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## Collembola Poduromorpha from the Magallanes Province (Chile)

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**Abstract.** In this paper we present a study of a collection of *Collembola Poduromorpha* from the south of Chile. We determined a total of 15 species. Two new species were described; another species already known from Chile was redescribed, and some complementary characters were added for three other species.

**Key words.** *Collembola*, *Poduromorpha*, new species, Magallanes Province, Chile.

### Introduction

The Chilean Province Magallanes as well as the Argentinean Tierra del Fuego are very interesting for a scientist because they belong to the Araucarian-Antarctic biogeographic region (Rapoport 1968, 1971). *Collembola* were studied there by Schäffer already in 1897. In continuation, other authors published some works on the *Collembola* of that region. Among the most important papers concerning *Collembola Poduromorpha* are Wahlgren (1906), Enderlein (1912), Rapoport & Rubio (1968), Izarra (1971), Najt (1973), Rubio (1974).

In this paper we present a study of a collection of *Collembola* collected in Barber's traps by Dr. M. Vogel (Akademie für Naturschutz und Landschaftspflege, Laufen, Germany) during his field studies in this region.

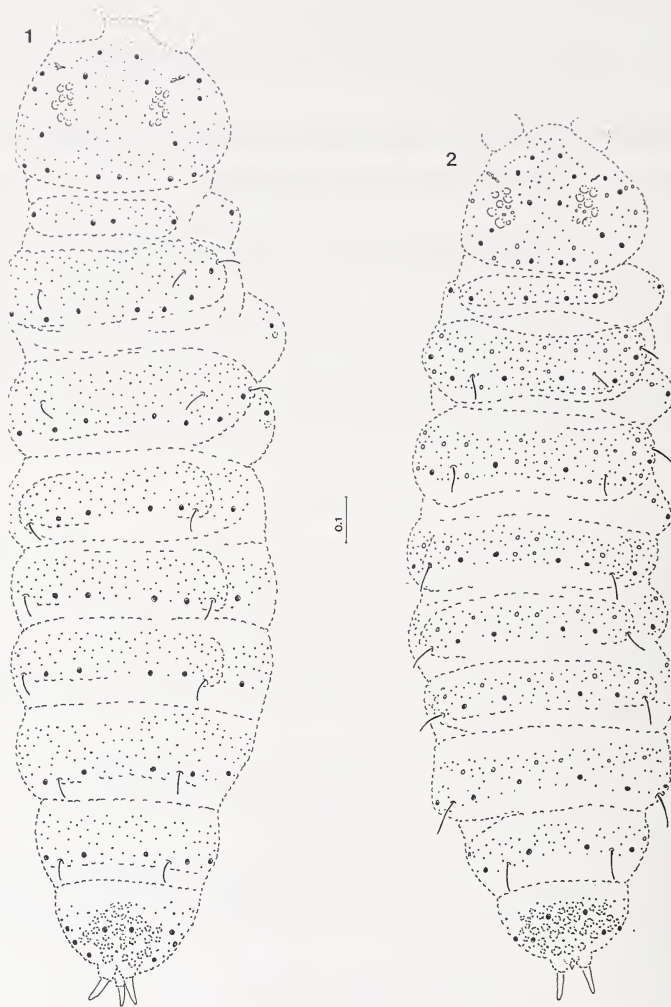
The type material studied in this paper is deposited in the Institute of Systematics and Evolution of Animals, the Polish Academy of Sciences, Kraków (ISEA) and in the Laboratoire d'Entomologie, Muséum national d'Histoire naturelle, Paris (MNHN).

### Systematic account

#### Hypogastruridae

##### *Hypogastrura purpurescens* (Lubbock, 1867)

**Material:** Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a.s.l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: low peat-bog of *Sphagnum fimbriatum* with *Gunnera magellanica*, *Carex atropicta*, *Carex capitata*, *Carex curta* and *Agrostis flavicola* (L.PAR-1), 20 specimens on slides and numerous specimens in alcohol; wet bottom of a valley, sloping towards a stream with the most important plants as *Gunnera magellanica*, *Blechnum pennamarina*, *Acaena magellanica*, *Carex curta*, *Carex atropicta*, *Poa pratensis*, *Festuca rubra*, *Trisetum cernuum*, *Arenatherum* sp. (L.PAR-2), 19 specimens on slides and numerous specimens in alcohol; mixed forest of *Nothofagus antarctica* and *Nothofagus pumilio*, about 80 years old, in the understorey: *Gunnera magellanica*, *Empetrum rubrum*, *Chilotrichum diffusum*, *Senecio acantifolius* (L.PAR-3), 19 specimens on slides and numerous specimens in alcohol; patch of an old *Nothofagus pumilio* forest (about 500 years old), large proportion of dead wood, understorey with *Berberis ilicifolia*, *Rubus cheoides*, *Acaena magellanica* and *Hierochloa redolens* (L.PAR-4), 12 specimens on slides and numerous specimens in alcohol. Chabunco, about 15 km east of Punta Arenas, near main road to Puerto Natales, Patagonian steppe, Barber's traps, 6—19 February 1985, leg. M. Vogel:



