meisotoma grandiceps* (Reuter) (Christiansen & Bellinger 1980). (Tolstoinos is nowadays called Karaul.)
- grisea* Axelson 1900:4; *Xenylla*. About 220 syntypes (alc.) from Finland: Kuopio, 25.IV.97. A. Westerlund (ca. 120 exx.) and Helsinki, 21.I.1900, J. Lydecken (ca. 100 exx.).
- grisea* Linnaniemi 1912:275; *Arrhopalites binoculatus* var. 25 syntypes (alc.) from Finland: Sb, Pielavesi, Tuovilanlaks, 18.VII.02, W.M. Axelson (6 exx.); Pielavesi, Tuovilanlaks, VII.1902, W.M. Axelson (1 ex.); Kajaani, VII.1902, W.M. Axelson (3 exx.); Iisalmi, Nerkoo, VII.1902, W.M. Axelson (2 exx.); Ok, Sotkamo, Nuasjärvi, 1.VIII.02, WMA (2 exx.); Utajärvi, Vaala, VIII.1902, W.M. Axelson (1 ex.); Ob,

- Rovaniemi, 13.VII.03, WMA (2 exx.; one with head only); Turtola, Pello, 9.VIII.03, WMA (4 exx.) and LKem, Kolari, 1903, WMA (4 exx.). The tubes bear labels "Sm. binoculatus v. fusca" or "Sminth. binoculatus var. fusca" but the collection data agree with those given by Linnaniemi (1912) for *Arrhopalites binoculatus* var. *grisea*.
- grisea* var. *decolor*; *Xenylla* — see *decolor*.
- hiemalis* var. *fennica*; *Isotoma* — see *fennica*.
- hirsuta* Valpas 1967:32; *Hypogastrura*. 7 syntypes (slide) and a specimen labelled "paratype" (alc.) from Norway (Spitzbergen): Reinsdyrflyta, 22.VII.1965, leg. J. Kaisila. Synonym of *Hypogastrura* (*Ceratophysella*) *longispina* (Tullberg, 1876) (Fjellberg 1985).
- höfti* Schäffer 1896:192; *Sinella*. 3 possible syntypes (alc.) from FRG: Hamburg. Synonym of *Sinella coeca* (Schött, 1886) (Gisin 1960).
- igniceps* Reuter 1881:203; *Sminthurus*. 3 syntypes (slide) from Finland: H:fors, Reuter. Currently *Sminthurinus igniceps* (Reuter) (Stach 1956).
- igniceps* var. *bimaculata*; *Sminthurinus* — see *bimaculata*.
- immaculata* Axelson 1905:792; *Sminthurides malmgreni* var. Holotype (alc.) from USSR (Leningradsk. obl.): Uusikirkko, Kirkkojärvi, VI.02, WMA.
- inermis* Axelson 1905:788; *Achorutes armatus* var. 6 syntypes (alc.) from Finland and USSR (Karelsk. ASSR and Leningradsk. obl.): Joutseno, VI.1902, W.M. Axelson (1 ex.); Kittilä, 1903, W.M. Axelson (1 ex.); Waasa, VIII.1902, W.M. Axelson (1 ex.); Mikkeli, VI.1902, W.M. Axelson (1 ex.); Wiipuri, Rättijärvi, VI.1902, WMA (1 ex.) and Sortavala, Kirjavalaks, V.1902, W.M. Axelson (1 ex.). The tubes are labelled "Achor. armat. v. inermis CB".
- inermis* Axelson 1905:788; *Achorutes viaticus* var. 5 syntypes (alc.) from Finland: Kittilä, 1903, W.M. Axelson (1 ex.); Kolari, 1903, W.M. Axelson (3 exx.) and Tvärminne, Lappvik, 6.VIII.04, WMA (1 ex.).
- inermis* Axelson 1905:790; *Onychiurus armatus* var. Syntype (alc.) from Finland: Kb, Joensuu, 15.X.01, WMA.
- inopinata* Axelson 1902:108; *Isotoma*. 13 syntypes (alc.) from USSR (Murmansk. obl.): LKem, Kuolajärvi, Kotala, 16.X.01, J. Kotala. Synonym of *Pseudisotoma sensibilis* (Tullberg, 1876) (Linnaniemi 1912).
- insignis* Reuter 1895:16; *Lepidocyrtus*. 4 syntypes (slide) from Finland: H:fors, G. Sundman, det. O.M. Reuter. Synonym of *Lepidocyrtus paradoxus* Uzel, 1890 (Linnaniemi 1912).
- intermedia* Schött 1902:25; *Isotoma*. 2 possible syntypes (alc.) from Sweden. The tube bears label "Isotoma intermedia Schött. Svecia Schött, typ!".
