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The rhiniceros on the cover presents a nearly complete specimen of the Pleistocene *Coelodonta antiquitatis*, excaved in the layers of ozocerite in Starunia (Eastern Carpathians), 1929. This unique exhibit is shown in the Natural History Museum (Institute of Systematics and Evolution of Animals), Cracow.

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Anurophorus species of East Asia and North America (*Collembola, Isotomidae*)

Mikhail B. POTAPOV

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Abstract. The paper provides information on the taxonomy and distribution of 20 species of the genus *Anurophorus* from East Asia and North America. Redescriptions or taxonomic remarks on the related forms from Europe, West Asia and the Hawaii Is. are included. Seven groups of species have been erected. The following 12 new species are described: *A. cinereus*, *A. eximius*, *A. fjellbergi*, *A. koreanus*, *A. nitrophilus*, *A. olympicus*, *A. pacificus*, *A. palearcticus*, *A. sensibilis*, *A. sorosi*, *A. szeptyckii*, *A. trisensillus*. The type materials of *A. altus*, *A. atlanticus*, *A. asfouri*, *A. bimus*, and *A. senex* have been examined.

Key words: *Collembola*, *Isotomidae*, taxonomy, Russia, North Korea, USA, Canada.

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I. INTRODUCTION

The following work is a revision of abundant material from various areas of the Asiatic part of Russia, North Korea, Mongolia, USA and Canada. The present work is a continuation of the series of studies on the collembolan material provided by the expeditions of the Institute of Systematics and Evolution of Animals (Poland) to North Korea in 1971-1987, and scientific trips of Dr A. FJELLBERG to North America and NE Siberia in 1979-1983. Besides, a large number of collections of other persons have been studied.

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The types of species are housed in the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, (abbreviation: ISEA), Canadian National Collection in Ottawa, Canada (CNC), and Moscow State Pedagogical University, Russia (MSPU). Other specimens are kept in collections of the latter institution as well as in Oslo University. The following abbreviations are used in descriptions and in Table I:

PAO – postantennal organ,

Ant.I-IV – antennal segments I-IV,

Th.I-III – thoracic segments I-III,

Abd.I-VI – abdominal tergites I-VI,

p1 – the first chaeta of p-row,

MDM,ML,MDl – dorsomedial, lateral and dorsolateral macrochaeta,

s – sensillum,

ms – microsensillum.

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II. KEY TO THE ASIATIC AND NEARCTIC *ANUROPHORUS* SPECIES AND SOME RELATED ONES

1. Empodial appendage III more than 1/3 of the inner edge of claw 2
–. Empodial appendage III equal to or less than 2/7 of the inner edge of claw 18
2. 2 ommatidia on each half of head . . . . . *utahensis* (WRAY,1958)
–. 5 or more ommatidia on each half of head 3
3. "Tenacular area" with more than 15 chaetae. Antennal segment III with additional dorsal sensilla 4
–. "Tenacular area" with less than 10 chaetae. Antennal segment III without additional dorsal sensilla 6
4. Last abdominal segments strongly wrinkled. Sensilla on the abdominal tergites shorter than half the length of common chaetae . . . . . *coiffaiti* CASSAGNAU & DELAMARE,1955
–. Last abdominal segments smooth. Sensilla on the abdominal tergites longer than half the length of common chaetae 5
5. Empodial appendage equal to 2/3-3/4 of the inner edge of claw. Upper subcoxa of leg II with 3-5 chaetae . . . . . *cuspidatus* (STACH,1922)
–. Empodial appendage equal to 2/5-1/2 of the inner edge of claw. Upper subcoxa of leg II with 1-2 chaetae . . . . . *silvaticus* POTAPOV & STEBAEVA, 1990
6. Abdominal sternite II with more than 10 medial chaetae (Fig. 28). Thoracic sternites I and II with medial chaetae . . . . . *eximius* sp.nov.
–. Abdominal sternite II with 0-4 medial chaetae. Thoracic sternites I and II without medial chaetae 7
7. Thoracic tergites II and III with 2+2, abdominal tergites I-III with 1+1 sensilla (excluding microsensilla 10
–. Thoracic tergites II and III with 3-4+3-4, abdominal tergites I-III with 2-3+2-3 sensilla (excluding microsensilla) (Figs 1,11) 8
8. Abdominal tergites I-III with 3+3 sensilla (excluding microsensilla) (Figs 11,14). Empodial appendage III about 2/5 of the length of the inner edge of claw . . . . . *koreanus* sp.nov.
–. Abdominal tergites I-III with 2+2 sensilla (excluding microsensilla) (Fig. 1). Empodial appendage III is short (about 1/3 the length of the inner edge of claw) or long (about 2/3 of its length) 9
9. Empodial appendage III about 2/3 of the inner edge of claw . . . . . *ganghwaensis* LEE,1977
–. Empodial appendage III about 1/3 of the inner edge of claw (Fig. 3) . . . . *sensibilis* sp.nov. (part)
10. Empodial appendages I and II more than 1/3 of the inner edge of claw (Figs 19,24) 11
–. Empodial appendages I and II less than 1/4 of the inner edge of claw (Figs 35,38,41) 13

11. 8 ommatidia on each half of head. Abdominal tergite IV with 2+2 sensilla (Fig. 25) . . . . . *asfouri* CHRISTIANSEN,1958
–. 5 ommatidia on each half of head. Abdominal tergite IV with 1+1 sensilla (Figs 15,21) . . . 12
12. Abdominal tergite V with 3+3 sensilla. Antennal segment IV with apical bulb hardly visible (Figs 21,22) . . . . . *trisensillus* sp.nov.
–. Abdominal tergite V with 4+4 sensilla. Antennal segment IV with two well-defined apical bulbs (Figs 15,16) . . . . . *sorosi* sp.nov.
13. Abdominal tergite IV without distinct macrochaetae (Fig. 33) . . . . . *bimus* CHRISTIANSEN & BELLINGER,1980
–. Abdominal tergite IV with distinct 2+2 macrochaetae 14
14. Abdominal tergite V with 9-10+9-10 axial chaetae. Furcal subcoxa with more than 20 chaetae . . 15
–. Abdominal tergite V with 4-5+4-5 axial chaetae (Fig. 39). Furcal subcoxa with less than 17 chaetae 16
15. Abdominal tergite IV with 2+2 sensilla . . . . . *mongolicus* DUNGER,1982
–. Abdominal tergite IV with 1+1 sensilla . . . . . *montanus* MARTYNOVA,1968
16. Abdominal tergite IV with 2+2 sensilla (Fig. 36). Antennal segment III with 2 lateral sensilla . . . . *altus* CHRISTIANSEN & BELLINGER,1980
–. Abdominal tergite IV with 1+1 sensilla (Fig. 39). Antennal segment III with 1 lateral sensillum (Fig. 42) 17
17. Dorsal cuticle of abdominal tergite V as in Fig. 43 . . . . . *szeptyckii* sp.n.
–. Dorsal cuticle of abdominal tergite V as in Fig. 47 . . . . . *cinereus* sp.n.
18. Thoracic sternite I with 1+1 medial chaetae 19
–. Thoracic sternite I without medial chaetae 23
19. Abdomial tergite V with two spine-like reticulate papillae (Figs 52,54). Thoracic sternite II with 3+3 or more medial chaetae (Fig. 48) . . . . . *rarus* (YOSII,1939)
–. Abdomial tergite V without two spine-like reticulate papillae. Thoracic sternite II with 1+1 (rarely 2+2) medial chaetae 20
20. Abdominal tergite IV with 2+2 sensilla (Fig. 56) . . . . . *lohi* CHRISTIANSEN & BELLINGER, 1992
–. Abdominal tergite IV with 1+1 sensilla (Figs 57,58) 21
21. Antennal segment I with 1 ventrolateral sensillum and 2 microsensilla (as in Fig. 66) . . . . . *alpinus* POTAPOV & STEBAEVA,1990
–. Antennal segment I with 2 ventrolateral sensilla and 2 microsensilla (as in Fig. 67) 22
22. Median macrochaetae on abdominal tergite V as long as or longer than distance between their base (Fig. 57) . . . . . *senex* FJELLBERG,1984
–. Median macrochaetae on abdominal tergite V usually absent; if present, their length much shorter than distance between their bases (Fig. 58) . . . . . *pacificus* sp.nov.
23. Thoracic sternite II with 1+1 or 2+2 medial chaetae 24
–. Thoracic sternite II without medial chaetae 25
24. Antennal segment I with 1 ventrolateral sensillum and 2 microsensilla (Fig. 66) . . . . . *atlanticus* FJELLBERG,1974
–. Antennal segment I with 2 ventrolateral sensilla and 2 microsensilla (Fig. 67) . . . . . *chukoticus* (POTAPOV & STEBAEVA,1990)
25. Head with 3+3 postlabial chaetae and 1 (rarely 2) prelabral ones . . . . . *fjellbergi* sp.nov.
–. Head with 4+4 to 6+6 postlabial chaetae and 3 prelabral ones 26
26. Thoracic tergites II and III with 3+3, abdominal tergites I-III with 2+2 sensilla (excluding microsensilla) 27
–. Thoracic tergites II and III with 2+2, abdominal tergites I-III with 1+1 sensilla (excluding microsensilla) 29
27. Sensilla on abdominal tergites I-III arranged close to each other . . . *ursi* POTAPOV & STEBAEVA,1990
–. Sensilla on abdominal tergites I-III arranged far from each other (Fig. 1) 28

28. Abdominal tergite V strongly swollen and distinctly wrinkled (Figs 7,8). Tibiotarsus III with 1 elongated hair on ventral side (Fig. 5) . . . . . *olympicus* sp.nov.
–. Abdominal tergite V of normal form, sometimes slightly wrinkled (Fig. 6). Tibiotarsus III with 3 or more elongated hairs on ventral side (Fig. 3) . . . . . *sensibilis* sp.nov. (part)
29. Distinct macrochaetae on abdominal tergite IV absent . . . *orientalis* POTAPOV & STEBAEVA,1990
–. Macrochaetae on abdominal tergite IV present 30
30. "Tenacular area" with 6-12 chaetae. Outer maxillary lobe with 1 sublobal hair 31
–. "Tenacular area" with 0-4 chaetae. Outer maxillary lobe with 2-3 sublobal hairs 32
31. Antennal segment III with 4-7 additional dorsal sensilla. (POTAPOV & STEBAEVA 1990: Fig. 2). Body colour dark blackish-blue . . . . . *laricis* NICOLET, 1842
–. Antennal segment III without additional dorsal sensilla (Ibidem: Fig. 2). Body colour from yellow to blackish-blue . . . . . *palearcticus* sp.nov.
32. Tibiotarsi I,II,III with 3,3,1 distinctly clavate long ventral hairs (Figs 79-81). Postantennal organ equal to or shorter than nearest ommatidium 33
–. Tibiotarsi I,II,III with 0-1,0-1,0 slightly clavate ventral hairs. Postantennal organ longer than nearest ommatidium 34
33. Thoracic tergite III with 4+4 axial chaetae. Tibiotarsus III with 22 chaetae (Figs 82,80) . . . . . *fulvus* FJELLBERG, 1988
–. Thoracic tergite III with 5-6+5-6 axial chaetae. Tibiotarsus III usually with 23 chaetae (Figs 83,81) . . . . . *nitrophilus* sp.nov.
34. Antennal segment I with 1 ventrolateral sensillum and 2 microsensilla. Abdominal tergite IV with 2+2 sensilla. Thoracic tergite III with 4+4 axial chaetae . . . . . *septentrionalis* PALISSA,1966
–. Antennal segment I with 2 ventrolateral sensilla and 2 microsensilla. Abdominal tergite IV with 1+1 sensilla. Thoracic tergite III with 5+5 or more axial chaetae 35
35. Macrochaetae on abdominal tergites III present, no less than 3/4 the length of macrochaetae on abdominal tergites IV . . . . . *elongatus* FJELLBERG,1982
–. Macrochaetae on abdominal tergites III absent; if present, much shorter than macrochaetae on abdominal tergites IV 36
36. Thoracic tergite II with 6-7+6-7 axial chaetae . . . . . *stepposus* POTAPOV & STEBAEVA,1990
–. Thoracic tergite II with 8-11+8-11 axial chaetae . . . . . *continentalis* DUNGER,1982

III. PRELIMINARY CLASSIFICATION OF THE GENUS *ANUROPHORUS*

The Asiatic and Nearctic members of the genus can be classified in 7 formal species groups, which are as follows (including some related European forms):

1. "*cuspidatus*" group: *cuspidatus*, *silvaticus*, *coiffaiti*.
2. "*sensibilis*" group: *sensibilis*, *ganghwaensis*, *ursi*, *koreanus*, *olympicus*.
3. "*sorosi*" group: *sorosi*, *trisensillus*, *eximius*, *asfouri*.
4. "*mongolicus*" group: *mongolicus*, *montanus*, *bimus*, *altus*, *szeptyckii*, *cinereus*.
5. "*senex*" group: *senex*, *pacificus*, *lohi*, *alpinus*, *rarus*.
6. "*atlanticus*" group: *atlanticus*, *chukoticus*.
7. "*laricis*" group: *orientalis*, *fjellbergi*, *fulvus*, *nitrophilus*, *septentrionalis*, *elongatus*, *stepposus*, *continentalis*, *laricis*, *palearcticus*.

Each group may consist of both closely related and dissimilar forms. As the detailed morphology of most European species is still unknown, the erection of more natural associations will be an objective of future publications.

IV. DESCRIPTIONS OF SPECIES AND SPECIES GROUPS

"*cuspidatus*" group

The group differs notably from all others in long empodial appendages on all legs, a considerably increased number of chaetae on "tenacular area" and the presence of additional sensilla on antennal segment III (see, for instance, Fig. 9 in POTAPOV, STEBAEVA 1990). Besides, the studied species of this group have the following rare characters: 1 sensillum on antennal segment I, 2 prelabral and 2 sublobal hairs on the outer maxillary lobe, and the absence of macrochaetae on abdominal segment IV. The relationships between *cuspidatus*, *silvaticus* and *coiffaiti* have been discussed by POTAPOV & STEBAEVA (1990). Likewise, some European species should be placed in this group. So far it is not known from in East Asia and North America. The individual reported as *A.cuspidatus* from Nepal (YOSII 1971) definitely belongs to another species.

"*sensibilis*" group

It differs from others in the presence of one or two additional sensilla on Th.II,III and Abd.I-III, and so the sensorial set is as follows: 3-4+ms,3-4/2-3+ms,2-3,2-3,2-3,4-7. Empodial appendages either reduced or well-developed, ventromedial chaetae absent on thoracic segments I and II.

Anurophorus olympicus sp.nov.

(Figs 4,5,7-9)

D e s c r i p t i o n. Overall length of subadult females about 1,2 mm. Body of common shape. Abdominal segments V and VI form the specific wrinkled swelling (Fig. 7). Body colour unknown (probably dark). Dorsal integument with strong reticulation and wrinkled, tape-shaped polygons present (Fig. 8).

Ant.IV with distinctly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO narrow, about 3 times as long as diameter of nearest ommatidium. 3 prelabral chaetae. 4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 9-11,6-8/5-6,5,5-6,7-8,6-9. Common chaetae of normal size, serrated on last abdominal segments. Macrochaetae pointed, slightly curved at apex. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,2,3. Medial macrochaetae of Abd.V not differentiated. Sensilla on body rather long, over half the length of common chaeta. Number of sensilla of Th.II-Abd.V: 3+ms,3/2+ms,2,2,2,4. Microsensillum on Th.II present. Th.I-III with 0+0,0+0,3-5+3-5 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 (rarely 5) posterior chaetae, Abd.II with 2-3, Abd.III with 3-4 anterior and 1-2 posterior, "manubrial field" with 33-38.