Figs 1–2: Schema of dorsal chaetotaxy. Fig. 1 — *Triacanthella najtae*. Fig. 2 — *Triacanthella vogeli* sp. n. (Scales in mm).

mesic grassland, vegetation consisting of *Festuca gracilima*, *Agropyron* spp., *Agrostis* spp., *Deschampsia* spp. and *Poa* spp. (CHA-1), 2 specimens; shrub steppe, peculiarly developed upon former dunes near the coast, vegetation with *Berberis buxifolia*, *Lepidophyllum cupressiforme*, *Baccharis magellanica* and new growth of *Nothofagus antarctica* (CHA-2), 3 specimens. Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: forest of *Nothofagus pumilio*, about 20 m a. s. l., understory sparse, with *Acaena ovalifolia* and *Viola magellanica* (NAV-1), 4 specimens on slides and some specimens in alcohol; peat-bog of *Sphagnum magellanicum*, about 30 m a. s. l., with *Marsippospermum grandiflorum*, *Rostkovia magellanica*, *Carex magellanica* and on the edges dwarfed *Nothofagus betuloides* (evergreen) (NAV-2), 2 specimens; mixed forest with *Nothofagus pumilio* (deciduous) and *Nothofagus betuloides* (evergreen), about 50 m

a. s. l., no understorey, only seedlings (new growth) of *Nothofagus pumilio*, on the forest edge single *Baccharis magellanicus* (NAV-3), 18 specimens on slides and some specimens in alcohol.

*Hypogastrura assimilis* (Krausbauer, 1898)

Material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a. s. l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: low peat-bog of *Sphagnum fimbriatum* with *Gunnera magellanica*, *Carex atropicta*, *Carex capitata*, *Carex curta* and *Agrostis flavicola* (L.PAR-1), 1 specimen. Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: mixed forest with *Nothofagus pumilio* (deciduous) and *Nothofagus betuloides* (evergreen), about 50 m a. s. l., no understorey, only seedlings (new growth) of *Nothofagus pumilio*, on the forest edge single *Baccharis magellanicus* (NAV-3), 1 specimen.

*Ceratophysella bengtssoni* (Agren, 1904)

Material: Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: mixed forest with *Nothofagus pumilio* (deciduous) and *Nothofagus betuloides* (evergreen), about 50 m a. s. l., no understorey, only seedlings (new growth) of *Nothofagus pumilio*, on the forest edge single *Baccharis magellanicus* (NAV-3), 3 specimens.

Comments: This species, described from Sweden, has very large Holarctic distribution. The data presented here are the first account from the Neotropical region. All morphological characters are similar to those of European specimens, including the variability described by Thibaud (1967) for French specimens, and also by Christiansen & Bellinger (1980) for North-American specimens.

*Xenylla subcavernarum* Gama, 1969

Material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arena, 250 m a. s. l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: low peat-bog of *Sphagnum fimbriatum* with *Gunnera magellanica*, *Carex atropicta*, *Carex capitata*, *Carex curta* and *Agrostis flavicola* (L.PAR-1), 1 specimen; wet bottom of a valley, sloping towards a stream with the most important plants as *Gunnera magellanica*, *Blechnum penna-marina*, *Acaena magellanica*, *Carex curta*, *Carex atropicta*, *Poa pratensis*, *Festuca rubra*, *Trisetum cernuum*, *Arenatherum* sp. (L.PAR-2); 1 specimen, mixed forest of *Nothofagus antarctica* and *Nothofagus pumilio*, about 80 years old, in the understorey: *Gunnera magellanica*, *Empetrum rubrum*, *Chilotrichum diffusum*, *Senecio acantifolius* (L.PAR-3), 5 specimens on slides and some specimens in alcohol; patch of an old *Nothofagus pumilio* forest (about 500 years old), large proportion of dead wood, understorey with *Berberis ilicifolia*, *Rubus cheoides*, *Acaena magellanica* and *Hierochloe redolens* (L.PAR-4), 6 specimens on slides and some specimens in alcohol. Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: forest of *Nothofagus pumilio*, about 20 m a. s. l., understorey sparse, with *Acaena ovalifolia* and *Viola magellanica* (NAV-1), 2 specimens on slides and some specimens in alcohol; peat-bog of *Sphagnum magellanicum*, about 30 m a. s. l., with *Marsippospermum grandiflorum*, *Rostkovia magellanica*, *Carex magellanica* and on the edges dwarfed *Nothofagus betuloides* (evergreen) (NAV-2), 2 specimens on slides and some specimens in alcohol; mixed forest with *Nothofagus pumilio* (deciduous) and *Nothofagus betuloides* (evergreen), about 50 m a. s. l., no understorey, only seedlings (new growth) of *Nothofagus pumilio*, on the forest edge single *Baccharis magellanicus* (NAV-3), 4 specimens on slides and some specimens in alcohol; evergreen forest of *Nothofagus betuloides*, 80 m a. s. l., large fraction of dead wood, no understorey, *Blechnum magellanicum* in small, wet depressions (NAV-4), 2 specimens on slides and one specimen in alcohol.