- lamellifer* Axelson 1903:3; *Xenyllodes*. 15 syntypes from Finland and USSR (Karelsk. ASSR and Leningradsk. obl.): Ristiina, VII.1902, W.M. Axelson (2 exx. alc.; labelled "Xenyllodes distinctus n.g. n.sp."); Iisalmi, Nerkkoo, VII.1902, W.M. Axelson (3 exx. alc.; labelled "Xenyllodes distinctus n.g. n.sp."); Joutseno, 1902, WMA (1 ex. slide, 3 exx. alc., one of which without head and thorax I); Ulvila, Pori, 1902, W.M. Axelson (1 ex. alc.); Tampere, Messukylä, 1902, W.M. Axelson (2 exx. alc.); Pielavesi, Tuovilanlaks, W.M. Axelson (1 ex. alc.); Sortavala, Kirjavalaks, V.1902, W.M. Axelson (1 ex. alc., labelled "Xenyllodes sp., n.g. n.sp.") and Uusikirkko, Kirkkojärvi, VI.1902, W.M. Axelson (2 exx. alc.). Currently *Odontella lamellifera* (Axelson) (Massoud 1967).
- lapponicus* Axelson 1902:105; *Achorutes*. 16 syntypes (alc.) from USSR (Murmansk. obl.): LKem, Kuolajärvi, Rohmoiva, 4.VI.01, WMA (3 exx.); Im, Kouterojärvi-Imantra, 30.VIII.01, WMA (7 exx.) and Kannanlaks, Nivajoki, 1/IX.01, WMA (6 exx.). Currently *Hypogastrura lapponica* (Axelson) (Linnaniemi 1912, Leinaas 1981).
- lineatus* Reuter 1876:84; *Sminthurus*. Syntype (alc.) from Finland: Nurmis. J. Sahlb. Synonym of *Bourletiella hortensis* (Fitch, 1863) (Stach 1956).
- litoral* Linnaniemi 1909:16; *Achorutes purpurascens* var. 82 syntypes (alc.) from Finland: Ulvila, Pori, 1902, W.M. Axelson (80 exx.) and Ulvila, Reposaaari, 1902, W.M. Axelson (2 exx.). Currently *Hypogastrura litoral* (Linnaniemi) (Gisin 1962).
- lividus* Tullberg 1876:32; *Tomocerus*. Possible syntype (alc.) from USSR (Krasnojarskij kraj): Sibirien, Tullberg det.
- Lubbocki* var. *maculata*; *Sminthurus* — see *maculata*.
- maculata* Axelson 1900:19; *Sminthurus Lubbocki* var. Holotype (alc.) from Finland: Helsinki, Fredriksberg, X.99, WMA. *Sminthurus lubbocki* Tullberg, 1872 is currently *Lipothrix lubbocki* (Tullberg) (Betsch 1980).
- maculata* Schäffer 1896:186; *Isotoma palustris* var. 3 possible syntypes (alc.) from FRG. The tube bears label "Isotoma palustris var. maculata Schäffer. Hamburg. Schäffer determ.". Listed as *Isotomurus palustris maculatus* (Schäffer) (Poinsot 1972).
- maculosa* Axelson 1905:788; *Achorutes viaticus* var. Holotype (alc.) from Finland: Joensuu, W.M. Axelson. The specimen carries label "Achor. viaticus var. marmoratus Axels.", but the collection data agree with those given by Axelson (1905) for var. *maculosa*.
- malmgreni* var. *immaculata*; *Sminthurides* — see *immaculata*.
- maritima* Schött 1893:51; *Entomobrya*. 2 syntypes (slide) from Finland: Nagu, Reuter. For authorship, see additional information, pp. 6–7.
- minnesotensis* Guthrie 1903:52; *Sminthurus*. 2 syntypes (slide) from USA (Minnesota): 21 8/13 '99, Guthrie. Currently *Sphyrotheca minnesotensis* (Guthrie) (Christiansen & Bellinger 1981).
- mosquensis* Becker 1905:1; *Achorutes*. 18 possible syntypes (alc.) from USSR (Moskovsk. obl.): "Моек. рыб., det. E. Becker". Listed as *Hypogastrura* (*Ceratophysella*) *mosquensis* (Becker) (Grindbergs 1960).
- mucronata* Axelson 1903:5; *Xenylla*. 2 syntypes (alc.) from Finland: Sb, Pielavesi, Tuovilanlaks, 19.VII.1902, W.M. Axelson.

