The genus *Bryomyia* Kieff. (Diptera, Cecidomyiidae): Palaearctic species and Fennoscandian records.

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The genus *Bryomyia* comprises altogether eight species in the Palearctic region, including one new species, *Bryomyia amurensis,* which is described by Mamaev and Økland in the present article. A revised key to the species of *Bryomyia* in the Holarctic region is presented.

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1. Introduction

The genus *Bryomyia* belongs to the tribe Bryomyiini, supertribe Micromyidi, and the subfamily Lestremiinae (Berest 1993). The members of the subfamily Lestremiinae possess free-developing larvae, feeding on fungal mycelium within soil, litter, dead wood and other decaying matter.

The genus *Bryomyia* Kieff. with type species *B. bergrothi* Kieff. was erected as a monotypic genus by Kieffer (1895). Edwards (1938) extended *Bryomyia* with three new species, including the species *B. cambrica* Edw. Pritchard (1947) made the first records of *Bryomyia* from North America. He concluded that the North American fauna of *Bryomyia* comprises two Holarctic (*B. apsectra* Edw., *B. cambrica* Edw.) and two Nearctic species (*B. gibbosa* Felt, *B. producta*). Pritchard suggested *B. trifida* Edw. to be a synonym of *B. gibbosa* (Felt), and this opinion was supported by Kleesattel (1979), and in the Catalogue of Palaearctic Diptera (Skuhravá 1986). Mamaev (1963) described another two species of *Bryomyia*, *B. incisa* Mam. and *B. longipennis* Mam. Berest (1988) described a new *Bryomyia* species under the name *B. multispinata* Ber. Later on, Berest (1993) proposed the new tribe Bryomyiini for the genera *Bryomyia* Kieff., *Heterogenella* Mam., *Skuhraviana* Mam. and and a new genus *Cervuatina* Ber. with the former *B. cambrica* Edw. as type species. Thus, according to the recent level of knowledge, the genus *Bryomyia* includes altogether eight species from the Palaearctic and Nearctic regions.

The present article gives description of one new *Bryomyia* species collected in the Far East of Russia, and a key to the *Bryomyia* species of the Holarctic region. Furthermore, species records of *Bryomyia* in Fennoscandia are reviewed, presenting new species records for Norway and Finland.

2. Material and methods

The material of Lestremiinae was collected with various methods, such as netting over the vegetation, trapping by malaise traps, and breeding from

larvae. The collected specimens were kept in 70% alcohol before mounting on preparate slides with Canadian balsam as medium. The male genitalia and the body of the insects were mounted under separate cover glasses. Identifications were performed under light microscope. Holotypes of *B. incisa* Mam. and *B. longipennis* Mam. were investigated, as well as specimens of *B. bergrothi*, *B. apsectra*, *B. producta* from Caucasus, Siberia and Russian Far East. All slides, including holotypes, are deposited in the collections of B. Økland (NISK, Ås, Norway) and B. Mamaev (Moscow, Russia).

3. Results

3.1. Genus *Bryomyia* Kieffer

Figs. 1A–D, 2 A–E

Type species: *Bryomyia bergrothi* Kieffer, 1895: Miscellanea ent.,3:78

Small or medium sized species, length of body about 1.0–2.0 mm. Head round; width of eye bridge 2–4 ommatidia; palpi usually with 4 segments, the 3rd and 4th sometimes fused. Antennae of male with 2 + 12 segments, flagellar segments with rather long stem; basal enlargement bears one basal whorl of short setae, one complete and 2–3 incomplete crenulate whorls, apical bundle of hairs and two bristle-like transparent sensoriae. Antennae of female short, consisting of 2 + 8(9) segments, flagellar segments with distinct stem and two lamellar sensorial processes. Wing rather broad (with exception of *B. longipennis*), R1 2.5–4.0 times as long as Rs, R5 slightly curved and reaches C beyond the wing tip, C produced well beyond the end of R5, M1 + 2 simple, cubital fork present, Cu evanescent distally. Tarsi are densily clothed with broad scales; tarsal claws sharply bent, with subapical dilation and with small median denticulation. Empodium very narrow, as long as claw, half as long as claw or rudimentary.The 9th tergite of male genitalia broad, sometimes with two transparent projections, the gonocoxites broad with strongly developed apodeme, gonostyles without spine, sometimes with a bare sclerotized flange; the tegmen weakly sclerotized, genital rod very short with a pair of apical processes of variable length. Ovipositor moderately long, with 3-segmented lamellae. Two scletotized spermathecae present.