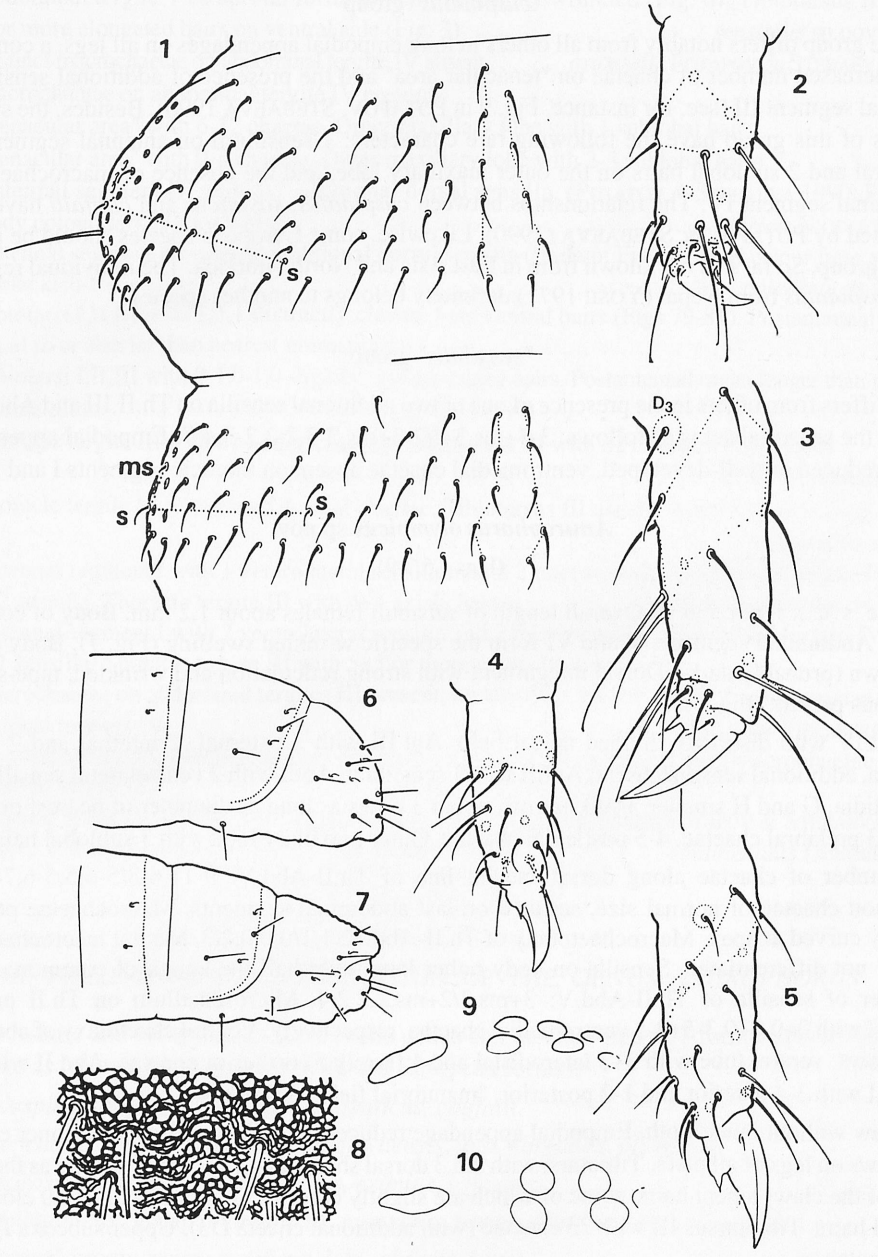
Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of the inner edge of the claws on legs of all pairs. Tibiotarsi with 2,3,3 dorsal short (about 1,2 times as long as the inner edge of the claw) tenent hairs, some of which are slightly clavate. Tibiotarsi with 1,1,0 elongated ventral hairs. Tibiotarsus III with 23 chaetae (with additional chaeta D3). Upper subcoxa III with 5-6 chaetae.

H o l o t y p e female (subadult): U.S.A., Washington, Olympic National Park, Hoh Rain Forest, ca 180 m alt., litter in forest clearing meadow, 11 ix 1983, coll. A. FJELLBERG (Sample 440/83) (deposited in CNC).

P a r a t y p e s: 2 specimens in the same locality (deposited in CNC).

N a m e d e r i v a t i o n. The species is named after the Olympic National Park.

D i s t r i b u t i o n a n d e c o l o g y. Known only from type locality.



Figs 1-10. *Anurophorus* spp. of "*sensibilis*" group. 1-3,6,10 – *A. sensibilis* sp.n.; 4,5,7-9 – *A. olympicus* sp.n.; 1 – dorsal chaetotaxy of Th.III and Abd.I; 2 – apical part of a leg of first pair; 3 – ditto of third pair; 4 – apical part of a leg of first pair; 5 – ditto of third pair; 6,7 – profile of Abd.III-VI (6 – *A. sensibilis*, 7 – *A. olympicus*); 8 – integument reticulation of dorsal side of Abd.V; 9,10 – PAO and ommatidia (part) (9 – *A. olympicus*, 10 – *A. sensibilis*) (s – sensillum, ms – microsensillum).

R e m a r k s. The species is placed in the "*sensibilis*" group because of its increased sensorial set on the body. It closely resembles *A. sensibilis* sp.nov. in the position of supplementary body sensilla, the presence of an additional chaeta on the tibiotarsus of leg III, and reduced empodial apendages on legs of all pairs. A. *olympicus* differs from the latter in a specific swelling on the abdomen and the absence of several clavate hairs on the ventral side of the tibiotarsi. Relationships with other species are shown in the key.

Anurophorus sensibilis sp.nov.

(Figs 1-3,6,10)

D e s c r i p t i o n. Overall length of adult females is about 1,3 mm. Body broadened, blackish-violet, antennae and legs paler. Dorsal integument with distinct reticulation, elongated polygons present.

Ant.IV with slightly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO narrow, about 1,5-2,0 times as long as diameter of nearest ommatidium, hidden in integumentary groove. 3 prelabral chaetae. 5-6+5-6 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V:7-9,6-7/5-6,5-6,5-6,6-8,6-7. Common chaetae weakly serrated on last abdominal segments. Macrochaetae pointed or slightly curved at apex. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,2(2*),3. Macrochaetae of Abd.IV small. Medial macrochaetae of Abd.V absent or feebly marked. Sensilla on body 1/2-1/3 of the length of common chaeta. Number of sensilla of Th.II-Abd.V: 3+ms,3 /2+ms,2,2,2,4. Microsensillum on Th.II present. Th.I-III with 0+0,0+0,3-5+3-5 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 3-4, Abd.III with 3-6 anterior and 1 posterior and furcal subcoxa with 22-26 chaetae.

Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of the inner edge of claws of legs I and II, and 1/3-1/5 of tyhe length of inner edge of claw on leg III. Tibiotarsi with 2,3,3 distinctly clavate dorsal tenent hairs and 3-5,3-5,1-3 weakly clavate or apically curved elongated ventral hairs. Tibiotarsus III with 23 or 24 chaetae (with one or two additional chaetae in 3-rd row). Upper subcoxa III with 4-5 chaetae.

H o l o t y p e female: Russia. Sakha Republic (Yakutia), near Yakutsk, mixed forest (*Larix* sp., *Betula* sp.), litter, 11 vii 1992, coll. M. POTAPOV, (deposited in MSPU).

P a r a t y p e s: 1 paratype in the same locality; 1 paratype: Russia. Sakha Republic (Yakutia), Myagino-Kangalassky Region, Tyundyulyu, forest with *Larix* sp. and *Vaccinium vitis-idaea*, litter, 17 vii 1992, coll. A. AVERINSKY (deposited in MSPU).

O t h e r m a t e r i a l s s t u d i e d: N. Korea. Prov. Janggang-do, 1,5 km SE of Mupho, litter under shrubs (*Rhododendron* sp., *Alnus* sp.), coll. A. SZEPTYCKI; Russia. South Far East, Suputinsky Nat. Res., coll. L. KUTYREVA.

N a m e d e r i v a t i o n. The species name suggested by the presence of many sensilla on body tergites.

D i s t r i b u t i o n. Central Yakutia, Russian South Far East, N.Korea.

R e m a r k s. The species is placed in the "*sensibilis*" group because of its increased sensorial set on the body. It is easily distinguished from *A. ursi* by the position of supplementary body sensilla on the thorax and Abd.I-III, which are as follows: 4-6 p-chaetae between medial and lateral ones in the new species (Fig. 1) and 1-2 chaetae in *A. ursi* (Fig. 5 in POTAPOV, STEBAEVA 1990). *A. sensibilis* closely resembles *A. olympicus* (see the Remarks section for the latter). Both species are similar to *A. ganghwaensis* in sensorial set, but easily recognized by the reduced empodial appendage. Additionally, the new species differs from the majority of other members of the genus in the presence of many clavate ventral hairs on the tibiotarsi.

Anurophorus koreanus sp. nov.

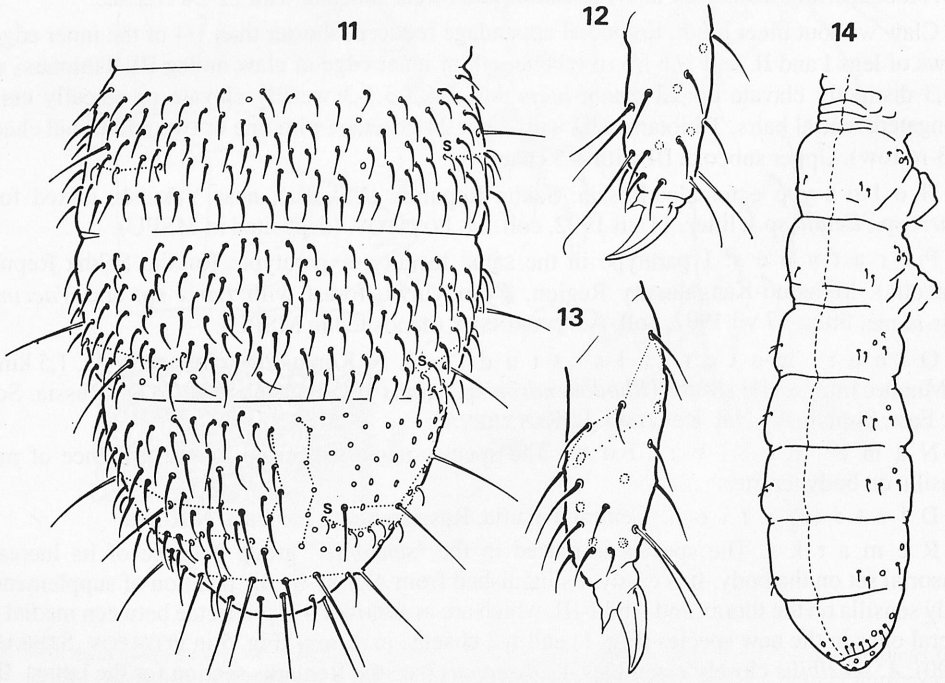
(Figs 11-14)

D e s c r i p t i o n. The overall length of subadult females is about 1,2 mm. Body sligthly flattened. Colour unknown, probably dark. Dorsal integument with strong reticulation, tape-shaped polygons absent, some of polygons elongated.

Ant.IV with simple or slightly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 (sometimes 3) ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO narrow, their length not examined (a little greater than 1,5 diameters of nearest ommatidium). 3 prelabral chaetae. 5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 8-9,5-6/ 4-5,5,4-5,6,6-7. Common chaetae of common size, serrated on last abdominal segments. Macrochaetae long, sometimes slightly abrupt. Macrochaetotaxy of Th.II-Abd.V: 1,1/1(1*),1,1,2,3+1*. Medial macrochaetae of Abd.V (1*) small. Sensilla on body long and thin, only slightly shorter than common chaetae. Numbers of sensilla on Th.II-Abd.V: 4+ms,4 /3+ms,3,3,3,6-7 (Fig.14). One of the paratype (juvenile) with 5 sensilla on one side of Abd.V. Th.I-III with 0+0,0+0,3-4+3-4 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 2-3, Abd.III with 2-3 anterior and 1 posterior chaetae, "manubrial field" with about 33 chaetae and furcal subcoxa with 13-18.

Claw without inner tooth. Empodial appendage about 1/4 of the inner edge of the claws of leg I and II, and 2/5 of that on leg III. Tibiotarsi with 2,3,3 dorsal and 1,1,0 ventral clavate tenent hairs. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with more than 3 chaetae.



Figs 11-14. *Anurophorus koreanus* sp.n. 11 – dorsal chaetotaxy of Abd.III-VI; 12 – apical part of a leg of first pair; 13 – ditto of third pair; 14 – scheme of sensorial chaetotaxy.

H o l o t y p e female (subadult): N.Korea. Pektu-san, ca 2100 m alt., litter of alpine meadow with *Rhododendron* sp., *Dryas* sp., *Salix* sp. and others, 4 vii 1985, coll. A.SZEPTYCKI (Sample K-85-35) (deposited in ISEA).

P a r a t y p e s: 2 specimens from the same locality (deposited in ISEA).

D i s t r i b u t i o n a n d e c o l o g y. Known only from the type locality.

R e m a r k s. The species of the "*sensibilis*" group. It is easily recognized by many sensilla on the body tergites, since such a number was unknown in other species of the genus. Furthermore, the new species differs from other members of the group in distinct macrochaetae on abdominal tergites II and III. The species is very similar to *A. ganghwaensis* LEE,1977 (S. Korea) in its long empodial appendage on leg III. Unfortunately, I had no access to the material of this species, but, according to the original description (LEE 1977), its abdominal tergites II,III,IV and V have 2,2,2,4 sensilla, the empodial appendages are long and well-developed on all pairs of legs. There are other members of the genus which have the empodial appendages reduced on legs I and II and well developed one on leg III (species of "*mongolicus*" group), all of them, however, have only 1 sensillum on each of abdominal tergites I,II and III.

Anurophorus ursi POTAPOV & STEBAEVA,1990

N e w m a t e r i a l s t u d i e d:

Russia. Central Altai Mts., Tuekta and Inya, coll. S. STEBAEVA; East Altai Mts., Teletskoe Lake, coll. S. STEBAEVA; Khakassia, West Sajan Range, Tashtypsky Region, Bolshoy On, coll. S. JORDANSKY; West Tuva, Kara-Hol Lake, coll. I. VTOROV; East Tuva, Khol-Ezhu, coll. S. STEBAEVA; Far East, Sakhalin I.(2 localities: nearby Tunaycha Lake and Kirillovo Vill.), coll. S. STEBAEVA.

Mongolia. Khubsugul Aimak, East Sajan Range, somon Khanh, Munku-Sardyk Hill, coll. A. DRUK.

D i s t r i b u t i o n a n d e c o l o g y. Species is distributed in the Altai Mts, East and West Sajan Ranges and Sakhalin. It usually inhabits litter of mountain larch- and fir-woods.

R e m a r k s. The species of the "*sensibilis*" group, easily distinguishable by the position of supplementary body sensilla, which are arranged close to the lateral ones (excluding *A. ganghwaensis*, in which as the position of sensilla has not been studied). The species differs from *A. ganghwaensis* and *A. koreanus* in reduced empodial appendages on all pairs of legs.