- multifasciatus* Reuter 1881:203; *Sminthurus*. Syntype (alc.) from Finland: H:fors. Reuter. Currently *Sphyrotheca multifasciata* (Reuter) (Betsch 1980).
- muscorum* var. *purpurascens*; *Neanura* — see *purpurascens*.
- muskegis* Guthrie 1903:72; *Isotoma*. 9 syntypes (7 ♀♀, 2 ♂♂; slide) from USA: Minnesota StL 7/13 '01, J.E. Guthrie. Currently *Proisotoma* (*Ballistura*) *muskegis* (Guthrie) (Christiansen & Bellinger 1980).
- niger* var. *ochracea*; *Sminthurinus* — see *ochracea*.
- nivea* Schäffer 1896:184; *Isotoma*. Possible syntype (alc.) from FRG. The tube bears label “*Isotoma nivea* Schäffer. Bei Hamburg”.
- nivicola* Axelson 1900:16; *Isotoma*. Syntype (alc.) from Finland: Nyl. Helsinki, 27.III.97, KML & Aulis Wd. Synonym of *Isotoma hiemalis* Schött, 1893 (Linnaniemi 1912).
- obtusa* Axelson 1900:6; *Achorutes* Schötti var. 3 syntypes (alc.) from Finland: Nyl. Esbo, Löfö, K.M. Levander. Synonym of *Hypogastrura manubrialis assimilis* (Krausbauer, 1898) (Linnaniemi 1912).
- ochracea* Axelson 1902:110; *Sminthurinus niger* var. Holotype (alc.) from Finland: Kb, Joensuu, 15.X.01, WMA. Listed as *Sminthurinus niger ochraceus* Axelson (Salmon 1964).
- ochropus* Schött 1893:32; *Sminthurus quadrilineatus* var. 3 syntypes (slide) from Finland: Pargas, Reuter. Listed as *Sminthurinus elegans ochropus* (Reuter, 1891) by Salmon (1964). For authorship, see additional information, pp. 6–7.
- oirota* Vilkamaa 1988: 163; *Proisotoma*. Holotype female (slide) from USSR (Altaiskij kraj): 7 km west of Katanda, by the river Katun, 21.6.–26.7.1983, exped. Mikkola, Hippa & Jalava leg. 56 paratypes with data as in the holotype (16 ♀♀, 3 ♂♂; slide and 37 exx. alc.).
- orcheselloides* Schäffer 1896:193; *Entomobrya*. 5 possible syntypes (alc.) from FRG: “*Entomobrya orcheselloides* Schäff. Deutschland”. Synonym of *Entomobrya muscorum* (Nicolet, 1841) (Gisin 1960).
- ornata* Axelson 1903:13; *Sminthurides* Schötti var. 13 syntypes (alc.) from Finland and USSR (Leningradsk. obl.): Sa, Joutseno, Karsturanta, VI.02, W.M. Axelson (1 ex.); Viipuri, Rättijärvi, VI.02, WMA (6 exx.); Uusikirkko, Kirkkojärvi, VI.02, W.M. Axelson (3 exx.) and Uusikirkko, VI.02, W.M. Axelson (3 exx.).
- palliceps* Uzel 1890:65; *Isotoma*. Possible syntype (alc.) from Czechoslovakia: Riesengebirge. Uzel. Currently *Isotomurus palliceps* (Uzel) (Stach 1947).
- pallida* Linnaniemi 1912:274; *Arrhopalites binoculatus* var. 91 syntypes (alc.) from Finland and USSR (Murmansk. obl.): Pielavesi, Tuovilanlaks, VII.1902, W.M. Axelson (45 exx.); Joutseno, VI.1902, W.M. Axelson (2 exx.); Ristiina, VII.1902, W.M. Axelson (1 ex.); Rovaniemi, 1903, W.M. Axelson (7 exx.); Pallastunturi, 1903, W.M. Axelson (4 exx.); Sotkamo, VII.1902, W.M. Axelson (13 exx.); Kokkola, VIII.1902, W.M. Axelson (8 exx.); Kannanlaks, 1–3.IX.01, WMA (9 exx.) and Im, Tshuinatunt. 28.VIII.01, WMA (1 ex.). In addition, one specimen labelled “*Sminthurinus binoculatus* CB. v. *pallidus* n. var.”.