3.2. *Bryomyia amurensis* sp.n.

Figs. 1 A–D

Holotype: male, Far East of Russia, Bychiha, Khekhzir reserve, 9.07.1975 (leg. E. Antonova), deposited in the collection of B. Mamaev (Moscow, Russia).

Male. Brown, length of wing 2.6 mm. Eye bridge 4 ommatidia broad. First palpal segment short, round; 2nd and 3rd elongated, 3rd slightly shorter than 2nd, 4th about two times as along as 3rd. Scapus of antenna slightly thicker than pedicellum. Stem of the middle antennal segmens half as long as basal enlargement, which bears an irregular basal whorl of short setae, one complete, two incomplete crenulate whorls in distal half of the basal enlargement, and an apical tuft of hairs at the base of the stem. Sensoriae long, bristle-shaped. Wing two times as long as broad. Tibia nearly as long as femur, 1st tarsal segment longer than 2nd, 2nd tarsal segment of foreleg as long as 3rd, 4th as long as 5th. Claw sharply bent in the middle, nearly at right angle; empodium well developed, as long as claw.

Gonocoxites of male genitalia thick; gonostyles about half as long as gonocoxites, with narrow lobe and inner excavation bearing an uniform and dense cover of short hairs; 9th tergite strongly sclerotized and bearing long hairs, nearly subdivided into two parts by a triangular membranous field; tegmen thick with distinctly sclerotized lateral margins and dilated sclerotized roots; basal part of genital rod well developed, distinctly sclerotized; apodeme of gonocoxites thick and strongly sclerotized, arch-shaped. *B. amurensis* is distinguished from other *Bryomyia* species by having empodium as long as the tarsal claw and a distinctive male genitalia.

3.3. Key to the species of the genus *Bryomyia* Kieff. (males)

1. Empodium well developed, at least half as long as claw or longer (Figs. 1C) 2
— Empodium rudimentary 5
2. Ninth tergite of male genitalia ending in two truncate bare transparent lobes 3