*Triacanthella najtae* Izarra, 1971

Material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a.s.l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: wet bottom of a valley, sloping towards a stream with the most important plants as *Gunnera magellanica*, *Blechnum penna-marina*, *Acaena magellanica*, *Carex curta*, *Carex atropicta*, *Poa pratensis*, *Festuca rubra*, *Trisetum cernum*, *Arenatherum* sp. (L.PAR-2), 4 specimens on slides and one specimen in alcohol. Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: mixed forest with *Nothofagus pumilio* (deciduous) and *Nothofagus betuloides* (evergreen), about 50 m a.s.l., no understorey, only seedlings (new growth) of *Nothofagus pumilio*, on the forest edge single *Baccharis magellanicus* (NAV-3), 2 specimens on slides and some specimens in alcohol.

Comments: For comparison with *T. vogeli* sp. n. we enclose the pattern of the dorsal chaetotaxy (Fig. 1). The dorsal chaetotaxy of *T. najtae* is composed of smooth mesochaetae and crenalated short macrochaetae. The formula of macrochaetal chaetotaxy per half tergite and subcoxa or pleurite is the following: 8 / 2+1, 4+2, 4+2, / 2+1, 2+1, 2+1, 3+0, 4.

*Triacanthella vogeli* sp. n.

Holotype: female (ISEA), data: Chile, Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a.s.l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: mixed forest of *Nothofagus antarctica* and *Nothofagus pumilio*, about 80 years old, in the understorey: *Gunnera magellanica*, *Empetrum rubrum*, *Chilotrichum diffusum*, *Senecio acantifolius* (L.PAR-3). Paratypes: 8 specimens on slides (5 in ISEA, 3 in MNHN), 820 specimens in alcohol (720 in ISEA, 100 in MNHN), the same data as the holotype.

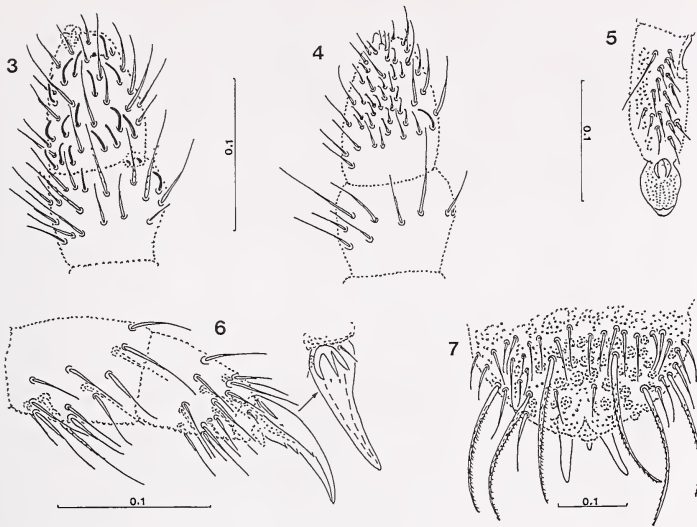
Other material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a.s.l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: low peat-bog of *Sphagnum fimbriatum* with *Gunnera magellanica*, *Carex atropicta*, *Carex capitata*, *Carex curta* and *Agrostis flavicola* (L.PAR-1), 6 specimens on slides and numerous specimens in alcohol; wet bottom of a valley, sloping towards a stream with the most important plants as *Gunnera magellanica*, *Blechnum pennamarina*, *Acaena magellanica*, *Carex curta*, *Carex atropicta*, *Poa pratensis*, *Festuca rubra*, *Trisetum cernum*, *Arenatherum* sp. (L.PAR-2), 3 specimens on slides and some specimens in alcohol; patch of an old *Nothofagus pumilio* forest (about 500 years old), large proportion of dead wood, understorey with *Berberis ilicifolia*, *Rubus cheoides*, *Acaena magellanica* and *Hierochloa redolens* (L.PAR-4), 4 specimens on slides and some specimens in alcohol. Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: evergreen forest of *Nothofagus betuloides*, 80 m a.s.l., large fraction of dead wood, no understorey, *Blechnum magellanicum* in small, wet depressions (NAV-4), 2 specimens on slides and some specimens in alcohol.

Description: Holotype: female length 2.2 mm, length of paratypes between 1.3 and 2.4 mm. Colour in alcohol: white. Tegumental grain of large size, abdominal segment VI with cuticular ornamentation constituted by rosette-shaped tubercles formed by secondary granules (Fig. 7).