- pallidus* Reuter 1890:24; *Lepidocyrtus*. 2 syntypes (alc.) from Finland: H:fors, Reuter.
- palustris* var. *fucicola*; *Isotoma* — see *fucicola*.
- palustris* var. *maculata*; *Isotoma* — see *maculata*.
- papillosa* Axelson 1902:103; *Micranurida*. Lectotype (Fjellberg 1985, alc.) from USSR (Murmansk. obl.): Kar. Keret. Knjasha, 4/IX.01, WMA; paralectotypes (2 exx. alc., 3 exx. without heads, slide) data as in the lectotype.
- paradoxa* Schäffer 1900:246; *Aphorura*. Possible syntype (alc.) from FRG: “Württemberg, Höhle”. Currently *Onychiurus paradoxus* (Schäffer) (Christian 1987).
- paradoxus* Uzel 1890:50; *Lepidocyrtus*. 8 possible syntypes (alc.) from Czechoslovakia: Bohemia, Uzel.
- Poppiusi* Axelson 1903:5; *Isotoma*. 3 syntypes (alc., one specimen with head only) from USSR (Jakutsk. ASSR): Shigansk, 8.VIII.01, B. Poppius. Probably synonym of *Isotoma propinqua* Axelson, 1902 (Linnaniemi 1912).
- prasina* Reuter 1891:229; *Isotoma Stuxbergi* var. 3 syntypes (alc.) from USSR (Krasnojarskij kraj): FL. Jenisej, J. Sahlb. Listed as *Isotomurus palustris prasina* (Reuter) by Salmon (1964) and as *Isotomurus prasinus* (Reuter) by Yosii (1977).
- producta* Axelson 1906:11; *Isotoma*. Replacement name for *Isotoma elongata* Axelson, 1903 nec Macgillivray, 1896. Currently *Isotomodes productus* (Axelson) (Linnaniemi 1912).
- propinqua* Axelson 1902:107; *Isotoma*. 6 syntypes (alc.) from Finland: H:ki, Meilans, 3.X.01, WMA.
- purpurascens* Axelson 1905:790; *Neanura muscorum* var. 3 syntypes (alc.) from Finland: Bergö, VIII.1902, W.M. Axelson.
- repandus* Ågren 1903:163; *Sminthurus*. 2 syntypes (alc.) from Sweden: Maglehem, Skåne, VIII.1901. Currently *Deuterosminthurus repandus* (Ågren) (Stach 1956).
- quadrilineatus* var. *ochropus*; *Sminthurus* — see *ochropus*.
- reticulata* Axelson 1905:790; *Neanura*. Syntypes (2 heads and a torso, slides in poor condition) from USSR (Leningradsk. obl.): Uusikirkko, W.M. Axelson. The heads bear labels “*Neanura muscorum* & n.sp.” and the torso “*Neanura reticulata* Axels., Ik, Uusikirkko, 1902. leg. WMA.”.
- Reuteri* Schött 1893:71; *Isotoma*. 35 syntypes (alc.) from USSR (Tšukotsk. Avt. Okrug). The tube is labelled “*Isotoma Reuteri* Schött n.sp., Pittekaj Vega-exped.” (Pittekaj is nowadays called Tojgunen.) Currently *Vertagopus reuteri* (Schött) (Fjellberg 1982).
- Reuteri* Ågren 1903:123; *Achorutes*. 22 syntypes (alc.) from Sweden: Kristineberg, Bohuslän, VIII.1898. Synonym of *Hypogastrura vernalis* (Carl, 1899) (Stach 1949).
- ripicola* Linnaniemi 1912:128; *Proisotoma*. Syntype (alc.) from Finland: Esbo, Löfö, 13.VII.92, K.M. Levander. The label bears also writing “*Isotoma subtenella* n.sp.”.