"*sorosi*" group

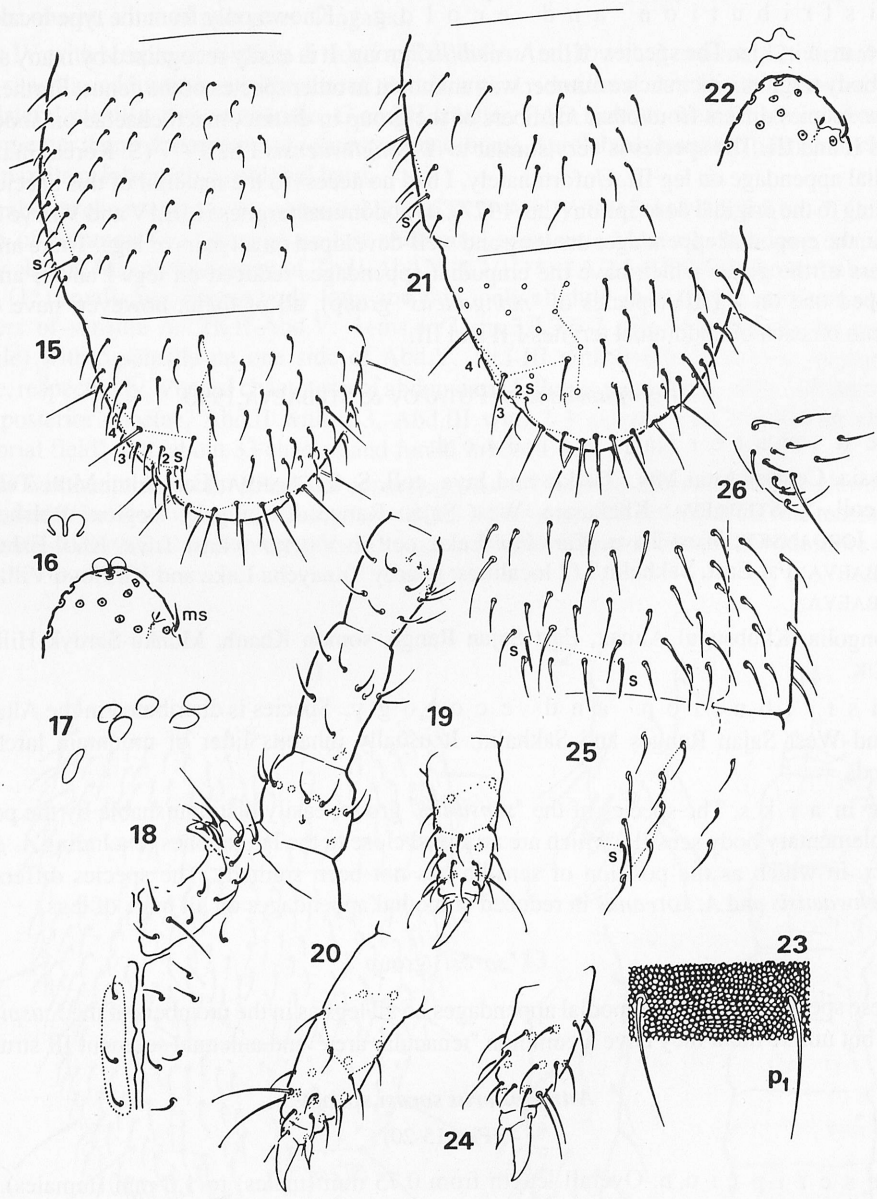
These species have long empodial appendages on all legs as in the members of the "*cuspidatus*" group, but unlike them they have a common "tenacular area" and antennal segment III structure.

Anurophorus sorosi sp. nov.

(Figs 15-20)

D e s c r i p t i o n. Overall length from 0,75 mm (males) to 1,0 mm (females). Body elongated. Greyish-blue, antennae and legs pale. Dorsal integument with hardly developed reticulation, polygons square.

Ant.IV with 2 equal apical bulbs. Ant.III with 2 external, 2 internal and 1 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 1 (one of specimens found with 2) ventrolateral sensilla. 5+5 equal ommatidia, G and H smaller. PAO of normal shape, about 2,0-2,5 times as long as diameter of nearest ommatidium. 3 prelabral chaetae. 3+3 postlabial chaetae. Outer maxillary lobe with 4 sublobal hairs (one specimen with 3 hairs on one side).



Figs 15-26. *Anurophorus* spp. of "*sorosi*" group. 15-20 – *A. sorosi* sp.n.; 21-24 – *A. trisensillus* sp.n.; 25-26 – *A. asfouri* (paratype); 15 – dorsal chaetotaxy of Abd.IV-VI; 16 – apex of Ant.IV; 17 – PAO and ommatidia; 18 – ventromedial part of head and Ant.I-III; 19 – apical part of a leg of first pair; 20 – ditto of third pair; 21 – dorsal chaetotaxy of Abd.IV-VI; 22 – apex of Ant.IV; 23 – integument reticulation of dorsal side of Abd.IV; 24 – apical part of a leg of third pair; 25 – dorsomedial part of Abd.IV-V; 26 – lateral part of Th.II (s – sensillum, ms – microsensillum).

Number of chaetae along dorsal medial line of Th.II-Abd.V: 6,4-6/3-4,3-4,4-5,5-7,5. Common chaetae short, practically smooth. Macrochaetae short and pointed. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,2*,3+1*. Medial macrochaetae of Abd.V (1*) small. Sensilla on body 1/3-1/4 of the length of common chaetae, slightly broadened. Number of sensilla of Th.II-Abd.V:2+ms,2/1+ms,1,1,1,4. Microsensillum on Th.II present. Th.I-III with 0+0,0+0,2-5+2-5 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 3-4, Abd.III with 3-5 anterior and 3-5 posterior chaetae and furcal subcoxa with 11-15 chaetae.

Claw without inner tooth. Empodial appendage well-developed, about half the length of inner edge of the claw on leg III, and almost 2/5 of that on legs I and II. Tibiotarsi with 2,3,3 dorsal distinctly clavate tenent hairs, ventral clavate hairs absent. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxae of leg III with 3-4 (rarely 2 or 5) chaetae. Male spurs weakly differentiated.

H o l o t y p e f e m a l e: Canada. British Columbia, Vancouver I., Kennedy river, 56 km from Port Alberni, river-bed, moss and grass on rocks, 20 vi 1983, coll. A. FJELLBERG (Sample 157/83) (deposited in CNC).

P a r a t y p e s: 6 specimens from the same locality (deposited in CNC).

N a m e d e r i v a t i o n. The species is named in honour of George SOROS, the founder of the International Science Foundation.

D i s t r i b u t i o n a n d e c o l o g y. Known only from the type locality.

R e m a r k s. The species is placed in the "*sorosi*" group. Its many unusual features are the follows: 5 ommatidia, 2 apical bulbs on Ant.IV, 1 lateral sensillum on Ant.III, 1 ventrolateral sensillum on Ant.I and 3+3 postlabial chaetae. Moreover, the new species has 4 sublobal hairs hitherto unknown in this genus (Fig. 18). *Anurophorus sorosi* is comparable to *Antarctophorus subpolaris* (SALMON, 1962) and some species of *Pseudanurophorus* STACH, which also have 4 sublobal hairs. It differs from all above-mentioned forms in the presence of apical bulbs on antennal segment IV (the generic character of *Anurophorus*). The species is similar to *A. balcellsi* SELGA,1959 (the Pirenees) in 5 ommatidia and well-developed empodial appendage on leg III. This last differs from *A. sorosi* in reduced empodial appendages on legs I and II. For the differences from *A. trisensillus* sp. nov. see below.

Anurophorus trisensillus sp. nov.

(Figs 21-24)

D e s c r i p t i o n. Overall length up to 0,8 mm. Body of common shape, pale greyish-blue in colour, antennae and legs paler. Dorsal integument with poorly developed reticulation, most polygons square.

Ant.IV with hardly visible apical bulb, which looks as if it is one or several apical swellings, some specimens have an almost normal apical bulb. Ant.III with 2 external, 2 internal and 1 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 1 or 2 ventrolateral sensilla. 5+5 ommatidia. PAO narrow, about 1,5 times as long as diameter of nearest ommatidium. 3 prelabral chaetae. 3+3 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V (with variation): 6,4/3(2),3(2),3,4-5,4(3). Common chaetae short and practically smooth. Macrochaetae very short and pointed. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,2*,3*. Macrochaetae of last abdominal segments poorly developed (*). Sensilla on body about 1/3 of the length of common chaeta. Number of sensilla of Th.II-Abd.V: 2+ms,2/1+ms,1,1,1,3. Microsensillum on Th.II presents. Th.I-III with 0+0,0+0,2-3+2-3 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 1-2, Abd.III with 1-3 anterior and 1-2 posterior, "manubrial field" with 17-20 and furcal subcoxa with 10-13 chaetae.

Claw with small inner tooth. Empodial appendage well-developed, a little over half the length of the inner edge of claw on leg III, and about half its length on leg I and II. Tibiotarsi with 2,3,3 dorsal short, slightly clavate tenent hairs and 1,1,0 ventral elongated hairs. Sometimes dorsal tenent hairs are blunt. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 2-3 chaetae.

H o l o t y p e female: Canada. British Columbia, Vancouver I., Carmanah Valley, 7 v 1990, leg N. WINCHESTER (Sample #26) (deposited in CNC).

P a r a t y p e s: 8 specimens from the same locality (deposited in CNC).

O t h e r m a t e r i a l s t u d i e d: Canada. British Columbia, Vancouver I., Pacific Rim National Park, coll. A. FJELLBERG.

N a m e d e r i v a t i o n. The species name was suggested by the presence of 3+3 sensilla on abdominal segment V. Distribution and ecology. Known only from Vancouver Island.

R e m a r k s. The species of the "*sorosi*" group, like *A. sorosi* has 5 ommatidia, 1 lateral sensillum on Ant.III, thin reticulation, and 3+3 postlabial chaetae. It differs in the the presence of 3 sublobal hairs, a tooth on the claw, 1 apical bulb on Ant.IV, and worse-developed dorsal tenent hairs on tibiotarsi. Furthermore, *A. trisensillus* has 3+3 sensilla on abdominal segment V, which are missing in other members of the genus. The small body size and oligochaetose are characteristic as well. *A. trisensillus* is morphologically similar to *A. balcellsi*. Like *A. sorosi*, the new species differs in the length of empodial appendages on legs I and II. It is important to note the variability of the number of ventrolateral sensilla (1 or 2) on antennal segment I in specimens under study. This character is as a rule stable.

Anurophorus eximius sp. nov.

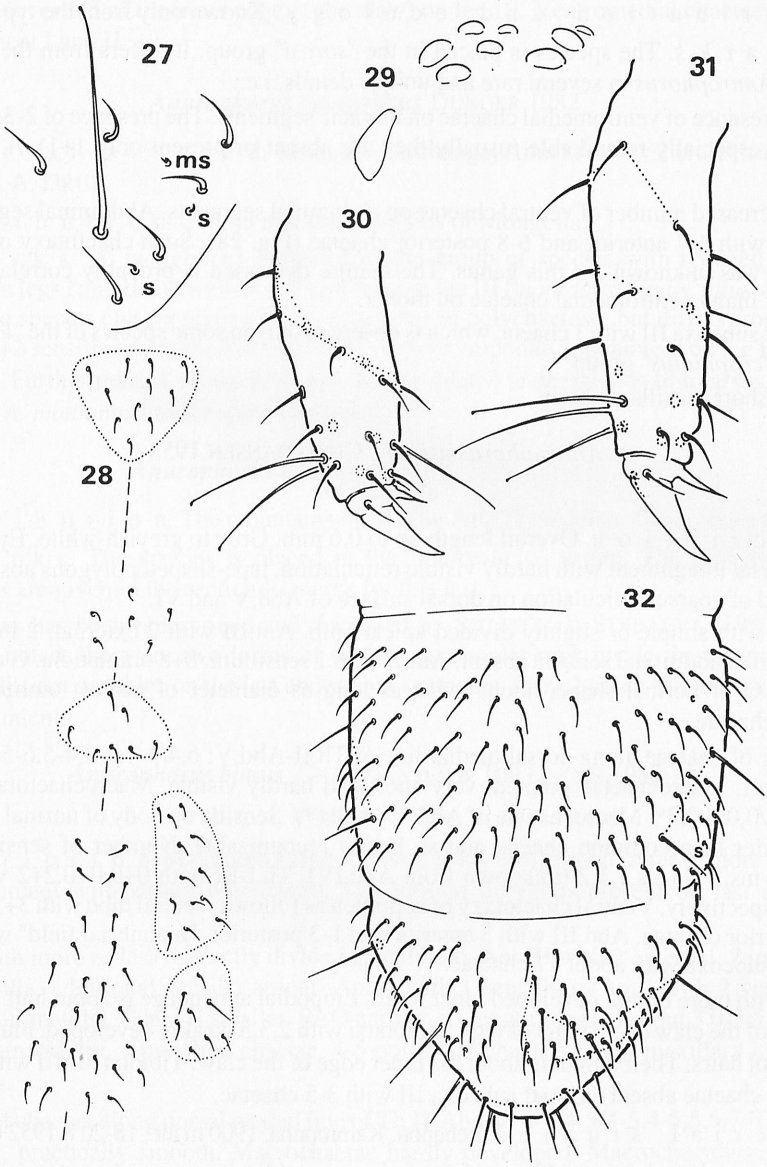
(Figs 27-32)

D e s c r i p t i o n. Overall length about 1 mm. Body elongate. Appendages slightly elongated. From grey to greyish-blue, antennae and legs pale. Dorsal integument with hardly visible reticulation, polygons square.

Ant.IV with distinctly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H much smaller, usually hardly visible. PAO of normal shape, as long as 2,0-2,5 diameters of nearest ommatidium. 3 prelabral chaetae. 4-5+4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 7-9,5-7/5,5,5-6,6-8,5-6. Common chaetae short, practically smooth. Macrochaetae pointed. On thorax they may be slightly clavate. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0(1*),2,4. Medial macrochaetae of Abd.V distinct, almost equal to lateral ones. Their length shorter than distance between their bases. Sensilla on body very short and hardly visible, 1/5-1/6 of the length of common chaeta. Number of sensilla of Th.II-Abd.V:2+ms,2/1+ms,1,1,1,4. Microsensillum on Th.II present. Th.I-III with 1+1 (rarely 1+2),2-3+2-3,4-8+4-8 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4-5 posterior chaetae, Abd.II with 9-14, Abd.III with 4-7 anterior and 6-8 posterior, "manubrial field" with 31-38 and furcal subcoxa with 19-25 chaetae. Chaetae on furcal subcoxa divided into anterior and posterior groups, macrochaeta in posterior group only 1,5 times as long as common chaetae.

Claw without inner tooth. Empodial appendage long, 5/7-2/3 of the length of inner edge of the claw of leg III. Empodial appendages of leg I and II a bit shorter than on leg III. Tibiotarsi with 2,3,3 dorsal strongly clavate tenent hairs and 1,1,0 elongated ventral hairs. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 1 (rarely 2) chaetae.



Figs 27-32. *Anurophorus eximius* sp.n. 27 – lateral part of Th.II; 28 – ventral chaetotaxy of Abd.II-IV; 29 – PAO and ommatidia; 30 – apical part of a leg of first pair; 31 – ditto of third pair; 32 – dorsal chaetotaxy of Abd.IV-VI (s – sensillum, ms – microsensillum).

H o l o t y p e female: Alaska. Alaska Range, Denali Hwy., Clearwater Mts, high alpine talus slope, moss and lichens on rocks, about 1500 m alt., 30 vii 1980, coll. A. FJELLBERG (samples 103-104/80): (deposited in CNC).

P a r a t y p e s: 10 specimens from the same locality (deposited in CNC).

N a m e d e r i v a t i o n. The species is named after its many unique features.

D i s t r i b u t i o n a n d e c o l o g y. Known only from the type locality.

R e m a r k s. The species is placed in the "*sorosi*" group. It differs from the most of the species of *Anurophorus* in several rare and unique details, i.e.:

– The presence of ventromedial chaetae on thoracic segments. The presence of 2-3+2-3 chaetae on Th.II is especially remarkable (usually they are absent or present only 1+1). *A. rarus* has a similar set.