Antennal segment I with 10–13 setae, II with 14–17 setae. Sensory organ of antennal segment III consisting of two small hammer-shaped sensillae, two guard sensillae, and one ventro-lateral microsensilla (Figs 3–4). Antennal segment IV with trilobated apical vesicle, small subapical "organite", one dorso-external microsensilla and 16 subcylindrical sensillae (Fig. 3). Ventral side of antennal segment IV with reduced sensory rasp consisting of about 18 modified setae and one subcylindrical sensilla in ventro-lateral position (Fig. 4).

8 + 8 ocelli, of which two (G and H) are reduced. Postantennal organ with 4 unequal vesicles covered by two tegumentary folds. Buccal cone, maxillae and mandibles typical for the genus.

Tibiotarsi I, II, III with 19–20, 19–20, 18 acuminated setae. Claw with two basal inner teeth, one small, basal external tooth and 1 + 1 latero-distal teeth; basis of external lamella with a tridentate structure of pseudonychia-type. Presence of rudimentary empodial appendage (Fig. 6).



Figs 3–7: *Triacanthella vogeli* sp. n. Fig. 3 — antennal segment III and IV, dorsal side. Fig. 4 — antennal segment III and IV, ventral side. Fig. 6 — leg III and dorsal side of claw. Fig. 7 — abdominal segment VI, dorsal side.

Ventral tube with 9 + 9 setae. Tenaculum with 3 + 3 teeth. Dens without apical lobe, adult specimens with 15–17 setae, preadult specimens with 13–16 setae, juvenile specimens with 10–11 setae; all specimens have one long, smooth seta at the base, all other setae are ciliated (Fig. 5). Mucro as in Fig. 5.

Dorsal chaetotaxy with mesochaetae of two types: smooth and ciliated, with very long ciliated macrochaetae and sensory setae as in Fig. 2. Macrochaetal chaetotaxy per half tergite and subcoxa or pleurite: 8 / 2+1, 3+1, 3+1, / 2+1, 2+1, 2+1, 3+0, 3+0, 3. Abdomen VI with three anal spines of which posterior one is very short (Fig. 7).

Discussion: *Triacanthella vogeli* sp. n. is very similar to two species from Argentina: *T. andina* Cassagnau & Rapoport, 1962 from Neuquén (Lago Frias and Nahuel Huapi) and *T. najtae* Izarra, 1971 from Tierra del Fuego and Isla de Los Estados. These three species share the following characters: presence of rosette-shaped tubercles on abdomen VI, shape of claw and rudimentary empodial appendage, reduction of two ocelli (G and H). The new species differs from the two others by the absence of apical lobe on the dens and very short posterior anal spine. Further differences concern the type of macrochaetae (in *T. andina* they are only ciliated in the distal half; in *T. najtae* they are only crenelated and short, in *T. vogeli* sp. n. they are ciliated at the whole length) and formula of macrochaetal chaetotaxy (in *T. andina* per half tergite and subcoxa or pleurite = 7 / 2,3,3, / 4,4,4,4,3,4 — after Cassagnau & Rapoport, 1962, in *T. najtae* = 8 / 2+1, 4+2, 4+2, / 2+1, 2+1, 2+1, 3+0, 3+0, 4 and in *T. vogeli* sp. n. = 8 / 2+1, 3+1, 3+1 / 2+1, 2+1, 2+1, 3+0, 3+0, 3).

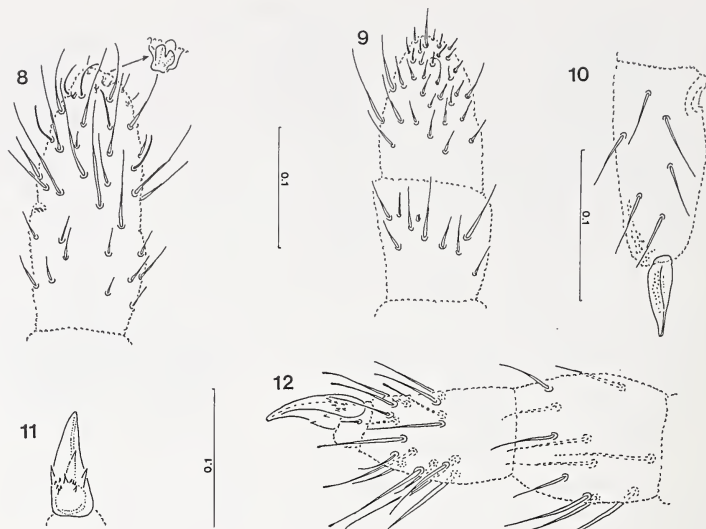
Derivatio nominis: The new species is dedicated to our colleague, Dr. M. Vogel.

Neanuridae

Frieseinae

*Friesea* sp.

Material: Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: peat-bog of *Sphagnum magellanicum*, about



Figs 8–12: *Brachystomella ronderosi*. Fig. 8 — antennal segment III and IV, dorsal side. Fig. 9 — antennal segment III and IV, ventral side. Fig. 10 — furca. Fig. 11 — dorsal side of claw. Fig. 12 — leg III.