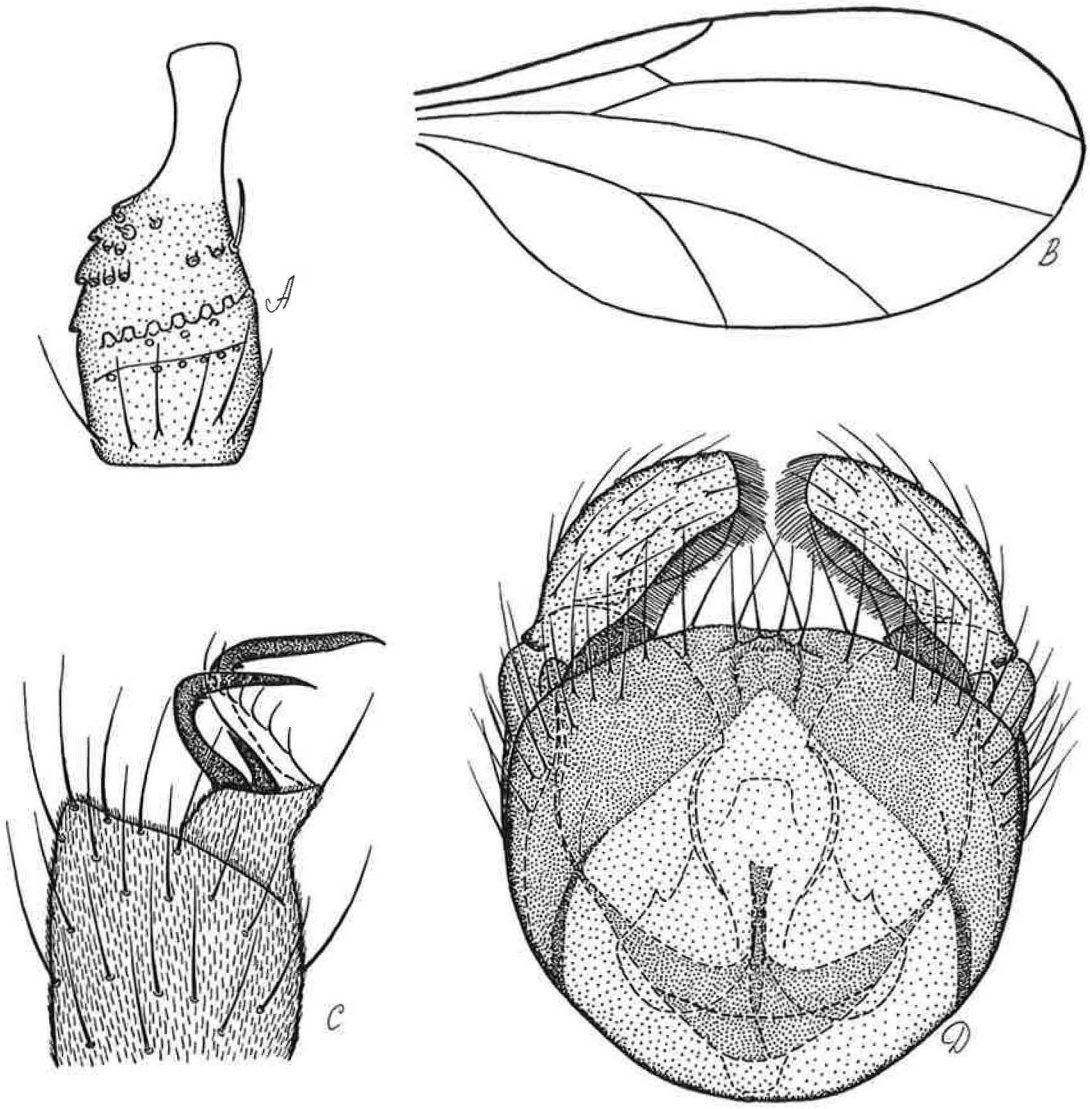

Fig.1. Morphology of *Bryomyia amurensis* sp.n. — A: 6th flagellar segment of male; — B: wing; — C: tarsal claw with empodium; — D: male genitalia. (Scale: 4x).

— Ninth tergite of male genitalia without lobes 4

3. Gonostyle with long, narrow, bare and sclerotized flange along the margin. Genital rod very short, producing in two long weakly sclerotized apical processes .... *B. gibbosa* (Felt)

— Gonostyle without bare flange. Genital rod rather long, producing in two short and weakly sclerotized processes ..... *bergrothi* Kieffer

4. Abdomen of male very slender. Gonostyle with a broad lobe and a tumb-shaped projection proximally (Fig. 2A). Empodium half as long as claw .... *B. producta* Pritchard

— Abdomen of male swollen. Gonostyle without aproximal projection (Fig. 1D). Empodium as long as claw ..... *B. amurensis* sp.n.

5. Gonostyle with bare sclerotized flange along the margin. Ninth tergite with two median dents on caudal margin (Fig. 2B) ..... *B. incisa* Mamaev

— Gonostyle without bare sclerotized flange. Ninth tergite uniformly round with a median excavation, and without median dents 6