- rufescens* Reuter 1890:22; *Papirius*. 5 syntypes (1 ex. alc., 4 ex. slide) from Finland: H:fors, Reuter. The specimen in alcohol was studied by Hühner (1965) and bears label "Dicyrtomina rufescens Reuter, W. Hühner det. 1964.". Currently *Calvatomina rufescens* (Reuter) (Beitsch 1980).
- Sahlbergi* Reuter 1895:31; *Achorutes*. Holotype (alc., head and thorax I missing) from Finland: Inari, J.Sahlb. Currently *Hypogastrura sahlbergi* (Reuter) (Linnaniemi 1912).
- Schötti* Axelson 1903:2; *Sminthurides*. 8 syntypes (alc.) from Finland and USSR (Leningradsk. obl.): Joutseno, VI.1902, W.M. Axelson (1 ex.) and Uusikirkko, Kirkkojärvi, VI.1902, W.M. Axelson (7 exx.).
- Schötti* Reuter 1895:31; *Achorutes*. 6 syntypes (slide) from Finland: Tammela, Grotenfelt. Synonym of *Hypogastrura manubrialis* (Tullberg, 1869) (Linnaniemi 1912).
- Schötti* var. *bilineata*; *Sminthurides* — see *bilineata*.
- Schötti* var. *obtusa*; *Achorutes* — see *obtusa*.
- Schötti* var. *ornata*; *Sminthurides* — see *ornata*.
- sensibilis* Schött 1902:11; *Schöttella*. 2 possible syntypes (alc.) from Sweden: Skara. Det & leg Schött. Synonym of *Choreutinula inermis* (Tullberg, 1871) (Linnaniemi 1912).
- sexpunctata* Axelson 1902:102; *Paranura*. Holotype (alc.) from Finland: Helsinki, W.M. Axelson. The specimen bears also label "Paranura sexpunctata, Type".
- sigillatus* Uzel 1890:70; *Achorutes*. 60 possible syntypes (alc.) from Czechoslovakia: Bohemia, Uzel. Currently *Ceratophysella sigillata* (Uzel) (Stach 1949).
- signata* Linnaniemi 1912:295; *Bourletiella*. 34 syntypes (alc.) from Finland: Sotkamo, VII.1902, W.M. Axelson (8 exx. one of which with head only); Utajärvi, Vaala, VII.1902, W.M. Axelson (2 exx.); Kemi, VIII.1902, W.M. Axelson (2 exx.); Tampere, Messukylä, 1902, W.M. Axelson (2 exx.); Ispois, Reuter (5 exx.); Pargas, Reuter (6 exx.); H:fors, Reuter (4 exx.); Nagu, Reuter (2 exx.) and Esbo, Levander (3 exx.). Synonym of *Bourletiella hortensis* (Fitch, 1863) (Stach 1956).
- signatus* var. *distincta*; *Sminthurides* — see *signatus*.
- silvatica* Schäffer 1897:18; *Isotoma*. Possible syntype (alc.) from Argentina: Feuerland. According to the original description the material was collected in Uschuaia, in 1892.
- socialis* Uzel 1890:69; *Achorutes*. Possible syntypes (thousands of specimens in alc.) from Czechoslovakia: "Achorutes socialis Uzel, Bohemia Uzel". Currently *Hypogastrura socialis* (Uzel) (Rusek 1977).
- spectabilis* Reuter 1890:25; *Entomobrya*. 2 syntypes (slide) from Finland: H:fors, Reuter.
- spinosa* Kseneman 1936:105; *Folsomia*. 5 syntypes (alc.) from Czechoslovakia: Bohemia, Kysibl. 1932, Czechoslovakia. The tube bears also label "Folsomia spinosa nov. sp., M. Kseneman. 1933.".
- Stuxbergi* var. *prasina*; *Isotoma* — see *prasina*.
- tenella* Reuter 1895:28; *Isotoma*. 5 syntypes from Finland: Mustiala, Dike 5/V 92, G. Grotenfelt (3 exx. alc.) and Mustiala, G. Grotenfelt (2 exx. slide). Currently *Proisotoma tenella* (Reuter) (Linnaniemi 1912).
- tenüicornis* Axelson 1903:10; *Isotoma*. 9 syntypes (alc.) from Finland: Ristiina VII. 1902, W.M. Axelson (1 ex.) and Sotkamo, VII. 1902, W.M. Axelson (8 exx.).
- Theobaldi* Carl 1899; *Isotoma*. 2 possible syntypes (alc.) from Switzerland. One tube is labelled "Isotoma theobaldi Carl. Schweiz, Typ.", the other "Isotoma theobaldi Carl. Schweiz.". Synonym of *Isotoma hiemalis* Schött, 1893 (Gisin 1960).
- thermophila* Axelson 1900:9; *Isotoma*. Holotype (slide, in poor condition) from Finland: Helsingfors, Finland, I.1900, WM Axelson. Currently *Cryptopygus thermophilus* (Axelson) (Fjellberg 1980).
- transversalis* Axelson 1905:794; *Sminthurinus aureus* var. 13 syntypes (alc.) from Finland: Nyl., Helsinki, Seurasaari, V.03, W.M. Axelson (2 exx.); Hailuoto, VIII.1902, W.M. Axelson (10 exx.) and Kokkola, VIII.1902, W.M. Axelson (1 ex.). Listed as *Sminthurinus elegans transversalis* Axelson (Salmon 1964).
- trispina* Axelson 1905:788; *Achorutes viaticus* f. 2 syntypes (alc.) from Finland: Kolari, 1903, W.M. Axelson. Listed as *Hypogastrura viatica trispina* (Salmon 1964).
- Trybomi* Schött 1893:82; *Achorutes*. 12 syntypes (alc.) from USSR (Jakutsk. ASSR): Preobraschinje, Vega exped. (Preobraschinje is nowadays called Begitševa.) Currently *Hypogastrura trybomi* (Schött) (Fjellberg 1985).
- tullbergi* Börner 1903:182; *Xenylla*. Possible syntype (alc.) from FRG. The specimen bears labels "Xenylla tullbergi CB. det Börner" and "Deutschland. Typenexemplar".
- viaticus* var. *inermis*; *Achorutes* — see *inermis*.
- viaticus* var. *maculosa*; *Achorutes* — see *maculosa*.
- viaticus* f. *trispina*; *Achorutes* — see *trispina*.
- violacea* var. *divergens*; *Isotoma* — see *divergens*.
- Westerlundi* Reuter 1898:45; *Isotoma*. 39 syntypes (alc.) from Finland: Sb, Kuopio, 25.III.96, A. Westerl. (2 exx.); Kuopio, Puijo, 25.II.97, AW (14 exx.); Puijo, 18.–20.97, A. Westerlund (12 exx.) and a tube (11 exx.) with label "Isotoma Westerlundi RT. Typ." Currently *Vertagopus westerlundi* (Reuter) (Stach 1947).
- zebra* Guthrie 1903:61; *Orchesella*. 15 syntypes (slide) from USA: Minnesota, 35 7/24 '99, J.E. Guthrie.