– An increased number of ventral chaetae on abdominal segments. Abdominal segment II with 9-14, III – with 4-7 anterior and 6-8 posterior chaetae (Fig. 28). Such chaetotaxy of abdominal segment II was unknown for this genus. The feature discussed is probably correlated with the presence of many ventromedial chaetae on thorax.

– Upper subcoxa III with 1 chaeta, which is observed only in some species of the "*laricis*" group and in the "*cuspidatus*" group.

– Very short sensilla on body.

Anurophorus asfouri CHRISTIANSEN, 1958

(Figs 25-26)

D e s c r i p t i o n. Overall length up to 0,6 mm. Grey to greyish-white. Eye spot much darker. Dorsal integument with hardly visible reticulation, tape-shaped polygons absent. There is a large field of coarser reticulation on dorsal surface of Abd.V and VI.

Ant.IV with simple or slightly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. 8+8 ommatidia, G and H hardly visible. PAO of normal shape, about twice as long as diameter of nearest ommatidium. 4+4 postlabial chaetae.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 6,4/3-4,3-4,4-5,6-5,5. Common chaetae short. Macrochaetae pointed, very short and hardly visible. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,0,3*. Macrochaetae of Abd.V small (*). Sensilla on body of normal chaeta form, sligtly shorter than common chaeta, and so hardly recognizable. Number of sensilla of Th.II-Abd.IV: 2+ms,2 /1+ms,1,1,2 (unknown from Abd.IV). Th.I-III with 0+0,0+0,2+2 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.III with 3 anterior and 1-3 posterior, "manubrial field" with about 25 and furcal subcoxa with about 17 chaetae.

Claw with more or less developed inner tooth. Empodial appendage is about half the length of inner edge of the claw on all pairs of legs. Tibiotarsi with 2,3,3 weakly developed, blunt or pointed dorsal tenent hairs. Their length is about the inner edge of the claw. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 3-5 chaetae.

M a t e r i a l s t u d i e d: Lebanon, Kammouha, 1900 m alt., 18-20 8 1952 (9 paratypes).

D i s t r i b u t i o n. Known from Lebanon and Syria.

R e m a r k s. The species is placed in the "*sorosi*" group because of its long empodial appendages on all legs, common "tenacular area" and chaetotaxy of antennal segment III. It differs distinctly from other members of the group in 2+2 sensilla on abdominal tergite IV, small body size, and 8 ommatidia. Hardly recognizable body sensilla are also characteristic.

Because of the bad condition of the material I was unable to examine the sensilla of antennal segment I, outer maxillary lobe, and prelabral chaetae. The species calls for a detailed comparison

with three European species: *A. duodecimoculatus* STEINER,1958, *A. oredonensis* CASSAGNAU, 1953 and *A. unguiculus* BAGNALL, 1940.

"*mongolicus*" group

The group differs from others in reduced empodial appendages on legs I and II and well-developed ones (over 1/3 of the inner edge of the claw) on leg III. Ventromedial chaetae absent on thoracic segment I and II.

Anurophorus mongolicus DUNGER,1982

M a t e r i a l s t u d i e d: Mongolia, Archangaj Aimak, st.Tuvsherulekh and somon Khotont, coll. A. DRUK.

D i s t r i b u t i o n. Central and south regions of Mongolia.

R e m a r k s. *A. mongolicus* is placed in the group of species with reduced empodial appendages on legs I and II and well-developed ones on leg III (*montanus*, *bimus*, *altus*, *szeptyckii*, *cinereus*). The species closely resembles *A. montanus* in polychaetose, but differs from it in the presence of 2+2 sensilla on abdominal tergite IV; slender empodial appendages on leg III are also characteristic. Furthermore, *A. mongolicus* has slightly dilated male spurs on tibiotarsus, while the main form of *A. montanus* has the spurs elongated.

Anurophorus montanus MARTYNOVA,1968

D i s t r i b u t i o n. The mountains of Middle Asia (Tien Shan, Gissar Range)

R e m a r k s. The species is placed in the "*mongolicus*" group. The differences from *A. mongolicus* are given in the section Remarks for this last.

The species has been redescribed and discussed by POTAPOV & STEBAEVA (1990). As has already been noted, there are two forms of unclear taxonomic rank inside the species: form 1 (Gissar) has distinct wrinkles on the last abdominal segments, form 2 (Tien Shan) has practically smooth integument.

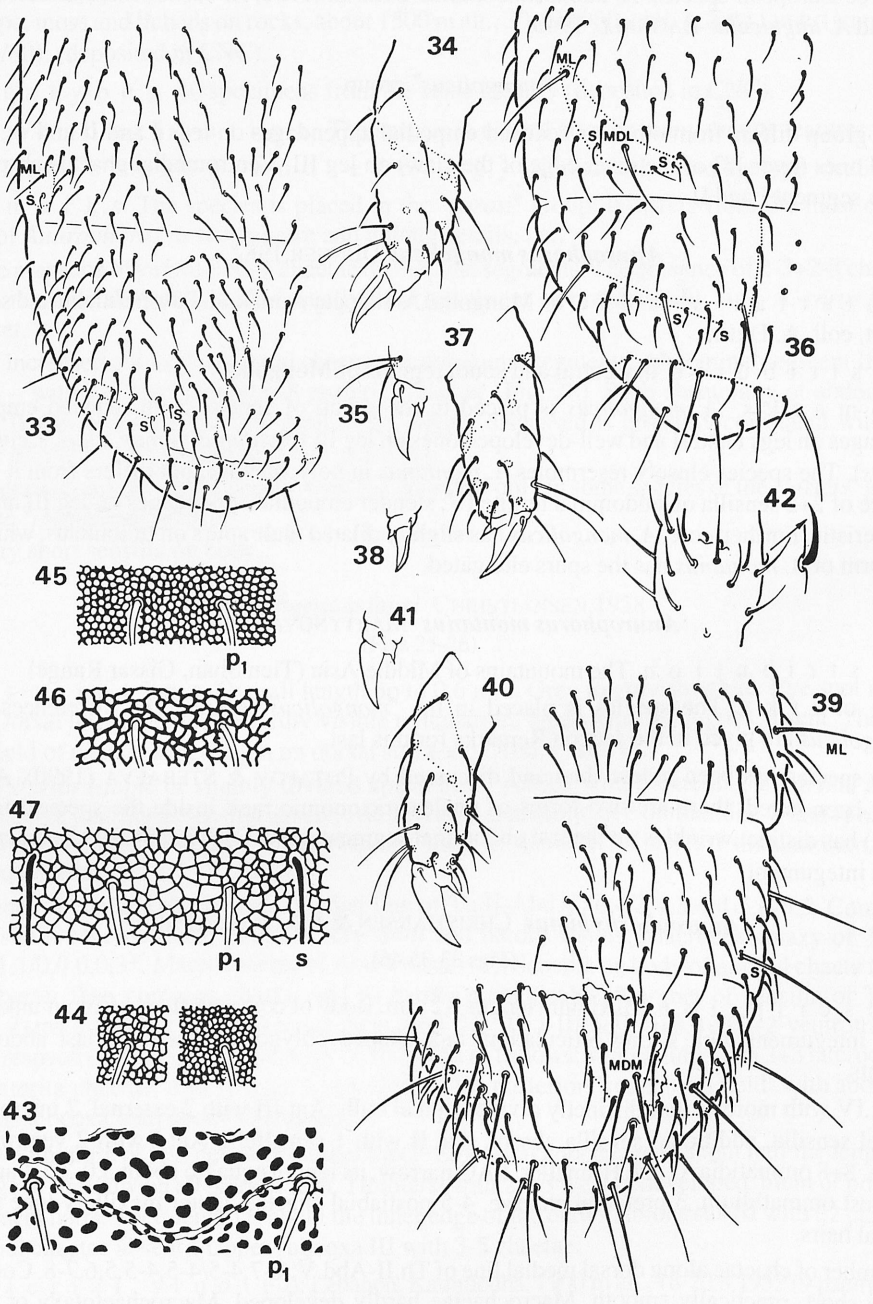
Anurophorus bimus CHRISTIANSEN & BELLINGER,1980

(Figs 33-35,46)

D e s c r i p t i o n. Maximum length 1,2 mm. Body of common shape. Colour unknown. Dorsal integument with strong reticulation, tape-shaped polygons present on last abdominal segments.

Ant.IV with more or less distinctly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO narrow, its length equal to about 3,0-3,5 diameters of nearest ommatidium. 3 prelabral chaetae. 4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 6-7,4-5/4-5,4-5,5,6,7-8. Common chaetae short, practically smooth. Macrochaetae hardly developed. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,0(1*),3. Small lateral macrochaeta (1*) of Abd.IV moved to posterior margin of tergite. Sensilla on body of normal size, about 1/2-2/5 of the length of common chaeta.Number of sensilla of Th.II-Abd.IV: 2+ms,2/1+ms,1,1,1. Microsensillum on Th.II present or absent. Sensillum of Abd.IV posterior to small macrochaetae. Th.I-III with 0+0,0+0,4+4 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 2, Abd.III with 3-4 anterior and 1-2 posterior, "manubrial field" with about 40 and furcal subcoxa with 21-22 chaetae.



Figs 33-47. *Anurophorus* spp. of "*mongolicus*" group. 33-35,46 – *A. bimus* (paratype); 36-38,45 – *A. altus* (paratype); 39-44 – *A. szeptyckii* sp.n.; 33 – dorsal chaetotaxy of Abd.IV-VI; 34 – apical part of a leg of first pair; 35 – ditto of third pair; 36 – dorsal chaetotaxy of Abd.IV-VI; 37 – apical part of the first pair of leg; 38 – ditto of the third pair; 39 – dorsal chaetotaxy of Abd.III-VI; 40 – apical part of a leg of third pair; 41 – ditto of first pair; 42 – Ant.III; 43 – integument reticulation of dorsomedial part of Abd.V; 44 – ditto of Abd.IV (variations); 45,46 – integument reticulation of dorsomedial part of Abd.V; 47 – ditto in *A. cinereus* sp.n. (s – sensillum, p1 – p1-chaeta, ML – lateral macrochaeta, MDL – dorsolateral macrochaeta).

Claw with weak inner tooth. Empodial appendage reduced, about 1/4 of the length of inner edge of the claws of legs I and II, and approx. 1/3 of its length on leg III. Tibiotarsi with 2,3,3 dorsal weakly clavate or blunt tenent hairs and 1,1,0 elongated ventral hairs. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with more than 4 chaetae.

M a t e r i a l s t u d i e d: U.S.A. California, Yosemite National Park, Ostrander Lake, coll. R. D. SCHUSTER (2 paratypes).

D i s t r i b u t i o n a n d e c o l o g y. Known only from the type locality.

R e m a r k s. The species is placed in the "*mongolicus*" group because of reduced empodial appendages on legs I and II and well-developed ones on leg III. Easy to distinguish by its hardly developed macrochaetae on abdominal tergite IV (Fig.33). In addition all other body macrochaetae are short (see the macrochaeta : p1 ratios in the table).

Anurophorus altus CHRISTIANSEN & BELLINGER,1980

(Figs 36-38,45)

D e s c r i p t i o n. Overall length about 1 mm. Body of common shape. Greyish. Dorsal integument with weak reticulation, tape-shaped and elongated polygons absent.

Ant.IV with divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO of normal shape, its length equal to 2,0-2,5 diameters of nearest ommatidium. 3 prelabral chaetae. 4-5+4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 6-7,5-6/ 4,4,4-5,5-6,4. Common chaetae short, practically smooth. Macrochaetae short and pointed. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,2,3+1*. Medial macrochaetae of Abd.V (1*) small. Sensilla on body slightly elongated, about 5/9-5/13 of the length of common chaetae. Number of sensilla of Th.II-Abd.V: 2+ms,2/ 1+ms,1,1,2,4. Microsensillum on Th.II present. Th.I-III with 0+0,0+0,3+3 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 2, Abd.III with 2-3 anterior and 1-3 posterior, "manubrial field" with 23-26 and furcal subcoxa with 12-16 chaetae.

Claw without inner tooth. Empodial appendage reduced (about 1/4 of the inner edge of claw) on legs I and II, and approx. 5/11-10/29 of the inner edge of claw on leg III. Tibiotarsi with 2,3,3 clavate dorsal tenent hairs and 1,1,0 elongated ventral hairs. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 3-4 chaetae.

M a t e r i a l s t u d i e d: U.S.A. Pennsylvania, Shingletown, Centre Co. (4 paratypes).

D i s t r i b u t i o n a n d e c o l o g y. According to CHRISTIANSEN & BELLINGER (1980/1981), the species is only found in two eastern states of the U.S.A.

R e m a r k s. The species is placed in the "*mongolicus*" group. It closely resembles some oligochaetotic species, such as *A. szeptyckii* sp. nov. and *A. cinereus* sp. nov. (see the key and their descriptions). It can be easily identified by the presence of 2+2 sensilla on abdominal tergite IV and 2 lateral sensilla on antennal segment III.

CHRISTIANSEN & BELLINGER (1980/1981) designated 2,2,3 dorsal and 1,1,1 ventral clavate tenent hairs on tibiotarsi. The paratypes studied, however, have a "normal" set of tenent hairs, 2,3,3 and 1,1,0. The third tenent hair on tibiotarsus II is usually a little shorter and blunt.

Specimens from Indiana (coll. A. FJELLBERG) differ from the types of *A. altus*, in having 1+1 sensilla on abdominal tergite IV. Since I have not enough material from the eastern part of N. America at my disposal, I prefer to leave the taxonomical status of this form undetermined.

Anurophorus szeptyckii sp. nov

(Figs 39-44)

D e s c r i p t i o n. Overall length up to 1,1 mm. Body of common shape. Greyish, large black dots scattered all over the body, antennae and legs paler. Integument polygons on dorsomedial part of Abd.V fused forming a specific reticulated field (Fig. 43, encircled), reticulation on the rest of body much less coarse. Elongated polygons sometimes present.

Ant.IV with distinctly divided apical bulb. Ant.III with 2 external, 2 internal and 1 lateral (in both sexes) sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 6+6 ommatidia, integument in the areas of former G and H ommatidia modified. PAO narrow, about 2,5 times as long as diameter of nearest ommatidium. 3 prelabral chaetae. 4-5+4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs (some specimens with hairs on one side).

Number of chaetae along dorsal medial line of Th.II-Abd.V: 7-8,5-7/ 3-4,3-4,3-4,6,4-5. Common chaetae long, weakly serrated on last abdominal segments. Macrochaetae long and usually pointed. Macrochaetotaxy of Th.II-Abd.V: 1,1/1(1*),1,1,2+1*,4. As a rule Abd.IV with small additional macrochaetae (1*). Medial macrochaetae of Abd.V well-defined. Macrochaetae on Abd.III are nearly the same as on Abd.IV. Sensilla on body long, slightly broadened, about 2/3 of the length of p1-chaeta on Th.II, and 1/2-2/5 of this length on Abd.IV. Number of sensilla of Th.II-Abd.V: 2,2/ 1,1,1,1,4. Microsensilla on Th.II and Abd.I absent. Th.I-III with 0+0,0+0(0+1),3(4)+3(4) ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen: ventral tube with 3+3 laterodistal and 3-4 posterior chaetae, Abd.II with 1-2, Abd.III with 1-4 anterior and 1 posterior, "manubrial field" with 21-32 and furcal subcoxa with 11-17 chaetae.

Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of inner edge of claws of legs I and II, 1/2 - ca 1/3 of the length of inner edge of the claw of leg III. Tibiotarsi with 2,3,3 dorsal hardly clavate or blunt tenent hairs and 1,1,0 ventral elongated apically curved ones. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 2-3 chaetae.

H o l o t y p e female: N. Korea. Mjohjang-san, Wonman-bong, ca 1520 m alt., old fir-forest with single *Betula* sp. and *Acer* sp. (with *Polygala* sp., *Aruncus* sp., *Veratrum* sp.), 26 vi 1985, coll. A. SZEPTYCKI (Sample K-85-26) (deposited in ISEA).