30 m a. s. l., with *Marsippospermum grandiflorum*, *Rostkovia magellanica*, *Carex magellanica* and on the edges dwarfed *Nothofagus betuloides* (evergreen) (NAV-2), 3 specimens.

Comments: It is a new species but we had only juvenile specimens at our disposal and therefore could not describe it in this paper. This species belongs to the group of *Friesea* species with 8 + 8 ocelli, furca absent (stage 5), 4 spiniformes setae of abdominal segment VI and some capitated setae on the body.

#### Brachystomellinae

##### *Brachystomella ronderosi* Najt, 1973

Material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a. s. l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: low peat-bog of *Sphagnum fimbriatum* with *Gunnera magellanica*, *Carex atropicta*, *Carex capitata*, *Carex curta* and *Agrostis flavicola* (L.PAR-1), 5 specimens on slides and numerous specimens in alcohol; wet bottom of a valley, sloping towards a stream with the most important plants as *Gunnera magellanica*, *Blechnum pennamarina*, *Acaena magellanica*, *Carex curta*, *Carex atropicta*, *Poa pratensis*, *Festuca rubra*, *Trisetum cernuum*, *Arenatherum* sp. (L.PAR-2), 8 specimens on slides and numerous specimens in alcohol.

Comments: In 1973 Najt described this species from Isla de Los Estados. We enclose here some important figures: chaetotaxy of body (Fig. 13), dorsal and ventral side of antennal segments III and IV (Figs 8–9), leg III (Figs 11–12) and furca (Fig. 10).

##### *Setanodosa fueguensis* Najt, 1973

Material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a. s. l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: wet bottom of a valley, sloping towards a stream with the most important plants as *Gunnera magellanica*, *Blechnum pennamarina*, *Acaena magellanica*, *Carex curta*, *Carex atropicta*, *Poa pratensis*, *Festuca rubra*,

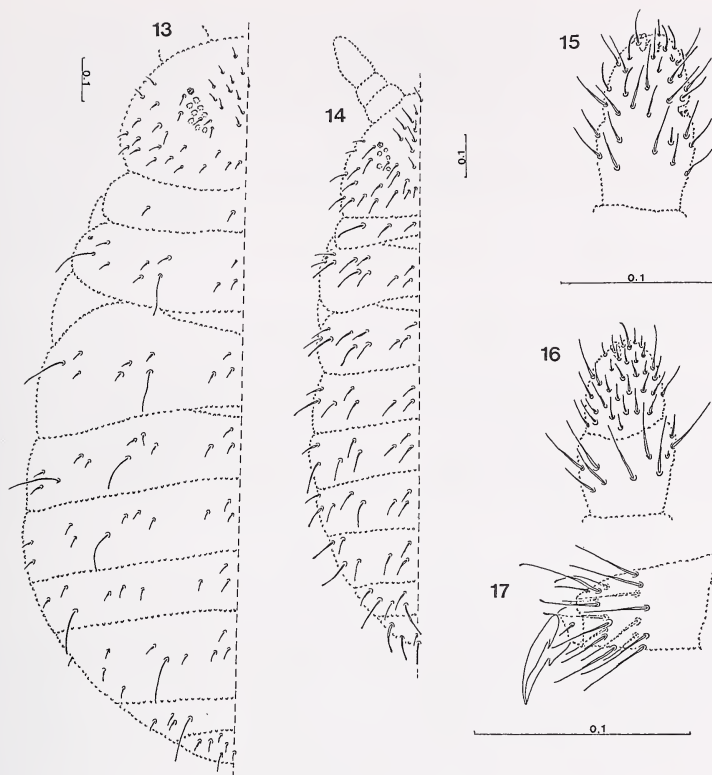


Fig. 13: *Brachystomella ronderosi*, dorsal chaetotaxy.

Figs 14–17: *Setanodosa fuenguensis*. Fig. 14 — dorsal chaetotaxy. Fig. 15 — antennal segment III and IV, dorsal side. Fig. 16 — antennal segment III and IV, ventral side. Fig. 17 — leg. III.