### Additional information

There are several taxa, in which the authorship has been incorrectly ascribed to Reuter, although the correct author is Schött, 1893. Of the following three, the type material is included in my list.

*Isotoma palustris* var. *fucicola* (= *Isotomurus fucicola*)  
Described by Schött (1893:66) on the basis of Reuter's material, not mentioned in the literature by Reuter until 1895.

*Entomobrya maritima*

Named but not described by Reuter (1891b:231); first described by Schött (1893:51) on the basis of Reuter's material.

*Sminthurus quadrilineatus* var. *ochropus*

Named but not described by Reuter (1891b:231); first described by Schött (1893:32) on the basis of Reuter's material.

Of the following, now definite type material could be located in the Helsinki Museum.

*Sminthurus apicalis* var. *Levanderi*

Named but not described by Reuter (1891b:232); first described by Schött (1893:37) as *Sminthurus aquaticus* var. *levanderi*. In the collection of the Zoological Museum, Helsinki, there are 3 specimens labelled "Sminthurus apicalis Reut. v. Levanderi Reut., Esbo, Levander" but it is not clear whether Schött used Reuter's specimens in his description.

*Sminthurus aquaticus* var. *viridulus*

Described by Schött (1893:37); not mentioned in the literature by Reuter until 1895.

*Sminthurus fuscus* var. *purpurascens*

Described by Schött (1893:21); not mentioned in the literature by Reuter until 1895.

*Sminthurus viridis* var. *dorsovittatus*

Described by Schött (1893:23); not mentioned in the literature by Reuter until 1895.