P a r a t y p e s: 3 specimens from the same locality, 8 specimens – N. Korea. Mjohjang-san, Wonman-bong, ca 1640 m alt., granite rock, petrophilous turf with *Betula* sp., *Abies* sp. and *Pinus* sp. (with *Ranunculus* sp., *Anemone* sp.), 26 vi 1985, coll. A. SZEPTYCKI (Sample K-85-25) (deposited in ISEA).

O t h e r m a t e r i a l s t u d i e d: N. Korea. Phjongan-pukto, Mjohjang-san; prov. Cagang-do, Kedoke, ca 50 km N of Hyjchon, both coll. A. SZEPTYCKI.

N a m e d e r i v a t i o n. The species is named in honour of Dr. Andrzej SZEPTYCKI, the famous polish taxonomist.

D i s t r i b u t i o n. North Korea.

R e m a r k s. The species is placed in the "*mongolicus*" group because of reduced empodial appendages on legs I and II and well-developed (over 1/3 of the inner edge of the claw) on leg III. *A. szeptyckii* differs from all other members of the group (*mongolicus*, *bimus*, *montanus*, *altus* and *cinereus*) in unique reticulation on the dorsal surface of abdominal segments V and VI. It is closely resembles *A. cinereus* sp.nov. (see the Remarks section for this last).

Anurophorus cinereus sp. nov.

Syn.: *A. altus* sensu POTAPOV & STEBAEVA,1990 non CHRISTIANSEN & BELLINGER,1980

(Fig. 47; Fig. 10 in POTAPOV, STEBAEVA 1990)

D e s c r i p t i o n. Overall 0,75-0,95 mm. Body of common shape. Greyish, antennae and legs pale. Dorsal integument with weak, hardly visible reticulation.

Ant.IV with simple or slightly divided small apical bulb. Ant.III with 2 external, 2 internal and 1 (in both sexes) lateral sensillum, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 6+6 ommatidia on head. There are some specimens seemingly with 8+8 ommatidia, as the integument on the former G and H ommatidia areas is modified. PAO narrow, its length equal to about 2,5 diameters of nearest ommatidium. 3 prelabral chaetae. 4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V (with variation):7(6-9),6(4-7)/4(3-5), 4(3-5),4(3-4),5(4-6),4(4-5). Common chaetae of normal size, weakly serrated on last abdominal segments. Macrochaetae long and pointed. Macrochaetotaxy of Th.II-Abd.V: 1,1/1(1*),1,1,2,4. Medial macrochaetae of Abd.V distinct. Sensilla on body long, slightly broadened, about 9/10-5/8 of the length of p1-chaeta on Th.II, and about 5/8-5/12 of it on Abd.IV. Number of sensilla of Th.II-Abd.V: 2,2 /1,1,1,1,4. Microsensilla on Th.II and Abd.I absent (see the section Remarks below). Th.I-III with 0+0,0+0,2-4+2-4 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 1-3, Abd.III with 1-3 anterior and 1-3 posterior, "manubrial field" with 27-33 and furcal subcoxa with 9-15 chaetae.

Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of inner edge of the claw of legs I and II, and about 5/11-2/5 of the length of inner edge of the claw of leg III. Tibiotarsi with 2,3,3 dorsal short pointed or weakly blunt tenent hairs and 1,1,0(1) ventral elongated hairs (see Remarks section below). Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 1-3 chaetae. Male spurs dilated.

H o l o t y p e female: Russia, South Far East, Chernigovsky Region, v.Vladimiro-Alexandrovka, Suputinsky Nat. Res., south slope of Shkolnaya Hill, decaying oak trunk, Aug. 1977, coll. L. KUTYREVA (deposited in MSPU).

P a r a t y p e s: 4 specimens from the same locality (deposited in MSPU).

O t h e r m a t e r i a l s t u d i e d: Russia. South Far East, Ussuriysky Nature Reserve, coll. L. KUTYREVA; near Vladivostok, coll. BREGETOVA; Khabarovsky Kray, near Komsomolsk-na-Amure, coll. N. RYABININ.

N a m e d e r i v a t i o n. The species is named after its body colour.

D i s t r i b u t i o n. South Far East of Russia.

R e m a r k s. The species is placed in the "*mongolicus*" group. It closely resembles *A. szeptyckii*. Both species are recognizable by oligochaetose, the presence of 1+1 sensillum on abdominal tergite IV and 1 lateral sensilla on antennal segment III. *A. cinereus* distinctly differs from *A. szeptycki* in thin reticulation of the integument. In my previous paper (POTAPOV & STEBAEVA 1990) this material was identified as *A. altus* because I had no American specimens of *A. altus* at my disposal. As already noted, there are two forms of unclear taxonomic rank inside the species: form 1 has weak dorsal tibiotarsal tenent hairs and no microsensillum on abdominal tergite I absent, while form 2 has normal tenent hairs and the microsensillum on abdominal tergite I is present.

"*senex*" group

The group is characterized by the presence of the reduced empodial appendages on all legs, ventromedial chaetae on thoracic segments I and II and standard sensorial set on body tergites.

Anurophorus rarus (YOSII,1939)

Bas.: *Uzelia rara* YOSII,1939, *Anurophorouzelia rara* (YOSII,1939) STACH,1947.

(Figs 48-55)

D e s c r i p t i o n. Overall length of subadult females is about 1,0 mm. Body of common shape. Blackish-violet. Dorsal integument with strong reticulation, tape-shaped polygons usually absent. Two conical papillae on Abd.VI present on a level with anterior row of chaetae.

Ant.IV with simple or slightly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO not reduced (its length not examined). 3 prelabral chaetae. 4-5+4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 7,5-6/5,4-5,4-5,5-7,5-7. Common chaetae weakly serrated on last abdominal segments. Macrochaetae long and pointed. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,2,3. Medial macrochaetae of Abd.V absent. Sensilla on body short, 1/2-1/3 of the length of common chaeta. Number of sensilla of Th.II-Abd.V: 2+ms,2 /1+ms,1,1,1,4. Microsensillum on Th.II present. Th.I-III with 1+1,3-6+3-6,6-10+6-10 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 4-6, Abd.III with 5-6 anterior and 3-4 posterior chaetae.

Empodial appendage reduced, shorter than 1/4 of the inner edge of claws on legs of all pairs . Tibiotarsi with 2,3,3 dorsal and 1,1,0 ventral distinctly clavate tenent hairs. The top of ventral tenent hair more broadened than that of dorsal ones. Tibiotarsus III with one slightly elongated ventral hair. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 1-2 chaetae.

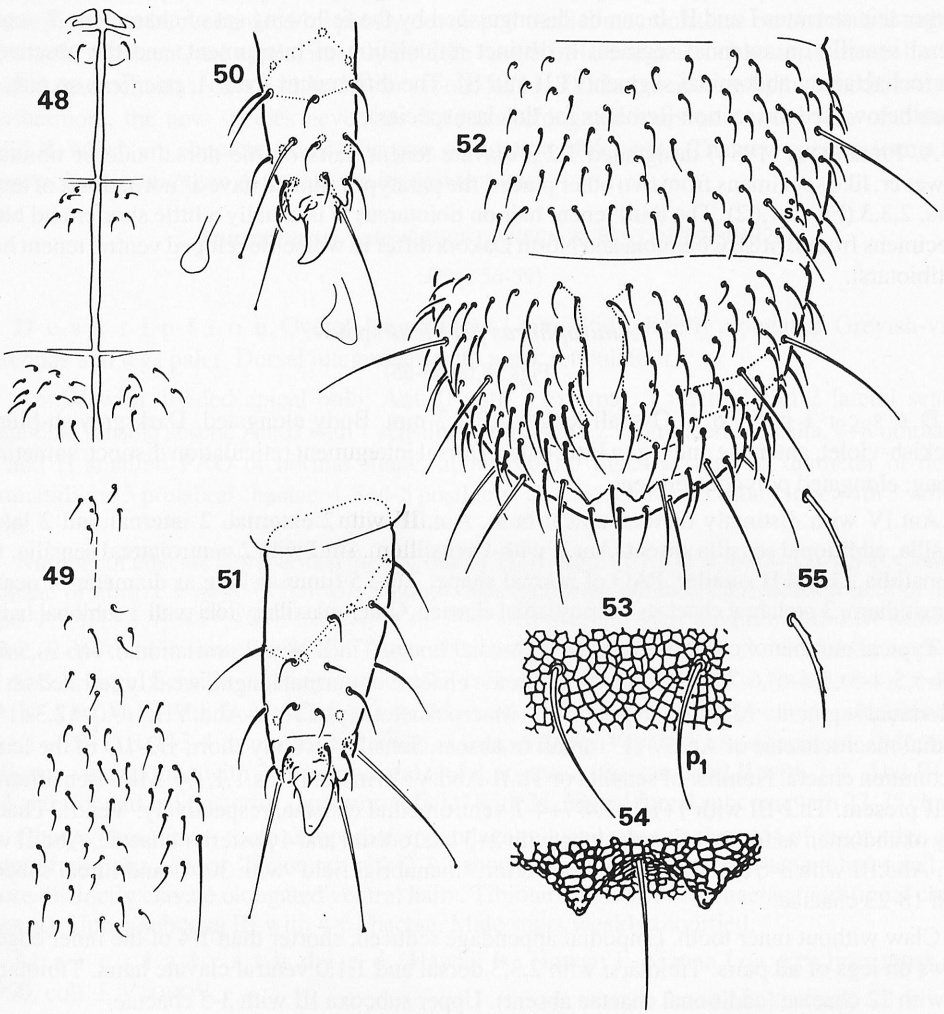
M a t e r i a l s t u d i e d: N. Korea. prov. Hamgjong-namdo, Pude-chon river, rich deciduous forest, 29 5 87; prov. Kangvon-do, Manmur-san, moss on rocks near the stream, 18 vi 74, both coll. A. SZEPTYCKI.

D i s t r i b u t i o n. Japan, N. Korea (new).

R e m a r k s. The species is placed in the "*alpinus*" group as it has ventral chaetae on thoracic segments I and II. It can be easily recognized by the presence of two conical papillae on abdominal tergite VI, 1-2 chaetae on upper subcoxa of leg III, and 3-6+3-6 ventral chaetae on thoracic tergite II. All other members of the group have smooth or weakly wrinkled abdominal tergites, more than 3 chaetae on upper subcoxa of leg III (except for *A. senex* with 2-4 chaetae), and 1+1 ventral chaetae on thoracic tergite II. Furthermore the tibiotarsi of legs I and II of *A. rarus* have 1 specific ventral tenent hair, which has not been found in other members of *Anurophorus*. So strongly clavate tenent hairs are characteristic of *A. fulvus* and *A. nitrophilus* only, however these last have 3 hairs on tibiotarsus I and II.

This species was described as a member of the genus *Uzelia* ABSOLON, 1901 on the basis of the presence of two spine-like papillae on last abdominal segments. The description presented shows the detailed morphology of the species, which has all typical features of the genus *Anurophorus*. Wrinkled cuticle and various abdominal swellings are widely known in the genus, and I rather consider these papillae to be of low taxonomical rank. The species has been discussed and transferred to the genus *Anurophorus* before (POTAPOV & STEBAEVA 1995).

The Korean material in hand well conforms with the descriptions (YOSII 1939, YOSHII 1992) based on Japanees specimens except for the tibiotarsal chaetotaxy which is characteristic; my specimens have a normal number of tenent hairs (2,3,3 dorsal and 1,1,0(1*) ventral) on the tibiotarsi. According to YOSHII 1992, "their number is usually 3,3,3, but often up to 4,4,4, often asymmetric, but one of them is located always on the posteror side." As all *Anurophorus* species examined by me have 2,3,3 clavate or at least slightly elongated dorsal tenent hairs, I prefer to consider my specimens to be *A. rarus*.



Figs 48-55. *Anurophorus rarus*. 48 – ventral chaetotaxy of Th.I-III; 49 – ventral chaetotaxy of Abd.II-IV; 50 – apical part of a leg of first pair; 51 – ditto of third pair; 52 – dorsal chaetotaxy of Abd.IV-VI; 53 – integument reticulation of dorsomedial part of Abd.IV; 54 – conical papillae of Abd.VI; 55 – microchaetae of Abd.V.

Anurophorus senex FJELLBERG,1984

(Figs 57,61,62)

M a t e r i a l s t u d i e d: U.S.A., Colorado, Colorado Front Range, valley bottom W of Tolland, Gilpin County (5 paratypes), coll. A. FJELLBERG; Canada, British Columbia, Vancouver I., Victoria, coll. A. FJELLBERG; U.S.A., North Dakota, Dunn Co., coll. K. CHRISTIANSEN.

D i s t r i b u t i o n a n d e c o l o g y. Known only from three sites in western part of N. America.

R e m a r k s. The species is placed in the "*senex*" group because of the presence of chaetae on thoracic sternites I and II. It can be distinguished by the following set of characters: 2 ventrolateral sensilla on antennal segment I, distinct reticulation of integument, and the absence of macrochaetae on abdominal segments I,II and III. The differences from *A. pacificus* sp.nov. are given below (see the section Remarks for this last species).

A. FJELLBERG (1984) designated 2,2,3 clavate tenent hairs on the dorsal side of tibiotarsi. However, like specimens from two other places, the paratypes studied have a "normal" set of tenent hairs, 2,3,3 (Figs 61,62). The third tenent hair on tibiotarsus II is usually a little shorter and blunt. Specimens from British Columbia and North Dakota differ in worse-developed ventral tenent hairs on tibiotarsi.

Anurophorus pacificus sp.nov.

(Figs 58,60,63-65)

D e s c r i p t i o n. Overall length 1,0-1,2 mm. Body elongated. Dark greyish-blue to blackish-violet, antennae and legs a little paler. Dorsal integument reticulation distinct, sometimes strong; elongated polygons present.

Ant.IV with distinctly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO of normal shape, 2,0-2,5 times as long as diameter of nearest ommatidium. 3 prelabral chaetae. 4-6 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Typical number of chaetae along dorsal medial line of Th.II-Abd.V (variations): 7(6-9),5-6(4-7)/4-5,5(4-5),5(4-6),6-7(5-8),5-6(5-8). Common chaetae of normal length, weakly serrated on last abdominal segments. Macrochaetae pointed. Macrochaetotaxy of Th.II-Abd.V:1,1/0,0,0,2,3+1*-3. Medial macrochaetae of Abd.V (1*) small or absent. Sensilla on body short, 1/2-1/3 of the length of common chaeta. Number of sensilla of Th.II-Abd.V: 2+ms,2 /1+ms,1,1,1,4. Microsensillum on Th.II present. Th.I-III with 1+1,1+1,4-7+4-7 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 3-5, Abd.III with 3-6 anterior and 1-4 posterior, "manubrial field" with 30-41 and furcal subcoxa with 18-23 chaetae.

Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of the inner edge of claws on legs of all pairs. Tibiotarsi with 2,3,3 dorsal and 1,1,0 ventral clavate hairs. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 3-5 chaetae.

H o l o t y p e female: U.S.A., Alaska, Juneau, near Mendelhall Glacier, ca 900 m alt., thick, fluffy bark of old hemlock, 14 vii 1980, coll. A. FJELLBERG (Sample 27/80) (deposited in CNC).

P a r a t y p e s: 3 specimens in the same locality (deposited in CNC).

O t h e r m a t e r i a l s t u d i e d: U.S.A., Alaska, Aleutian Is. (Buldir); Bering area (Pribilof I.); Alaska Range (Chugach Mts., Thompson Pass) Southeast Coast (Anchorage-Homer, Juneau); Washington, Mt. Rainier; all material coll. A. FJELLBERG.