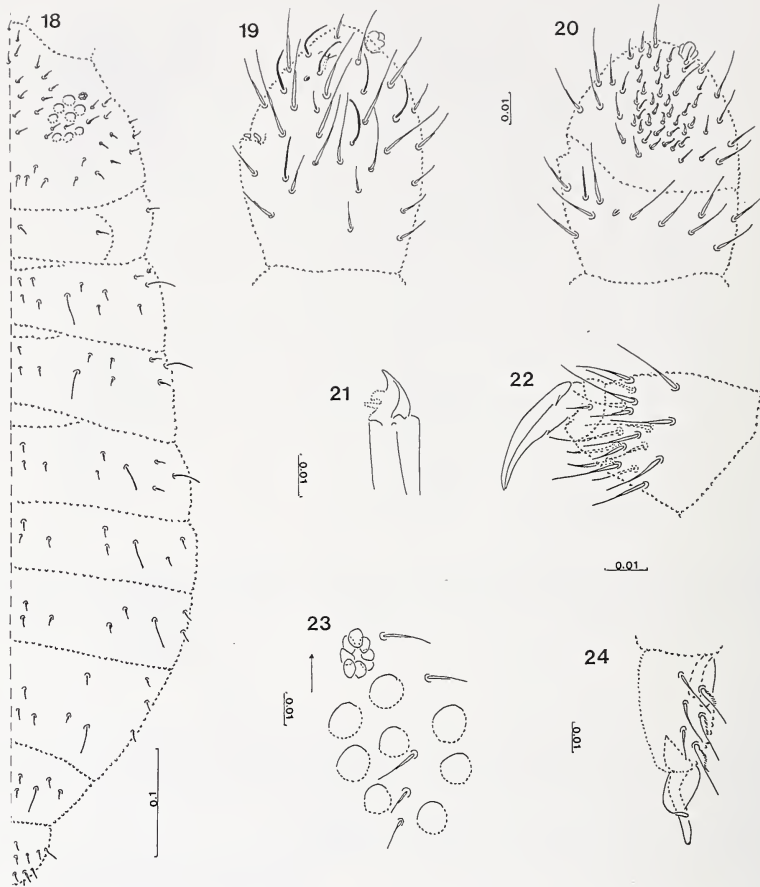
Trisetum cernum, *Arenatherum* sp. (L.PAR-2), 12 specimens on slides and numerous specimens in alcohol.

Comments: This species, described from Bahía Suceso on Tierra del Fuego, seems to be numerous in this region. We compared our specimens from Laguna Parillar with the holotype. In the present paper some details are given: chaetotaxy (Fig. 14), dorsal and ventral side of antennal segments III and IV (Figs 15–16) and leg III (Fig. 17).

*Brachystomellides navarinensis* sp. n.

Holotype: male (ISEA), data: Chile, Navarino Island, Puerto Williams, 55° 10' South, 69° 30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: evergreen forest of *Nothofagus betuloides*, 80 m a. s. l., large fraction of dead wood, no understorey, *Blechnum magellanicum* in small, wet depressions (NAV-4). Paratypes: 8 specimens on slides (6 in ISEA, 2 in MNHN), 48 in alcohol (38 in ISEA, 10 in MNHN), the same data as the holotype.

Other material: Navarino Island, Puerto Williams, 55° 10' South, 69° 30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: forest of *Nothofagus pumilio*, about 20 m



Figs 18–24: *Brachystomellides navarinensis* sp. n. Fig. 18 — dorsal chaetotaxy. Fig. 19 — antennal segment III and IV, dorsal side. Fig. 20 — antennal segment III and IV, ventral side. Fig. 21 — maxilla. Fig. 22 — leg III. Fig. 23 — postantennal organ and ocelli. Fig. 24 — furca.

a. s. l., understorey sparse, with *Acaena ovalifolia* and *Viola magellanica* (NAV-1), 4 specimens on slides and some specimens in alcohol. Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a. s. l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: low peat-bog of *Sphagnum fimbriatum* with *Gunnera magellanica*, *Carex atropicta*, *Carex capitata*, *Carex curta* and *Agrostis flavicola* (L.PAR-1), 6 specimens on slides and some specimens in alcohol; mixed forest of *Nothofagus antarctica* and *Nothofagus pumilio*; about 80 years old, in the understorey: *Gunnera magellanica*, *Empetrum rubrum*, *Chilotrichum diffusum*, *Senecio acantifolius* (L.PAR-3), 5 specimens on slides and some specimens in alcohol.

Description: Holotype: male length 0.85 mm, length of paratypes: males and females between 0.79 and 1.0 mm, juvenile specimens 0.5 and 0.58 mm. Colour in alcohol: grey-blue. Tegumental grain middle sized.

Antennal segment I with 7 setae, II with 12 setae. Sensory organ of antennal segment III consisting of two small hammer-shaped sensillae, two guard sensillae, of which dorsal one is



longer than ventral one, and one ventro-lateral microsensilla (Figs 19–20). Antennal segment IV with considerable trilobated apical vesicle, subapical “organite”, one dorso-lateral microsensilla, only 6 fine sensillae, of which 3 are in dorso-external position and 3 dorso-internal position, and normal setae blunt at the top (Fig. 19). Ventral side of antennal segment IV with sensory rasp consisting of about 30–32 modified sensory setae and some normal blunt setae (Fig. 20).

8 + 8 ocelli. Postantennal organ with 8 fine granulated vesicles (Fig. 23).

Buccal cone short. Globular maxillary head with apical tooth and basally with two hyaline lobes (Fig. 21). Mandible absent.

Femur ventrally with one very long seta and some short ones. Tibiotarsi I, II, III with 19, 19, 18 acuminated setae. Claw with one inner tooth and a pair of large lateral teeth at the base (Fig. 22).

Ventral tube with 3 + 3 setae. Tenaculum with 3 + 3 teeth. Dens dorsally with 6 setae, of which 3 are thick and ciliated (Fig. 24). Mucro as in Fig. 24.