6. Stem of middle flagellar segments as long as basal enlargement or longer (Fig. 2D) 7

— Stem of middle antennal segments half as long as basal

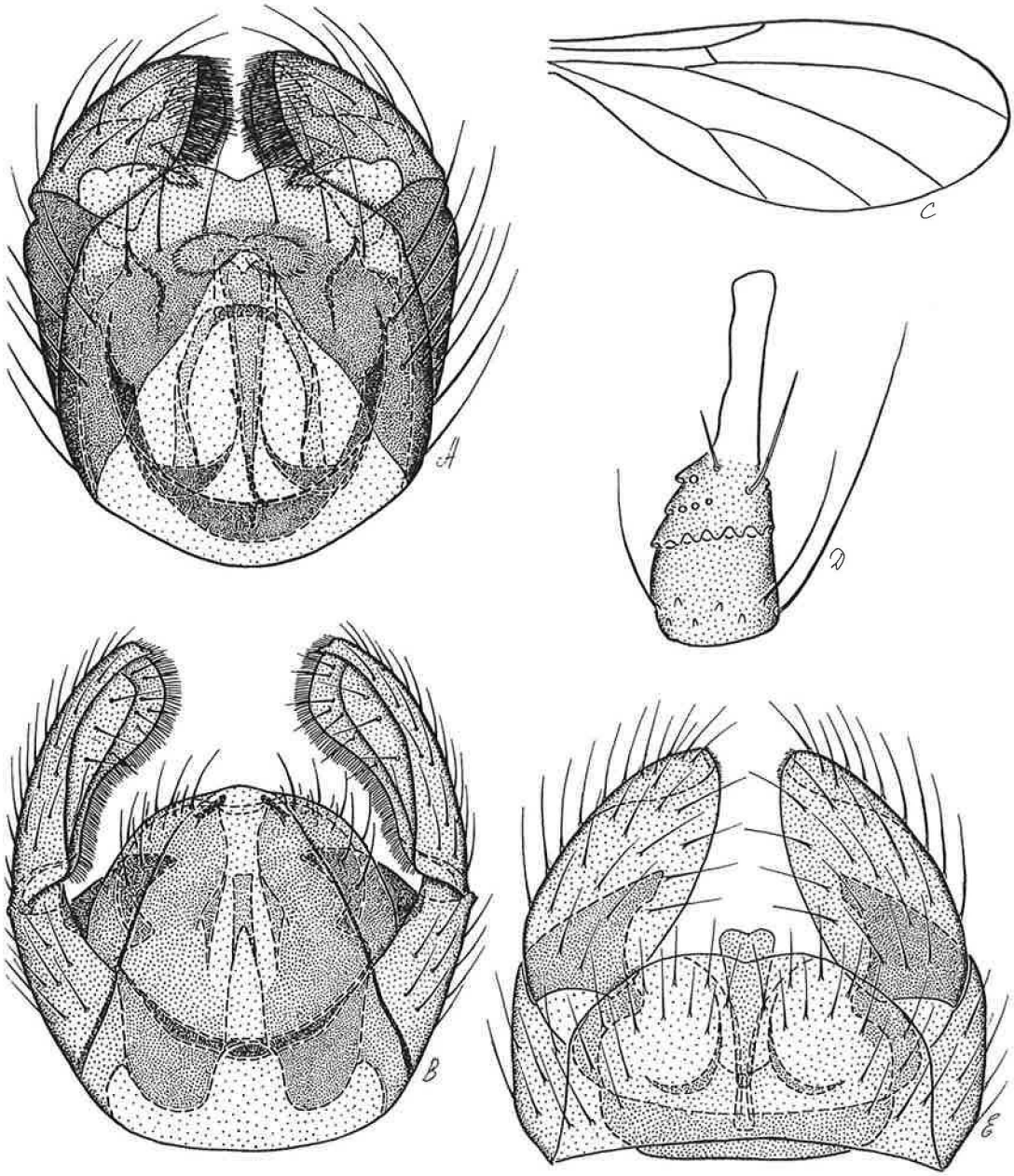

Fig. 2. Morphology of species of the genus *Bryomyia* Kieff. — A: male genitalia *of B. producta* Pritch. (4x); — B: male genitalia of *B. incisa* Mam. — C–E: *B. longipennis* Mam.(4x); — C: wing; —D: 6th flagellar segment of male; — E: male genitalia (4x).

enlargement. Gonocoxites broadly round apically and without median lobe. Gonostyle half as long as gonocoxite ..... *B. apsectra* Edwards

7. Wing 2.6 times as long as broad in the middle (Fig. 2C) .....
Gonocoxites with triangular apical lobe (Fig. 2E) ....
..... *B. longipennis* Mamaev

— Wing 2.1 times as long as broad in the middle Gonocoxites with round apical lobe .....
..... *B. multispinata* Berest

3.4. Fennoscandian records of *Bryomyia*

Bryomyia apsectra Edwards, 1938. **Finland**: Ab: Uusikaupunki, Vohdensaari, 20.VI–14.VII.1994, 1 male, leg. P. Kejo; **Norway**: AK: Enebakk Ekeberg skog, VIII.1991, 1 male, leg. B. Økland; AK: Lørenskog Losby, VIII.1991, 1 male, leg. B. Økland; AK: Rælingen, Tappenberg, VI.1991, 1 male, leg. B. Økland; AK: Lørenskog, Styggvann, VI.1991, 1 male, leg. B. Økland; OS: Øyer Skarsmoen, 15.VIII.1992, 1 male, leg. A. Bakke; OS: Østre Toten, Totenåsen, VII.1993, 1 male, leg. B. Økland; AK: Frogn, Håøya, VII.1993, 1 female, leg. B. Økland; OS: Lunner, Skotjernfjell, VII.1993, 1 female, leg. B. Økland; **Sweden**: SK: Skäralid, 22.V.1993, 2 males, SM: Siggaboda, 21.V.1993, 3 males, Braås, 26.V.1993, 3 males; UP: Bladåker, Bennebol 16.V.1993, 5 males, Uppsala, Flogsta 22.VII.1993; DR: Garpenberg, Herrgården, 14.VI.1993, 1 male, Hässlen, 16.VI.1993, 1 male, leg. B. Mamaev.