## References

- Axelsson, W.M. 1900: Vorläufige Mittheilung über einige neue Collembolen-Formen aus Finnland. — Medd. Soc. Fauna Flora Fennica 26:1–19.
- 1902: Diagnosen neuer Collembolen aus Finland und angrenzenden Theilen des nordwestlichen Russlands. — Medd. Soc. Fauna Flora Fennica 28:101–111.
- 1902–03: Beiträge zur Kenntniss der Collembolen-Fauna Sibiriens. — Öfv. Finska Vetensk.-Soc. Förhandl. 45:1–13.
- 1903: Weitere Diagnosen über Collembolen-Formen aus Finland. — Acta Soc. Fauna Flora Fennica 25(7):1–13.
- 1904: Verzeichniss einiger bei Golaa, im südöstlichen Norwegen eingesammelten Collembolen. — Entomol. Tidsskr. 25:65–84.
- 1905: Einige neue Collembolen aus Finnland. — Zool. Anz. 28:788–794.
- 1906: Beitrag zur Kenntniss der Collembolenfauna in der Umgebung Revals. — Acta Soc. Fauna Flora Fennica 28(2):1–22.
- Becker, E. (Беккер, Э.) 1905: Новые данные по фауне Collembola Московской губерний, в частности ее южной окраины. — Дневн. Зоол. Отд. Императ. О-ва Любит. Естеств. 3(6):1–19.
- Betch, J.-M. 1980: Éléments pour une monographie des Collemboles Symphypléones (Hexapodes, Aptérygotes). — Mém. Mus. Nat. Hist. Nat., Ser. A 116:1–227.
- Betch, J.-M. & Betch-Pinot, M.-C. 1984: Contribution à l'étude des Sminthurus (Collembola, Symphypleona). — Ann. Soc. R. Zool. Belg. 114:71–81.
- Börner, C. 1901: Vorläufige Mitteilung über einige neue Aphorurinen und zur Systematik der Collembola Lubb. — Zool. Anz. 24:1–15.
- 1903: Neue altweltliche Collembolen, nebst Bemerkungen zur Systematik der Isotominen und Entomobryinen. — Sitz.-Ber. Ges. Naturforsch. Freunde 1903:129–182.
- Carl, J. 1899: Ueber schweizerische Collembola. — Rev. Suisse Zool. 6:273–362.
- Christian, E. 1987: Catalogus Faunae Austriae, Teil 12a: U.-Kl.: Collembola (Springschwänze). — 80 pp. Verlag Österreich. Akademie Wissenschaften, Wien.
- Christiansen, K. & Bellinger, P. 1980: The Collembola of North America north of the Rio Grande. Part 2. Family Onychiuridae and Isotomidae. — pp. 387–784. Grinnell College, Grinnell.
- 1981: The Collembola of North America north of the Rio Grande. Part 4. Families Neelidae and Sminthuridae. — pp. 1043–1322. Grinnell College, Grinnell.
- Delamare-Deboutteville, C. 1951: Notes faunistiques sur les Collemboles de France: 9 — Collemboles cavernicoles de l'Ardeche récoltés par le Dr. J. Balazuc. — Bull. Mensuel Soc. Linn. Lyon 20:116–120.
- Dunger, W.G. 1982: Collembolen (Insecta, Collembola) aus der Mongolischen Volksrepublik, II. Isotomidae. — Ann. Hist.-Nat. Mus. Nat. Hungarici 74:35–74.
- Ellis, W.N. 1975: On Bourletiella (Cassagnaudiella) pruinosa (Tullberg, 1871) and its allies (Collembola: Sminthuridae). — Bull. Zool. Mus. Univ. Amsterdam 4:69–81.
- Fjellberg, A. 1973: Some morphological differences between Proisotoma minuta (Tullberg, 1871) and P. clavipila (Axelson, 1903) (Collembola, Isotomidae). — Norsk Entomol. Tidsskr. 20:273–274.
- 1979: Revision of the European species in the Isotoma olivacea-group (Collembola: Isotomidae). — Entomol. Scand. 10:91–108.
- 1980: Identification keys to Norwegian Collembola. — 152 pp. Norsk Entomol. Forening, Ås.
- 1982: Redescriptions of Vertagotus brevicaudus (Carpenter, 1900) and V. reuteri (Schött, 1893), two arctic species of Collembola. — Entomol. Scand. 13:141–147.
- 1985: Arctic Collembola I — Alaskan Collembola of the families Poduridae, Hypogastruridae, Odontellidae, Brachystomellidae and Neanuridae. — Entomol. Scand., Suppl. 21:1–126.
- Gisin, H. 1960: Collembolenfauna Europas. — 312 pp. Genève.
- 1962: Sur la faune européenne des Collemboles IV. — Rev. Suisse Zool. 69:1–23.
- 1965: Nouvelles notes taxonomiques sur les Lepidocyrtus. — Rev. Ecol. Biol. Sol 2:519–524.
- Grindbergs, A. 1960: On the fauna of springtails (Collembola) of the Soviet Union. Part I. Catalogue of Collembola of the USSR. — Latvijas Entomologs 2:21–68. (in Russian, with English summary)
- Guthrie, J.E. 1903: The Collembola of Minnesota. — Zool. Series 4:1–110.
- Hüther, W. 1965: Wiederbeschreibung von Dicyrtomina rufescens (Reuter, 1890); nebst einigen allgemeinen tax-