Canada. Alberta, Kananaskis; British Columbia, Garibaldi Park; British Columbia, Vancouver I., Pacific Rim National Park; British Columbia, Vancouver I., Victoria; Vancouver I., China Beach; Vancouver I., Comox Glacier, Sparwood, S of Calgary, all materials coll. A. FJELLBERG.

Russia. South Far East, South Kuril Is., Kunashir I., coll. N. RYABININ.

N a m e d e r i v a t i o n. The species is named after its distribution.

D i s t r i b u t i o n a n d e c o l o g y. Pacific coast of USA and Canada, S. Kuriles Is. Commonest species of this genus in east and northeast parts of N. America. It inhabits moss on tree trunks and habitats with sparse vegetation.

R e m a r k s. The species is placed in the "*senex*" group. It closely resembles *A. senex*. *A. pacificus* can be recognized by poorly developed medial macrochaetae on abdominal segment V, which, if present, are approximately half the length of lateral macrochaetae. *A. senex* has long medial macrochaetae, only a little shorter (about 10/11-10/13 of their length) than the lateral ones. Furthermore, the new species never has 2 ventral elongated hairs on ventral side of tibiotarsi I and II, which are characteristic of the type population of *A. senex*. The new species seems to be more polychaetotic than *A. senex* (see its descriptions).

Anurophorus lohi CHRISTIANSEN & BELLINGER,1992

(Figs 56-59)

D e s c r i p t i o n. Overall length about 1 mm. Body slightly elongated. Greyish-violet, antennae and legs paler. Dorsal integument with weak reticulation.

Ant.IV with divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO of normal shape, about 3,0-3,5 times as long as diameter of nearest ommatidium. 3 prelabral chaetae. 4-5+4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 7,5-6/ 4,4-5,4-5,6-7,5-6. Common chaetae of normal length, practically smooth. Macrochaetae pointed. Macrochaetotaxy of Th.II-Abd.V:1,1/1*,1,1,2+1*,4. Macrochaetae on Abd.I-III present, their length on Abd.III nearly the same as on Abd.IV. Small additional macrochaetae (1*) on Abd.IV present. Medial macrochaetae of Abd.V large. Sensilla on body about half the length of common chaeta. Number of sensilla of Th.II-Abd.V: 2+ms,2 /1+ms,1,1,2,4. Microsensillum on Th.II present. Th.I-III with 1+1,1+1(0+1),3-4+3-4 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 2-3, Abd.III with 3-4 anterior and 1-3 posterior, "manubrial field" with 31-38 and furcal subcoxa with 22-25 chaetae.

Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of inner edge of the claw of all pairs of legs. Tibiotarsi with 2,3,3 short pointed or blunt dorsal tenent hairs and 1,1,0 more distinctly clavate elongated ventral hairs. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 4-6 chaetae. Male spurs weakly modified.

M a t e r i a l s t u d i e d: Hawaii Is., Hawaii I., Mauna Loa, tree line, moss, 20 2 1990, coll. I. VTOROV.

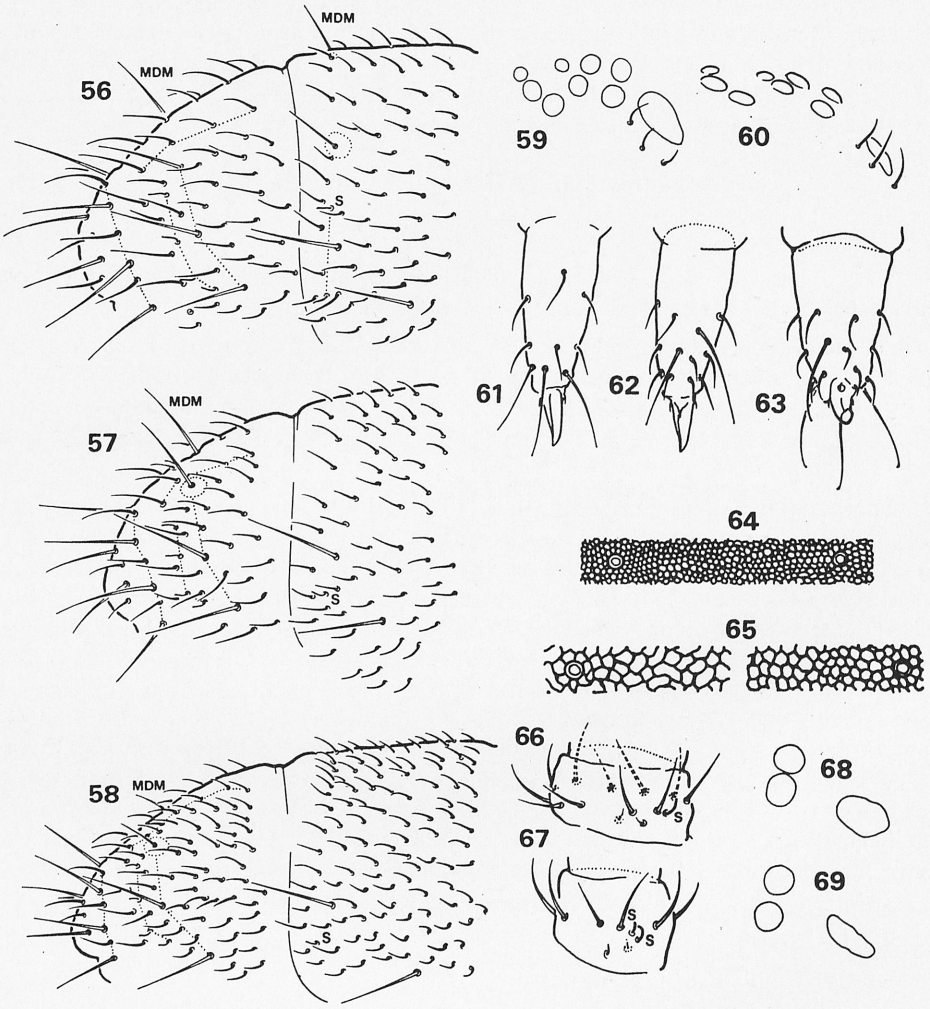
D i s t r i b u t i o n. Hawaii Is.

R e m a r k s. The species is placed in the "*senex*" group because of the presence of chaetae on thoracic sternites I and II. It differs from other species of the group (*A. senex*, *A. alpinus*, *A. pacificus* and *A. rarus*) in the presence of 2+2 sensilla on abdominal segment IV, well-developed macrochaetae on first three abdominal segments, and weak reticulation of integument. Furthermore, *A. lohi* has 3 pairs of macrochaetae on abdominal segment IV: 2 ordinary ones and 1 additional small in medial position. The present description is based on my specimens collected in one biotope. It well conforms with that of CHRISTIANSEN & BELLINGER,1992 only that its postantennal organ is about 3 times as long as nearest ommatidium (about twice as long in the description), and antennal segment I has 2 sensilla, whereas the figure given by the authors shows only one sensillum. Specimens with 1 asymmetrical sensillum on Ant.I are often found among "normal" ones inside the population of any species. That is why I am disposed to treat my specimens as *A. lohi* now.

Anurophorus alpinus POTAPOV & STEBAEVA,1990

N e w m a t e r i a l s t u d i e d:

Russia. North Caucasus Mts., Dagestan, Kurush St., coll. F. AMAEVA.



Figs 56-69. *Anurophorus* spp. of "*senex*" and "*atlanticus*" groups. 56-58 – chaetotaxy of Abd.IV-VI (56 – *A. lohi*,57 - *A. senex* (paratype), 58 – *A. pacificus* sp.n.); 59 – PAO and ommatidia in *A. lohi*; 60 – ditto in *A. pacificus*; 61,62 – apical part of a leg of second pair in *A. senex* seem from outer (61) and inner (62) side; 63 – ditto in *A. pacificus*; 64 – integument reticulation of dorsomedial part of Abd.IV in *A. pacificus*; 65 – ditto of Abd.V (variations); 66 – Ant.I in *A. atlanticus*; 67 – ditto in *A. chukoticus*; 68 – PAO and ommatidia (part) in *A. atlanticus*; 69 – ditto in *A. chukoticus* (s – sensillum, MDL – dorsolateral macrochaeta).

Switzerland. Alps, Emosson valley, coll. G. KHANISLAMOVA.

Distribution and ecology. N. Caucasus, Alps (new). The species inhabited alpine communities of mosses and lichens, and tree trunks in high mountain woods.

R e m a r k s. The species is placed in the "*senex*" group. It can be easily distinguished from all other members of the group by the presence of 1 ventrolateral sensillum on antennal segment I (as in Fig. 66). All others have 2.

"*atlanticus*" group

The group characterized by reduced empodial appendages on all legs, the absence of ventromedial chaetae on thoracic segment I and their presence on thoracic segment II, and by the standard sensorial set on body tergites. Also *A. atlanticus* and *A. chukoticus*, *A. lydiae* LUCIANEZ & SIMON (Spain) should probably be placed in this group.

Anurophorus atlanticus FJELLBERG,1974

(Figs 66,68)

D e s c r i p t i o n. Overall length up to 1.0 mm. Body elongated. Greyish-blue. Dorsal integument with rather fine reticulation, tape-shaped polygons absent.

Ant.IV with more or less distinctly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 1 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO broad, 1,5-2,0 times as long as nearest ommatidium. 3 prelabral chaetae. 4-6+4-6 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 7-9,6-7/ 5-6,5-6,5-6,6-8,6-7. Common chaetae short, weakly serrated on last abdominal segments. Macrochaetae pointed. Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,2,3-3+1*. Medial macrochaetae of Abd.V absent or small (1*). Sensilla on body 2/3-2/5 of the length of common chaeta. Number of sensilla of Th.II-Abd.V: 2+ms,2/ 1+ms,1,1,1,4. Microsensillum on Th.II present. Th.I-III with 0+0,1+1,4-7+4-7 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: Abd.II with 3-4, Abd.III with 3-5 anterior and 3-4 posterior, "manubrial field" with about 40 and furcal subcoxa with 21-25 chaetae.

Claw with inner tooth. Empodial appendage reduced, shorter than 1/4 of the inner edge of claws on legs of all pairs. Tibiotarsi with 2,3,3 dorsal and 1,1,0 ventral clavate tenent hairs. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 3-6 chaetae. Male spurs weakly differentiated.

M a t e r i a l s t u d i e d: Norway, Hordaland; Sweden, Boh. Stenungsund, both coll. A. FJELLBERG; Poland, near Pila, coll. J. RAFALSKI.

D i s t r i b u t i o n. Scandinavia, Poland (POMORSKI 1992), Czechoslovakia (RUSEK 1980), Yugoslavia (DUNGER 1982).

R e m a r k s. The species is well defined by the ventral chaetotaxy of thoracic segments I and II. The differences between *A. atlanticus* and *A. chukoticus* are given below.

Anurophorus chukoticus POTAPOV & STEBAEVA, 1990 stat.nov.

(Figs 67,68,70-74)

Bas.: *A. atlanticus chukoticus* POTAPOV & STEBAEVA,1990

D e s c r i p t i o n. Overall length up to 1,2 mm. Body of common shape. Blue to blackish-violet, including antennae and legs. Dorsal integument reticulation distinct, sometimes strong, tape-shaped polygons absent.

Ant.IV with simple, rarely slightly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO of normal form, 2,0-2,5 times as long as diameter

of nearest ommatidium. 3 prelabral chaetae. 4-5+4-5 postlabial chaetae. Outer maxillary lobe with 3 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V (with variation): 6-7(8),4-5(6)/4(5),4-5,5(4-6),6(5-7),6-7(8). Common chaetae of normal size, weakly serrated on last abdominal segments. Macrochaetae rather long and pointed, some of them with abrupt apex. Macrochaetotaxy of Th.II-Abd.V: 1,1/0-1*,0-1,1*-1,2,4-3+1* (for explanation see the remarks). Sensilla on body small, 2/5-1/4 of the length of common chaeta. Number of sensilla of Th.II-Abd.V:2+ms,2/1+ms,1,1,1-2,4 (see the section Remarks). Microsensillum on Th.II present. Th.I-III with 0+0,1+1(1+2),3-8+3-8 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 1-4, Abd.III usually with 3-4 (variants with 1 and 6 were also found) anterior and 1-4 posterior, "manubrial field" with 33-44 and furcal subcoxa with 17-27 chaetae.

Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of the inner edge of claws on legs of all pairs. Tibiotarsi with 2,3,3 dorsal and 1-4,1-4,0-1 ventral distinctly clavate hairs (for explanation see the section Remarks). Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 4-6 chaetae. Male spurs on tibiotarsus III strongly elongated (on specimens from Fairbanks).

M a t e r i a l s t u d i e d: Russia, Central Chukotka, Anadyrskoye Plateau, Lake Elgygytgyn; E. Chukotka, River Golubaya (tributary of Tanyurer) (syntypes); E.Chukotka, 25 km from Anadyr, Shakhtersky, Komsomolka Hill, coll. E. BONDARENKO; N.Chukotka, Chaun Bay, Naithui Mts, coll. V. BEHAN & A. FJELLBERG.

U.S.A. Alaska, Fairbanks; Denaly Hwy (East of McKinley Nat. Park), both coll. A. FJELLBERG.

Canada. Yukon Territory, Ogilvi Mts.; British Mts, Teal Lake; Dempster Hwy, coll. V. BEHAN.

N. Korea. Prov. Janggang-do, Pochon-do; Kangvon-do, Manmur-san, coll. SZEPTYCKI.

D i s t r i b u t i o n. Chukotka, Eastern part of Alaska, Canada(YT), N. Korea.

R e m a r k s. The species most resembles *A. atlanticus* in ventral chaetotaxy of first thoracic segments. It is easily discriminated by the presence of 2 sensilla on antennal segment I.

At first I had no material of *A. atlanticus*, and so *A. chukotikus* was described as its subspecies. Next, however, a detailed study of the Scandinavian specimens of *A. atlanticus* disclosed the important difference mentioned above.

The material of *A. chukoticus* is morphologically heterogeneous, so it probably represents a complex of closely related forms. Thus, the majority of Chukotkan specimens have 1+2 sensilla on abdominal segment IV, while all Alaskan and Korean specimens have symmetrical sets (1+1). Tibiotarsi I and II in Chukotkan specimens have typically three strongly elongated clavate tenent hairs on ventral side, while the forms from Fairbanks have only one, and those from the Yukon Territory one to four hairs. The specimens from Chukotka seem to have better developed macrochaetae, namely: distinct macrochaetae on abdominal segments II and III, and the macrochaeta of the "furcal subcoxa", 4-5 times as long as the common chaetae. The American specimens have hardly visible macrochaetae on these segments, and the "furcal" macrochaeta is about 3 times as long as the common ones.

"*laricis*" group

It can be recognized by the reduced empodial appendages on all legs, standard sensorial set on body tergites, and the absence of ventromedial chaetae on thoracic segments I and II. The group is very massive and heterogeneous.

Anurophorus orientalis POTAPOV & STEBAEVA,1990

New material studied:

Russia. Central Altai Mts., Chiketamsky Pass and Seminsky Pass (Tuekta), coll. S. STEBAEVA; Khakassia, East Sajan Range, Tashtypsky Region, Bolshoy On, coll. S. JORDANSKY; Khakassia, Minusinsky Region, near Minusinsk, coll. L. BUDAEVA; East Tuva, Usa River, coll. S. STEBAEVA.

Mongolia. Khubsugul Aimak, East Sajan Range, Somon Khanh, Munku-Sardyk hill; Bayan-Ulagay Aimak, Somon Tsengel, Khoton-Nur Lake; Dzabkhan Aimak, Somon Tsetserleg, Tesiyn-Gol River; all samples coll. A. DRUK; Archangaj Aimak, st. Tuvsherulekh, coll. L. MEDVEDEV; Uvs Aimak, near Orog-nur Lake, coll. W. DUNGER.