Dorsal chaetotaxy as in Fig. 18. Formula of sensory setae per half tergite = 0/022/21111.

Discussion: The new species differs from three other species of this genus by the presence of 8 vesicles in postantennal organ (in *B. compositus* Arlé, 1959 = 4, in *B. micropilosus* Cassagnau & Rapoport, 1962 = 17–22 and in *B. neuquensis* Cassagnau & Rapoport, 1962 = 13–17 vesicles). The presence of three thick, ciliated setae on the dens and the maxilla with one apical tooth and two hyaline lobes is characteristic only for the new species.

#### Pseudachorutinae

##### *Delamarellina guilleni* Rapoport & Rubio, 1963

Material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a. s. l., Barbar's traps, 23 January — 6 February 1985, leg. M. Vogel: mixed forest of *Nothofagus antarctica* and *Nothofagus pumilio*, about 80 years old, in the understorey: *Gunnera magellanica*, *Empetrum rubrum*, *Chilotrichum diffusum*, *Senecio acantifolius* (L.PAR-3), 2 specimens: patch of an old *Nothofagus pumilio* forest (about 500 years old), large proportion of dead wood, understorey with *Berberis ilicifolia*, *Rubus cheoides*, *Acaena magellanica* and *Hierochloe redolens* (L.PAR-4), 1 specimen.

Redescription: Female: length 4.5 mm, length of young specimens: 1.6–1.8 mm. Colour in alcohol: dark grey-blue. Body flattened dorso-ventrally with projecting paratergites. Abdomen VI in ventral position. Tegumental grain medium-sized. Plurichaetotic chaetotaxy strongly developed.

Antennae III and IV fused dorsally, ventrally distinctly separated. Ratio of antenna IV: antenna III = 3.3 (ventral side). Sensory organ of antennal segment III consisting of two small sensillae bent in the same direction, two long guard sensillae fine and subcylindric, of which dorsal one is 1.2 times longer than ventral one, and one ventral microsensilla. Dorsal guard sensilla and two small sensillae of sensory organ of antennal segment III at the base of apical half of antennal segment III + IV (Fig. 28). Ventral guard sensilla and ventral microsensilla on ventral part of distinct antennal segment III (Fig. 29). Dorsal side of antennal segment IV with trilobated apical vesicle, distinct bilobated subapical “organite”, small dorso-external microsensilla and 17 short, thick subcylindrical sensillae, all in apical position (Fig. 28). Ventral side with large sensory rasp as in Fig. 29.

Ocelli 5 + 5. Postantennal organ absent.

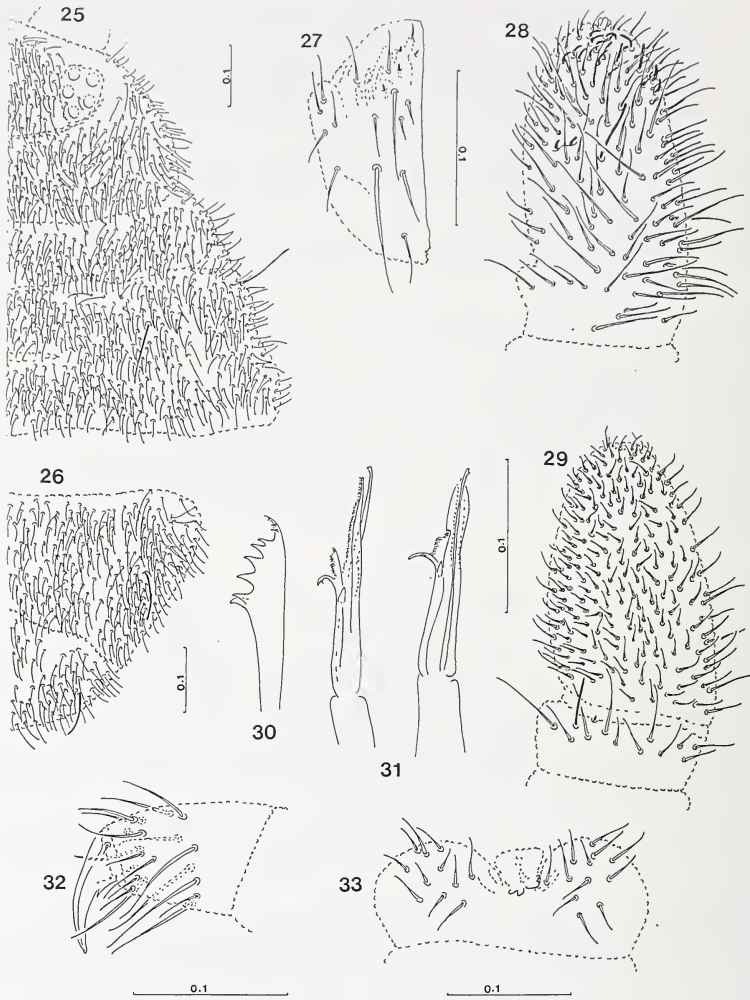
Buccal cone short. Labium with seta L and 4 labial “organite” (x) as in Fig. 27. Mandible and maxillae as in Figs 30–31.