- onomischen Bemerkungen (Collembola). — *Notulae Entomol.* 45:47–52.
- Kseneman, M. 1936: Diagnosen neuer Collembolenarten aus Mitteleuropa. — *Ann. Tschechosl. Akad. Landwirtschaft.* 11:101–109.
- Leinaas, H.P. 1981: Cyclomorphosis in *Hypogastrura lapponica* (Axelson, 1902) (= *H. frigida* (Axelson, 1905) syn. nov.) (Collembola, Poduridae). — *Zeitschr. Zool. Syst. Evolutionsforsch.* 19:278–285.
- Linnaniemi, W.M. 1907: Die Apterygotenfauna Finlands. I. Allgemeiner Teil. — 134 + 12 pp. Helsingfors.
- 1909: Zur Kenntnis der Collembolenfauna der Halbinsel Kanin und benachbarter Gebiete. — *Acta Soc. Fauna Flora Fennica* 33(2):1–17.
- 1912: Die Apterygotenfauna Finlands. II. Spezieller teil. — *Acta Soc. Scient. Fenn.* 40(5):1–359.
- Massoud, Z. 1967: Monographie des Neanuridae, Collemboles Poduromorphes à pièces buccales modifiées. — *Biol. Amer. Austr.* 3:1–399.
- Poinsot, N. 1972: Etude systématique et écologique des Collemboles Isotomidae de Provence. — *Ann. Soc. Entomol. France* 8:669–691.
- Poinsot-Balaguer, N. & Barra, J.-A. 1982: Révision systématique du genre *Folsomides* et apport de l'écophysiologie à la taxonomie de certains espèces du genre (Insectes, Collemboles). 2. note. — *Rev. Ecol. Biol. Sol* 19:259–275.
- Reuter, O.M. 1876: *Catalogus praecursorius Poduvidarum Fenniae*. — *Medd. Soc. Fauna Flora Fennica* 1: 78–86.
- 1881: För Finland nya Collembola. — *Medd. Soc. Fauna Flora Fennica* 6:203–205.
- 1890: Collembola in caldariiis viventia enumeravit novasque species descripsit. — *Medd. Soc. Fauna Flora Fennica* 17:17–28.
- 1891a: Podurider från nordvestra Sibirien. — *Öfv. Finska Vetensk. Soc. Förhandl.* 33:226–229.
- 1891b: Notiser om finska Collembola. — *Medd. Soc. Fauna Flora Fennica* 18:231–232.
- 1895: Apterygogenea Fennica. Finlands Collembola och Thysanura. — *Acta Soc. Fauna Flora Fennica* 11(4):1–35.
- 1898: Collembola på snö. — *Medd. Soc. Fauna Flora Fennica* 33:44–46.
- Rusek, J. 1977: Collembola. — In Dlabala, J. (ed.), *Enumeratio Insectorum Bohemoslovakiae*. — *Acta Faun. Entomol. Mus. Nat. Pragae* 15, Suppl. 4:11–17.
- Salmon, J.T. 1964: An index to the Collembola. — *Bull. R. Soc. New Zealand* 7:1–651 (Vol. 1:1–144, Vol. 2:145–644, Vol. 3:645–651).
- Schäffer, C. 1891: Die Collembolen von Süd-Georgien nach der Ausbeute der deutschen Station von 1882/3. — *Jahrb. Hamburg. Wissensch. Anstalt* 9:193–201.
- 1896: Die Collembola der Umgebung von Hamburg und benachbarter Gebiete. — *Mitt. Naturhist. Mus. Hamburg* 13:149–216.
- 1897: Apterygoten. — *Hamb. Magalhaens. Sammelreise*. — 48 pp. Hamburg.
- 1900: Ueber württembergische Collembola. — *Jahr. Ver. Vaterl. Naturkunde Württemb.* 56:245–280.
- Schött, H. 1893: Zur Systematik und Verbreitung palaearktischer Collembola. — *Kongl. Svenska Vetensk.-Akad. Handl.* 25(11):1–100.
- 1902: Études sur les Collemboles du Nord. — *Bih. Svenska Vetensk.- Akad. Handl.* 28(2):1–48.
- Stach, J. 1945: The species of the genus *Arrhopalites* occurring in European caves. — *Acta Mus. Hist. Nat. Kraków* 1:1–47.
- 1947: The Apterygotan fauna of Poland in relation to the world-fauna of this group of insects. Family: Isotomidae. — *Acta Monogr. Mus. Hist. Nat., Kraków* 1947:1–488.
- 1949: Families: Neogastruridae and Brachystomellidae. — *Acta Monogr. Mus. Hist. Nat., Kraków* 1949:1–341.
- 1956: Family: Sminthuridae. — *Acta Monogr. Mus. Hist. Nat., Kraków* 1956:1–287.
- Tullberg, T. 1876: Collembola borealia. — *Nordiska Collembola, beskrifna af Tycho Tullberg*. — *Öfv. Kongl. Vetensk. Akad. Förhandl.* 5:23–42.
- Uzel, J. 1890: Šupinušky země České. — *Thysanura Bohemiae*. — *Věst. Královsk. České Spol. Nauk*, 1890:1–82.
- Valpas, A. 1967: Collemboles of Spitzbergen. — *Ann. Entomol. Fennici* 33:28–40.
- Vilkamaa, P. 1988: *Proisotoma* (*Proisotoma*) *oirota* sp. n. (Collembola, Isotomidae) from western Siberia. — *Ann. Entomol. Fennici* 54:163–167.
- Yosii, R. 1977: Critical check list of Japanese species of Collembola. — *Contr. Biol. Lab. Kyoto Univ.* 25:141–170.
- Ågren, H. 1903: Zur Kenntniss der Apterygoten-Fauna Süd-Schwedens. — *Stett. Entomol. Zeit.* 1903:113–176.

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