Distribution and ecology. Species distributed in Altai Mts, West Sajan Range, Baikal region, mountain parts of Tuva and Mongolia. It inhabits dry larch- and pine-woods, being most abundant in lichens on tree trunks.

Remarks. The species is placed in ther "*laricis*" group. It is easily recognized by the absence of macrochaetae on abdominal tergite IV and the reduced postantennal organ.

Anurophorus fjellbergi sp.nov.

(Figs 75-78)

Description. Overall length about 1 mm. Body of common shape. Blackish-violet, including antennae and legs. Dorsal integument with weak reticulation, tape-shaped polygons absent.

Ant.IV with simple or slightly divided apical bulb. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO narrow, hidden in integumentary groove, is about 2,5-3,0 times as long as diameter of nearest ommatidium. 1, rarely 2, prelabral chaetae. 3+3 postlabial chaetae. Outer maxillary lobe with 2 sublobal hairs.

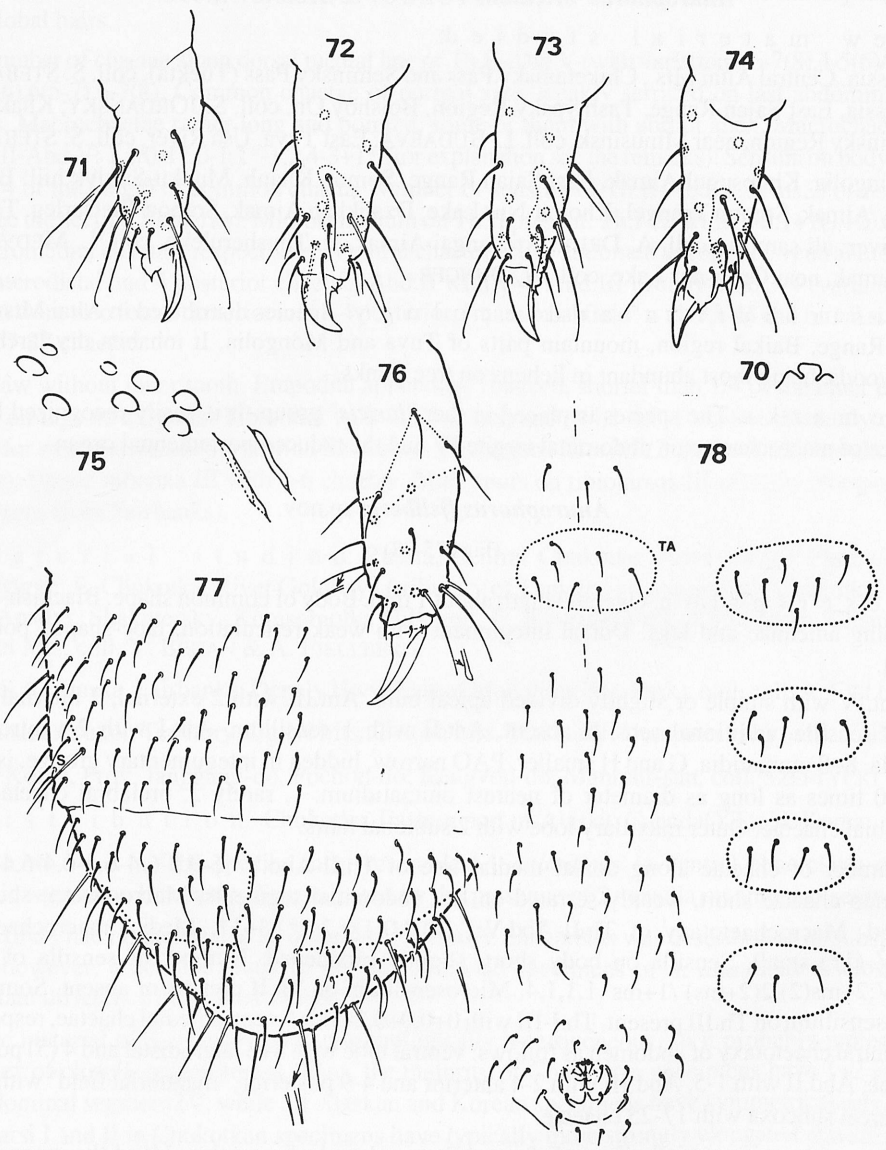
Number of chaetae along dorsal medial line of Th.II-Abd.V: 6-9,5-6/4-6,4-6,4-6,4-6,6-7. Common chaetae short, weakly serrated on last abdominal segments. Macrochaetae short and pointed. Macrochaetotaxy of Th.II-Abd.V:1,1/0,0,0(1*),2(2*),3+1*. Medial macrochaetae of Abd.V (1*) small. Sensilla on body short, slightly broadened. Number of sensilla of Th.II-Abd.V:2+ms(2),2(2+ms) /1+ms ,1,1,1,4. Microsensillum on Th.II present or absent. Sometimes microsensillum on Th.III present. Th.I-III with 0+0,0+0,2-5+2-5 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 (5) posterior chaetae, Abd.II with 1-5, Abd.III with 2-4 anterior and 4-9 posterior, "manubrial field" with 38-47 and furcal subcoxa with 17-25 chaetae.

Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of the inner edge of claws on legs of all pairs. Tibiotarsi with 2,3,3 feebly clavate or blunt dorsal tenent hairs and 1,1,0 elongated, distinctly clavate ventral hairs. Tibiotarsus III with 22 chaetae (additional chaetae absent, except one specimen with 23 ones). Upper subcoxa III with 2-5 chaetae. Male spurs dilated.

Holotype female: Russia. Krasnoyarsky Krai, Plateau Putorana, Lake Ayan st., moist bog with Larix, Betula, Salix, Ledum, 5 vii 1990, coll. A. FJELLBERG (deposited in MSPU).

Paratypes: 5 specimens in the same locality (2 deposited in MSPU, 3 – in CNC).

Other materials studied: Russia. N. Chukotka, Chaun Bay, ca 20 km up Chaun River, coll. S. F. MACLEAN; Central Chukotka, Anadyrskoye Plateau, Lake Elgygytgyn, coll. E. BONDARENKO; E. Chukotka, near Anadyr, Shakhtersky, coll. E. BONDARENKO; E. Chukotka, River Vulvyveem, coll. E. BONDARENKO.



Figs 70-78. 70-74 – *A. chukoticus*; 70 – apical bulb of Ant.IV; 71-74 – variants of apical part a leg of first pair (71 – YT, British Mts.; 72 – YT, Dempster Hwy; 73 – Alaska, Fairbanks; 74 – Chukotka, Chaun Bay); 75-78 – *A. fjellbergi* sp.n.; 75 – PAO and ommatidia; 76 – apical part of a leg of third pair; 77 – dorsal chaetotaxy of Abd.IV-VI; 78 – ventral chaetotaxy of Abd.III-IV, right – variants of "tenacular area" (TA – "tenacular area").

N a m e d e r i v a t i o n. The species is named in honour of Dr. Arne FJELLBERG, the famous Norwegian taxonomist.

D i s t r i b u t i o n a n d e c o l o g y. The species is probably distributed in the north areas of Siberia and Far East only.

R e m a r k s. The species is placed in the "*laricis*" group. It can easily be distinguished by the presence of 3+3 postlabial and 1 (rarely 2) prelabral chaetae. All other members of the group have 4+4 or more postlabial and 3 prelabral chaetae. Furthermore, *A. fjellbergi* has specific chaetotaxy of abdominal sternite III – an increased number of chaetae on "tenacular area" (4-9); these chaetae are arranged in a transverse band as in *A. laricis* and *A. palearcticus* (Fig. 78 right). Other species of the group have no more than 4 chaetae. 2 sublobal hairs and feebly clavate tenent hairs on legs are characteristic also.

Anurophorus fulvus FJELLBERG,1988

(Figs 79,80,82)

M a t e r i a l s t u d i e d: Faroe Is., coll. S. A. BENGTSON; Norway, Oksnes in Nordland, coll. A. FJELLBERG; Norway, Molde, coll. A. FJELLBERG.

D i s t r i b u t i o n a n d e c o l o g y. Norway and Faroe Islands. The species prefers moss and lichens on rocks and boulders (FJELLBERG 1988).

R e m a r k s. *A. fulvus* is placed in the "*laricis*" group. It is similar to *A. laricis* and *A. palearcticus* in its axial chaetae, the presence of 2 apical bulbs on Ant.IV, abrupt or clavate macrochaetae on body and reduced PAO. It clearly differs in the presence of 2-4 chaetae on upper subcoxa III, the chaetotaxy of "tenacular area", 2 sublobal hairs, cuticle structure, and some other characters (see the section Remarks for *A. palearcticus*). The most characteristic features of *A. fulvus* is the presence of long, clearly differentiated, strongly clavate ventral hairs on tibiotarsi. For differences between *A. fulvus* and *A. nitrophilus* see below.

According to the original description (FJELLBERG 1988), *A. fulvus* is yellowish-brown in colour, whereas all my specimens from the Faroe Islands are deeply black. As they agree with those from Norway in all other details, I am inclined to assume that the colour of this species is be variable.

Anurophorus nitrophilus sp.nov.

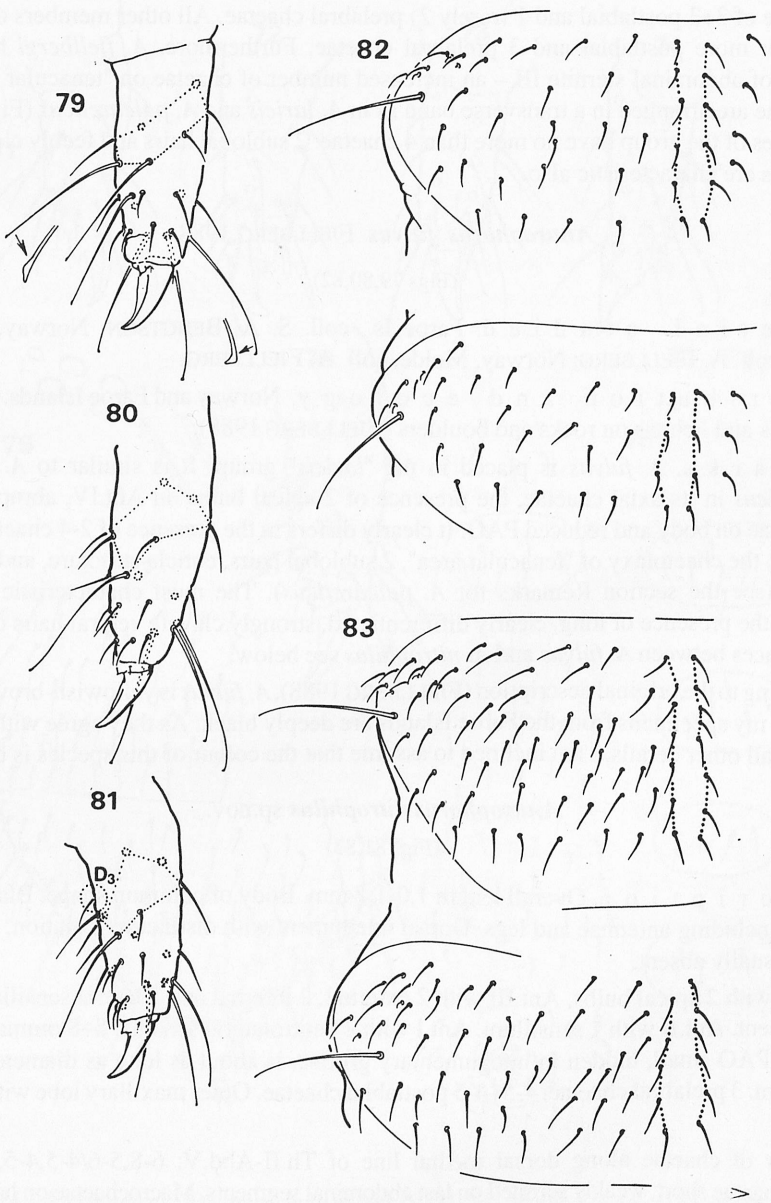
(Figs 81,83)

D e s c r i p t i o n. Overall length 1,0-1,2 mm. Body of common shape. Black to blackish-violet, including antennae and legs. Dorsal integument with distinct reticulation, tape-shaped polygons usually absent.

Ant.IV with 2 apical bulbs. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO small, hidden in integumentary groove, is about as long as diameter of nearest ommatidium. 3 prelabral chaetae. 4-5+4-5 postlabial chaetae. Outer maxillary lobe with 2 sublobal hairs.

Number of chaetae along dorsal medial line of Th.II-Abd.V: 6-8,5-6/4-5,4-5,4-5,5-6,5-6. Common chaetae short, weakly serrated on last abdominal segments. Macrochaetae on last abdominal segments abrupt, or weakly clavate. Macrochaetotaxy of Th.II-Abd.V: 1,1/ 0,0,0(1*),2,4. Medial macrochaetae of Abd.V small. Sensilla on body 1/4-1/5 of the length of common chaetae. Number of sensilla of Th.II-Abd.V:2+ms,2/1+ms,1,1,1,4. Th.I-III with 0+0,0+0,3-5+3-5 ventromedial chaetae, respectively. Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 1, Abd.III with 2-4 anterior and 1-2 posterior and furcal subcoxa with 17-20 chaetae.

Claw without inner tooth. Empodial appendage reduced, shorter than 1/4 of the inner edge of the claws on legs of all pairs. Tibiotarsi with 2,3,3 dorsal clavate tenent hairs and 3,3,1 ventral, elongated, distinctly clavate hairs. Tibiotarsus III with 23 chaetae (additional chaeta - D3). Upper subcoxae of leg III with 3-6 chaetae.



Figs 79-83. 79,80,82 – *A. fulvus*; 81,83 – *A. nitrophilus*; 79 – apical part of a leg of second pair; 80 – ditto of third pair; 82 – dorsal chaetotaxy of Th.II-III; 81 – apical part of a leg of third pair; 83 – dorsal chaetotaxy of Th.II-III.

H o l o t y p e female: Canada. N.W.T., Devon I., Truelove Lowland, turf hummock, bed of musk-ox, 14 vii 1991, coll. A. BABENKO (deposited in CNC).

P a r a t y p e s: 10 specimens in the same locality (deposited in CNC), 10 specimens: Russia. West Taimyr, 60 km S of Dikson, v. Efremovka, animal debris on stone near the burrow of an Arctic fox, 18 vii 1990, coll. A. BABENKO (deposited in MSPU).

O t h e r m a t e r i a l s t u d i e d: Russia. Archipelago De-Longa, Zhokhova I., plant debris on river bank, coll. V. BULAVINTSEV; N. Chukotka, Chaun Bay, 10 km up the river from Chaun Camp, moist moss, *Vaccinium uva-ursi*, leg V. BEHAN; Chaun Bay, ca 1 km from Vladimir Camp, on top a pingo, *Arctagrostis* sp., leg V. BEHAN; Chaun Bay, Chaun river, tussock tundra, leg V. BEHAN; Canada, N.W.T., Igloolik, snowy owl's mound, leg V. BEHAN.

N a m e d e r i v a t i o n. The species is named after its ecological peculiarity.

D i s t r i b u t i o n a n d e c o l o g y. Distributed in High Arctic. The species shows preference for rich organic substrata.

R e m a r k s. The species is placed in the "*laricis*" group. It closely resembles *A. fulvus* in long and strongly clavate ventral hairs on tibiotarsi, 3,3,1 in number, the presence of 2 apical bulbs on Ant.IV, reduced PAO, 2 sublobal hairs, and other features. *A. nitrophilus* differs from *A. fulvus* in well-developed polychaetose (it has more chaetae in axial formula: 7-8(6),5-6/4-5,4-5,4-5,5-6,5-6 against 6(7),4/3-4,3-4,4-5,5-6,3-4 in *A. fulvus*), tibiotarsus of leg III with 23 chaetae [*A. fulvus* with 22 (rarely 23)]. Besides, in the new species the macrochaetae are not so clavate and long as in *A. fulvus* (see the ratios of macrochaetae to p1-chaetae on body tergites in the table). Taking into account the ecological and geographical differences between them, I take it that *A. fulvus* and *A. nitrophilus* are different species.