Tibiotarsi I, II, III with 19, 19, 18 acuminated setae. Claw with one inner basal tooth (Fig. 32).

Ventral tube with about 30 + 30 setae. Tenaculum with 2 + 2 teeth, without seta on the corpus. Dens reduced, globular, with 11–12 setae, mucro absent (Fig. 33).

Dorsal chaetotaxy of head, thorax I, II, abdomen IV and V as in Figs 25–26. Body setae short, only sensory setae long.

Comments: This species was described by Rapoport & Rubio (1963) from El Roble Mountains in Chile. In this paper a new redescription is given, including some additional



Figs 25–33: *Delamarellina guilleni*. Fig. 25 — dorsal chaetotaxy of head, thorax I and II (preadult specimen). Fig. 26 — dorsal chaetotaxy of abdomen IV and V (preadult specimen). Fig. 27 — labium, right side. Fig. 28 — antennal segment III and IV, dorsal side. Fig. 29 — antennal segment III and IV, ventral side. Fig. 30 — mandible. Fig. 31 — maxillae. Fig. 32 — leg III. Fig. 33 — furca.

characters. The adult specimen (female) is bigger than specimens from El Roble, but we consider it as the same species. In 1962 Cassagnau & Rapoport described *Arlesia globulosa* as found in Patagonia in Argentina, which is now placed in the same genus *Delamarellina* Rapoport & Rubio, 1963. *D. guilleni* differs from *D. globulosa* (Cassagnau & Rapoport, 1962) particularly by the shape of maxillary head, absence of mucro and tenaculum with only 2 + 2 teeth (3 + 3 in *D. globulosa*).

Onychiuridae

Tullbergiinae

*Tullbergia bisetosa* Börner, 1903

Material: Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: forest of *Nothofagus pumilio*, about 20 m a. s. l., understorey sparse, with *Acaena ovalifolia* and *Viola magellanica* (NAV-1), 2 specimens; evergreen forest of *Nothofagus betuloides*, 80 m a. s. l., large fraction of dead wood, no understorey, *Blechnum magellanicum* in small, wet depressions (NAV-4), 1 specimen.

*Tullbergia trisetosa* (Schäffer, 1897)

Material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a. s. l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: wet bottom of a valley, sloping towards a stream with the most important plants as *Gunnera magellanica*, *Blechnum pennamarina*, *Acaena magellanica*, *Carex curta*, *Carex atropicta*, *Poa pratensis*, *Festuca rubra*, *Trisetum cernuum*, *Arenatherum* sp. (L.PAR-2), 2 specimens; patch of an old *Nothofagus pumilio* forest (about 500 years old), large proportion of dead wood, understorey with *Berberis ilicifolia*, *Rubus cheoides*, *Acaena magellanica* and *Hierochloa redolens* (L.PAR-4), 1 specimen.

*Mesaphorura yosii* (Rusek, 1967)

Material: Navarino Island, Puerto Williams, 55°10' South, 69°30' West, Barber's traps, 26 January — 2 February 1985, leg. M. Vogel: evergreen forest of *Nothofagus betuloides*, 80 m a. s. l., large fraction of dead wood, no understorey, *Blechnum magellanicum* in small, wet depressions (NAV-4), 1 specimen.

Comments: Cosmopolitan species.

*Dinaphorura* sp.

Material: Brunswick Peninsula, Laguna Parillar ca 70 km west of Punta Arenas, 250 m a. s. l., Barber's traps, 23 January — 6 February 1985, leg. M. Vogel: mixed forest of *Nothofagus antarctica* and *Nothofagus pumilio*, about 80 years old, in the understorey: *Gunnera magellanica*, *Empetrum rubrum*, *Chilotrichum diffusum*, *Senecio acantifolius* (L.PAR-3), 1 specimen.

Comments: It is a new species but we had only one specimen (male) at our disposal and therefore could not describe it in this paper. This species belongs to the group of *Dinaphorura* species with the pseudocellar formula per half tergite: 11/011/11111 and two anal spines and 5 spiniformes projections. It differs from the other species of this group by its chaetotaxy.

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Resumé

Dans ce travail nous étudions une collection de Collemboles Poduromorphes du sud de Chili. Nous avons déterminé 15 espèces. Nous décrivons deux espèces nouvelles. Nous redécrivons une autre espèce déjà connue du Chili et nous ajoutons des caractères complémentaires pour trois autres espèces.

### Zusammenfassung

Bericht über eine Aufsammlung von Collembolen aus dem Süden von Chile. 15 Arten wurden identifiziert. Zwei Arten werden als neu und eine wenig bekannte Art genauer beschrieben; zusätzliche Merkmale werden für drei weitere Arten benannt.

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