Bryomyia bergrothi Kieffer, 1895. **Norway**: Ø: Halden, Prestbakke, 29.IX.1986, 1 male, leg. F. Midtgaard; **Sweden**: UP: Uppsala, Lunsen, 9.VI.1993, 2 males, Flogsta 22.VII, 2 males, DR: Garpenberg, Herrgården, 14.VI.1993, 23 males, Hässlen, 16.VI.1993, 2 males, Nås, Gräsberget, 20.VI.1993, 2 males, 1.VII.1993, 7 males, leg. B. Mamaev; Lu.Lpm.: Gällivare Granlandet, 9.VIII.–3.IX.1994, 1 female, leg. R. Petterson.

Bryomyia gibbosa (Felt, 1907). **Norway**: AK: Lørenskog Losby, VIII.1991, 1 male, leg. B. Økland, OS: Jevnaker, Hesteskotjern, VIII.1993, 1 female, leg. B. Økland, AK: Enebakk Ekeberg skog, VIII.1991, 1 male, leg. B. Økland; AK: Enebakk, Ekeberg skog, VIII.1991, 1 male, leg. B. Økland; AK: Enebakk, Ekeberg skog, VIII.1991, 1 male, leg. B. Økland; AK: Lørenskog, Losby, VIII.1991, 1 male, leg. B. Økland; AK: Lørenskog, Losby, VIII.1991, 1 male, leg. B. Økland; AK: Rælingen, Tappenberg, 21.VIII.1991, 1 male, leg. B. Økland; AK: Enebakk, Ekeberg skog, VIII.1991, 1 male, leg. B. Økland; AK: Rælingen, Tappenberg, VI.1991, 1 female, leg. B. Økland; OS: Lunner, Skotjernfjell, VII.1993, 1 male, leg. B. Økland; **Sweden**: DR: Nås, Gräsberget, 26.VI.1993, 3 male, 1.VII.1993, 13 males, Lindesnäs, 3.VII.1993, 1 male, leg. B. Mamaev.

Bryomyia incisa Mamaev, 1963. **Sweden**: SK: Skäralid, 22.V.1993, 3 males, Häckeberga 23 V 1993, 8 males, Osby, 25.V.1993, 1 male, leg. B. Mamaev.

Bryomyia producta (Felt, 1908). TRY: **Norway**: Tromsø, Tromsdalen, 21–31.VII.1993, 1 male, leg. B. Økland; **Sweden**: SK: Osby, 25.V.1993, 1 male, DR: Garpenberg, Herrgården, 14.VI.1993, 23 males, Hässlen, 16.VI.1993, 3 males, Gräsberget, 1 VII 1993, 9 males, leg. B. Mamaev; Lu.Lpm.: Jokkmokk, Suorke reserve, 31.V–23.IX.1993, 1 male, leg. B. Wiklund.

4. Discussion

At present the Holarctic fauna of *Bryomyia* contains eight species, of which *B. amurensis*is is described as a new species. The latest catalogue of Palaearctic Diptera showed no records of Bryomyia from Fennoscandia (Skuhravá 1986). However, this is clearly a result of poor investigation, since recent papers have added several new Bryomyia species from Fennoscandia. Mamaev (1996) added five new Bryomyia species for Sweden, and three species of this genus were recorded from Lapland(Jaschhof 1996). The present paper presents one new species to Finland (*B. apsectra*). Furthermore, the four species *B. apsectra*, *B. bergrothi*, *B. gibbosa*, *B. producta* appear to be rather common in Fennoscandia, while *B. incisa* has been collected only in Sweden.

In the present study, the sampling effort differed much between the Fennoscandian countries, with only samples from one locality in Finland, and several localities in Sweden and Norway. Therefore, the species richness or faunistic compostion of Bryomyia should not be compared between the countries on basis of the present records.

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