Anurophorus septentrionalis PALISSA,1966

D i s t r i b u t i o n a n d e c o l o g y. Forested parts of Russia and Ukraine, Fennoscandia, Byelorussia, Baltia, Poland. The detailed distribution in the former USSR has been given by POTAPOV & STEBAEVA (1990).

R e m a r k s. It is easily recognized by three characters given in the key. All records of *A. septentrionalis* from Asia and N. America refer probably to other species. According to my materials, the Ural Mountains seem to bound the expansion of this species in the east.

Anurophorus elongatus FJELLBERG,1984

M a t e r i a l s t u d i e d: U.S.A., Colorado, Colorado Front Range, Rollins Pass Road, Yankee Doodle Lake; Lava Cliffs, Trail Ridge R. Larimer, coll. A. FJELLBERG.

D i s t r i b u t i o n a n d e c o l o g y. Known only from Colorado Front Range. According to A. FJELLBERG (1984), the species is common in subalpine and alpine meadows.

R e m a r k s. The species is placed in the "*laricis*" group. It comes nearest to the complex stepposus-continentalis. As shown in the key *A. elongatus* differs from the other species in this group in the presence of distinct macrochaetae on abdominal tergite III. The slender body is also characteristic.

Anurophorus stepposus POTAPOV & STEBAEVA,1990

N e w m a t e r i a l s t u d i e d:

Russia. North Caucasus Mts., Dagestan, Kurush St., coll. F. AMAEVA; Bashkiria, S. Ural Mts., Karabash Hill, coll. G. KHANISLAMOVA; South-Eastern Altai Mts., Kuray, coll. D. BERMAN.

Kazakhstan, Zailiysky Alatau Range, coll. N. SMETANA.

Kirgizia, Priissykulye, Orgocher Plateau, coll. I. VTOROV.

(?) U.S.A. Colorado, Colorado Front Range, Silver Lake, coll. A. FJELLBERG.

D i s t r i b u t i o n a n d e c o l o g y. Species distributed in eastern part of North Caucasus, S. Ural, Altai, Tian Shan Mts., plain parts of N. Kazakhstan and South-Western Siberia. It inhabits litter of dry woods and steppes.

R e m a r k s. *A. stepposus* is placed in the "*laricis*" group. The species resembles *A. continentalis* and *A. elongatus*. The differences between *A. stepposus* and the typical *A. elongatus* are given in the Remarks section for the latter. The specimens of another species from Colorado (Silver Lake), briefly described by A. FJELLBERG (1984) in the discussion to *A. elongatus*, differ from the typical *A. elongatus* in their normal body shape, the absence of distinct macrochaetae on abdominal tergites I-III, and a lower number of axial chaetae. Thus, I did not find any obvious differences between the specimens, mentioned above, and *A. stepposus*. The explanation of the taxonomical relationships between all these forms and *A. continentalis* requires a close study of more American material.

Anurophorus laricis NICOLET, 1842

N e w m a t e r i a l s t u d i e d:

Norway. Hordaland, Hardangervidda; Utsira; Tjome.

Poland. Poznań district, Zielonki; Ojców Nat. Park.

Ukraine. Carpathians, Czarnohora Range, slope of Goverla Mt, coll. G. KURCHEVA; Lvivska Region, East Beskids, coll. M. POTAPOV.

Russia. Smolenskaya Region, coll. M. POTAPOV; Tataria, Volzhsko-Kamsky Nature Reserve, coll. E. MARTYNOVA. Moreover, the geographical localities from which *A. laricis* f.2 is reported in our previous work (POTAPOV & STEBAEVA 1990), surely refer to the *A. laricis*.

D i s t r i b u t i o n. Europe. According to my materials, the Middle Volga (Volzhsko-Kamsky Reserve) marks the eastern limit of this species expansion. The Asiatic remarks on *A. laricis* should be referred to *A. palearcticus* sp.nov. (see below) and other species with reduced empodial appendage.

R e m a r k s. The species is easily recognized by the presence of many unique and rare features, namely, reduced axial chaetom, the presence of 2 apical bulbs on Ant.IV, clavate macrochaetae on body, reduced PAO, 1 chaeta on upper subcoxa III, more than 6 chaetae on "tenacular area", 1 sublobal hair, and unique cuticle structure.

Anurophorus palearcticus sp.nov.

(Figs 2,3 – in POTAPOV, STEBAEVA,1990)

D e s c r i p t i o n. Overall length up to 1,7 mm. Body of common shape, pale brown to greish-blue in colour, antennae and legs paler. Dorsal integument with distinct reticulation, polygons square, tape-shaped polygons absent. Commisures broadened.

Ant.IV with 2 apical bulbs. Ant.III with 2 external, 2 internal and 2 lateral sensilla, additional sensilla absent. Ant.II with 1 sensillum. Ant.I with 2 ventrolateral sensilla. 8+8 ommatidia, G and H smaller. PAO narrow, hidden in integumentary groove, equal to or shorter than diameter of nearest ommatidium. 3 prelabral chaetae. 5+5 postlabial chaetae. Outer maxillary lobe with 1 sublobal hair.

Number of chaetae along dorsal medial line of Th.II-Abd.V (variations): 6(5-7),4(5)/3(4),4,5,6(5),5(4). Common chaetae short, practically smooth. Macrochaetae long and clavate (rarely only distinctly blunt). Macrochaetotaxy of Th.II-Abd.V: 1,1/0,0,0,2,3-3+1*. Medial macrochaetae of Abd.V (1*) small or absent. Sensilla on body short, 1/3-1/5 of the length of common chaeta. Number of sensilla of Th.II-Abd.V:2(2+ms),2 /1+ms ,1,1,1,4. Microsensillum on Th.II absent, sometimes its small rudiment can be observed. Th.I-III with 0+0,0+0,3-7+3-7 ventromedial chaetae, respectively.

Ventral chaetotaxy of abdomen as follows: ventral tube with 3+3 laterodistal and 4 posterior chaetae, Abd.II with 3-4, Abd.III with 4-5 anterior and 6-10 posterior, "manubrial field" with 37-44 and furcal subcoxa with 17-22 chaetae.

Claw without inner tooth. Empodial appendage reduced, much shorter than 1/4 of the inner edge of claws of legs of all pairs. Tibiotarsi with 2,3,3 dorsal strongly clavate tenent hairs. Ventral side of tibiotarsi usually with 2-4,2-4,1-2 ventral elongated hairs. All or some of them distinctly clavate. Tibiotarsus III with 22 chaetae (additional chaetae absent). Upper subcoxa III with 1 chaeta. Male spurs weakly differentiated.

H o l o t y p e female: Russia. Bashkiria, South Ural Mts., nearby Karaidel, about 500 m alt., fir-wood, lichens on fallen birch, 2 vii 1986, coll. M. POTAPOV (deposited in MSPU).

P a r a t y p e s: 7 specimens from the same locality (4 paratypes deposited in MSPU, 3 in ISEA).

O t h e r m a t e r i a l s t u d i e d: Russia (European part). Kola Peninsula, Teriberka and Kirovsk, coll. M. POTAPOV; Karelia, White Sea, Pongoma, coll. M. POTAPOV; Tverskaya (former Kalininskaya) Region, coll. S. NADTOCHIY; Komi, near Syktyvkar, coll. M. POTAPOV; Komi, near Salekhard, coll. T. ARTEMYEVA.

Russia (Siberia). Yamalo-Nenetsky Autonomous Okrug, Tazovsky, coll. I. VTOROV; Taimyr Peninsula, Khatanga, coll. K. GORODKOV; Krasnoyarsky Krai, Plateau Putorana, Ayan River, coll. A. FJELLBERG; Tomskaya Region, near Tomsk; Krasnoyarsky Krai, Yenisei, Mirnoye St. (62°,20'N); Khakassia, West Sajan Range, Tashtypsky Region, Bolshoy On, coll. S. JORDANSKY; Sakha Republic (Yakutia:centre), near Yakutsk; Sakha Republic (centre), Verkhoyansky Range, upper Kele River, coll. N. VINOKUROV; Sakha Republic (north-eastern part), Ust-Nera, coll. M. POTAPOV.

Russia (Far East). Magadan Region, Snow Valley, coll. D. BERMAN; Magadan Region, Aborigen st., coll. A. FJELLBERG and V. BEHAN; Kamchatka, Kronotsky Nature Reserve, coll. O. KAPUSTYAN; Sakhalin I. (south), near Tunaicha Lake, coll. S. STEBAEVA.

Mongolia. Khubsugul Aimak, East Sajan Range, Somon Khanh, coll. A. DRUK; Archangaj Aimak, st.Tuvsherulekh, coll. L. MEDVEDEV. Additionally all the geographical sites of *A. laricis* f.1 mentioned in our previous work (POTAPOV & STEBAEVA 1990) should be referred to *A. palearcticus*.

N a m e d e r i v a t i o n. The species is named after its palearctic distribution.

D i s t r i b u t i o n a n d e c o l o g y. North and east regions of European part of Russia, all over the territory of Siberia and Far East, Mongolia. Usually found in moss and lichens on dry tree trunks, boulders and rocks. Typical boreal species.

R e m a r k s. The species closely resembles *A. laricis*, with which it shares the following important characters: reduced axial chaetom, 2 apical bulbs on Ant.IV, clavate macrochaetae, small PAO, 1 chaeta on upper subcoxa III, chaetotaxy of "tenacular area", 1 sublobal hair, and unique cuticle structure. *A. palearcticus*, however, differs clearly from *A. laricis* in the absence of additional sensilla on antennal segment III (Figs 2 and 2 in POTAPOV, STEBAEVA 1990) and paler body colour (the latter is always blackish-violet). In our previous paper (POTAPOV & STEBAEVA 1990) the new species was regarded only as a geographical form (f.1) of *A. laricis*. According to my materials, these species have nearly the same ecology and are geographically vicarious (see the map given in POTAPOV & STEBAEVA 1990, and new geographical sites, mentioned above). Only once the two forms have been found together in the same region (Smolenskaya Region). Both occupied pine-tree trunks in sphagnous bogs. *A. palearcicus* was found only at this microstation, whereas *A. laricis* inhabited also tree trunks on the lake and river banks. Since the intermediate forms were not observed in the mixed population, I rather regard *A. palearcticus* and *A. laricis* are different species.

Table I

Some morphological features of *Anurophorus* species

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
eximius	1	2(1)	0	2	8(6)	–	3	3	4-5	1(2)	1(2)	2-3	6-8	1	+	1	1	3.0-3.3	1.9-2.1	5-6	1
trisensillus	0(1*)	1-2	0	1	5	–	3	3	3	2-3	0	0	1-2	1	+	1	1	2.3-2.6	1.6-1.9	3.4	1.3-1.7
sorosi	2	1(2)	0	1	5	–	4	3	3	3-4(2-5)	0	0	3-5	1	+	1	1	3.0	1.0-1.3	3.4	1.4
olympicus	1	2	0	2	8	–	3	3	4-5	5-6	0	0	1-2	2	+	2	2	2.9-3.3	2.1-2.4	1.6-1.9	1.6-2.0
sensibilis	1	2	0	2	8	–	3	3	5-6	4-5	0	0	1	2	+	2	2	2.6-3.1	1.4-1.9	2.4-2.8	1.4-1.5
koreanus	1	2(3)	0	2	8	–	3	3	5	3-4	0	0	1	3	+	3	3	4.2-4.8	2.4-2.8	1.6	1.8
altus	1	2	0	2	8	–	3	3	4-5	3-4	0	0	1-3	1	+	1	2	3.6	1.6-1.9	2.4-2.6	1.5
cinereus	1	2	0	1	6	–	3	3	4-5	1-3	0	0	1-3	1	+–	1	1	2.7-3.9	2.1-3.0	1.7-2.4	1.2-1.5
szeptyckii	1	2	0	1	6	–	3	3(2)	4-5	2-3	0	0	1	1	–	1	1	3.3-3.5	1.9-2.9	1.9-2.9	1.4-1.6
mongolicus	1	2	0	2	8	–	3	3	5	5	0	0	1	1	+	1	2	2.8-3.9	2.5-3.0	3.0-3.3	1.8-2.0
bimus	1	2	0	2	8	–	3	3	4-5	4	0	0	1-2	1	+	1	1	2.4	1.0	2.4	1.4
rarus	1	2	0	2	8	–	3	3	4-5	1-2	1	3-6	3-4	1	+	1	1	4.4-5.1	4.5-5.0	2.6	2.4
senex	1	2	0	2	8	–	3	3	4-5	2-4	1	1(0-2)	1-2	1	+	1	1	4.2	?	3.5	1.1-1.3
pacificus	1	2	0	2	8	–	3	3	4-6	3-5	1	1	1-4	1	+	1	1	3.2-3.9	2.0-2.4	2.4-3.7	1.9-2.1
lohi	1	2	0	2(1)	8	–	3	3	4-5	4-6	1	1(0)	1-3	1	+	1	2	2.7-3.7	1.9-2.4	2.0-2.2	1.0-1.3
atlanticus	1	1	0	2	8	–	3	3	4-6	3-6	0	1	3-4	1	+	1	1	3.3-3.5	1.8-2.5	1.9	1.5
chukoticus	1	2	0	2	8	–	3	3	4-5	4-6	0	1(2)	1-4	1	+	1	1-2	2.9-4.1	2.0-2.8	2.6-3.8	3.2
fulvus	2	2	0	2	8	+	2	3	4-5	2-4	0	0	1	1	+	1	1	4.0-5.1	3.3-4.6	2.2-5.8	4.6-5.5
nitrophilus	2	2	0	2	8	+	2	3	4-5	3-6	0	0	1-2	1	+	1	1	3.8-4.5	2.2-2.9	5.0	3.9-4.0
fjellbergi	1	2	0	2	8	–	2	1(2)	3	2-5	0	0	4-9	1	+	1	1	2.2-3.2	1.3-1.9	2.6-5.2	2.3-2.7
elongatus	1	2	0	2	8	–	3	3	4-5	6-7	0	0	3	1	+	1	1	3.1	1.9	?	1.6-1.7
laricis	2	2	4-7	2	8	+	1	3	5	1	0	0	7-10	1	+	1	1	4.5-5.2	3.3-3.5	3.0-6.5	Mdm absent
palearcticus	2	2	0	2	8	+	1	3	5	1	0	0	6-10	1	+	1	1	4.2-5.6	2.9-3.8	3.1-7.0	Mdm absent
asfouri	1	?	0	2	8	–	?	3	4	3-5	0	0	1	1	+	1	2	2	1	?	?

1 – number of apical vesicles (1* – hardly developed); 2 – number of sensilla on Ant.I; 3 – number of additional sensilla on Ant.III; 4 – number of lateral sensilla on Ant.III; 5 – number of ommatidia; 6 – PAO strongly reduced; 7 – number of sublobal hairs; 8 – number of prelabral hairs; 9 – number of postlabial hairs; 10 – number of chaetae on upper subcoxa of Leg III; 11 – number of ventral chaetae on Th.I; 12 – number of ventral chaetae on Th.II; 13 – number of chaetae on "tenacular area"; 14 – number of sensilla on Abd.I; 15 – microsensillum on Abd.I present; 16 – number of sensilla on Abd.II; 17 – number of sensilla on Abd.IV; 18 – ratio Ma:p1 on Th.II; 19 – ratio Ma:p1 on Abd.IV; 20 – ratio p1:s on Abd.IV; 21 – ratio MDL:MDM on Abd.V.

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