Holarctic species of the *Boletina erythropyga*-group (Diptera, Mycetophilidae)

[Holarktische Arten der *Boletina erythropyga*-Gruppe (Diptera, Mycetophilidae)]

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Abstract Holarctic species of the *Boletina erythropyga*-group are reviewed. Five species are recognized within the group (1 Nearctic and 4 Palaearctic). Two new species, ***Boletina hissarica* spec. nov.** and ***B. neoerythropyga* spec. nov.**, are described. The name *Boletina sahlbergi* LUNDSTRÖM is reestablished and the new synonymy *B. sahlbergi* LUNDSTRÖM = *B. altaica* A. ZAITZEV **syn. nov.** is proposed. Detailed descriptions, figures of maale genitalia, and a key to identification are given.

Key words Mycetophilidae, *Boletina*, Holarctic, new species

Zusammenfassung Der Beitrag hat die holarktischen Arten der *Boletina erythropyga*-Gruppe zum Gegenstand. Fünf Arten gehören zu dieser Gruppe, 1 nearktische und 4 paläarktische. Zwei neue Arten – ***Boletina hissarica* spec. nov.** und ***B. neoerythropyga* spec. nov.** werden beschrieben. Der Name *Boletina sahlbergi* LUNDSTRÖM wird wieder eingeführt. *B. altaica* A. ZAITZEV erweist sich als **syn. nov.** zu *B. sahlbergi* LUNDSTRÖM. Die detaillierten Beschreibungen beinhalten Abbildungen der Genitalien der Männchen aller Arten. Ein Bestimmungsschlüssel für die holarktischen Arten der *Boletina erythropyga*-Gruppe wird gegeben.

Stichwörter Mycetophilidae, *Boletina*, Holarktis, neue Arten

Introduction

Boletina STAEGER is a highly diverse genus of the family Mycetophilidae, comprising about 100 species of mainly Holarctic distribution. No revision is available for the genus and since the first descriptions a lot of taxonomical ambiguity accumulated in some groups of closely related species.

The *Boletina erythropyga*-group can be delimited by a combination of the following characters: Sc entering C well before the base of Rs; crossvein r-m shorter than the stem of M fork; specific structure of male genitalia. Four species belonging to this group have been described from the Holarctic region so far: *Boletina erythropyga* HOLMGREN, 1883; *Boletina sahlbergi* LUNDSTRÖM, 1906; *Boletina longicornis* JOHANNSEN, 1911; *Boletina altaica* A. ZAITZEV, 1994. One more species – *Boletina laticauda* SAIGUSA, 1968 is known from Taiwan.

Revision of recent materials revealed considerable confusion in the taxonomic interpretation of some of these species. First of all the synonymization of *B. sahlbergi* with *B. erythropyga* (Catalogue of Palaearctic Diptera), as it appears now, can not be approved. Moreover *B. erythropyga* and *B. altaica* were wrongly interpreted by ZAITZEV (1994) who also mistakenly introduced *B. longicornis* as *B. notescens* JOHANNSEN, 1911. Analysis of the original descriptions and type specimens (when possible) enabled the elimination of numerous uncertainties and substantially clarified the situation.

Materials are stored at the A. N. Severtzov Institute of Ecology and Evolution, Moscow (SIEE), Zoological Institute, St. Petersburg (ZIN) and Forest Research Institute, Petrozavodsk (FRI)

Boletina erythropyga HOLMGREN, 1883

(Figs 2, 4, 5, 6, 10)

erythropyga HOLMGREN, 1883 – HOLMGREN 1883: 189
(*Boletina*); *notescens*, ZAITZEV 1994: 223 (*Boletina*), nec JOHANNSEN, 1911.

Material: **Russia**: 1♂, Vaigach I., 4.vii.1984, leg. BULAVINTSEV (SIEE); 1♂, Karelia, Kivach, Malaise trap, 17-25.ix.1990, leg. POLEVOI (FRI); **Finland**: 1♂, Ok: 7158:623, Kuhmo, Ypykkävaara, bait trap 12-25.viii.1997, leg. KUUSSAARI (FRI); 2♂♂, 2♀♀, Ta: 6882: 333, Ruovesi, Iso-Saarijärvi, bait trap 7-26.v.1998, leg. KUUSSAARI (FRI).

Male. Head dark brown; clypeus oval; dark brown, mouth parts brown, palpi yellow; antennae dark brown, scape, pedicel and base of the first flagellomere yellow; middle flagellomere 5 times as long as wide.
Thorax dark brown; mesonotum light brown with three darker longitudinal stripes; laterotergite and mediotergite bare. **Wings** hyaline; wing length 5 mm; C produced slightly beyond the tip of R_5; Sc with 1-7 macrotrichia apically, entering C before base of Rs; Sc_2 well developed; stem of M fork 1.5 times as long as rm. **Legs** yellow, tarsi brown; fore tibia 1.5 times as long as fore basitarsus; middle tibia with 5 a, 4 d, 7 p, 8 v; hind tibia with 7 a, 12 d, 11 p, 12 v.
Abdomen dark brown; tergites II-VI with distinct apical yellow bands; genitalia yellowish-brown.

Female. Similar to male. Ovipositor brown.

Distribution. The species is recorded from Scandinavia and the North of the European part of Russia. An Italian record (LAŠTOVKA & MATILE 1988) needs verification as in the later regional list (DAHL et al. 1988) this species is not given. Siberian records (LAŠTOVKA & MATILE 1988) refer to *B. sahlbergi*. Japanese records of *B. erythropyga* also need to be confirmed as it has not been included to the review of Japanese *Boletina* (SASAKAWA & KIMURA 1974). Swiss records (CHANDLER 1998) partly refer to *B. sahlbergi* (CHANDLER pers. com.), so the occurence of *B. erythropyga* in this country is not confirmed.

Remarks. Dr. T. PAPE (Stockholm) informed us that he was unable to locate the type specimens of *B. erythropyga* in the drawers with HOLMGREN's materials. However some external characters, given in the original description and availability of specimens from the regions close to the type locality leave little doubt about correct interpretation of this species. The Nearctic *B. longicornis* JOHANNSEN is possibly identical to *B. erythropyga*, but final conclusions on this subject can be reached only after analysis of the type material of the former species.

Boletina hissarica spec. nov.

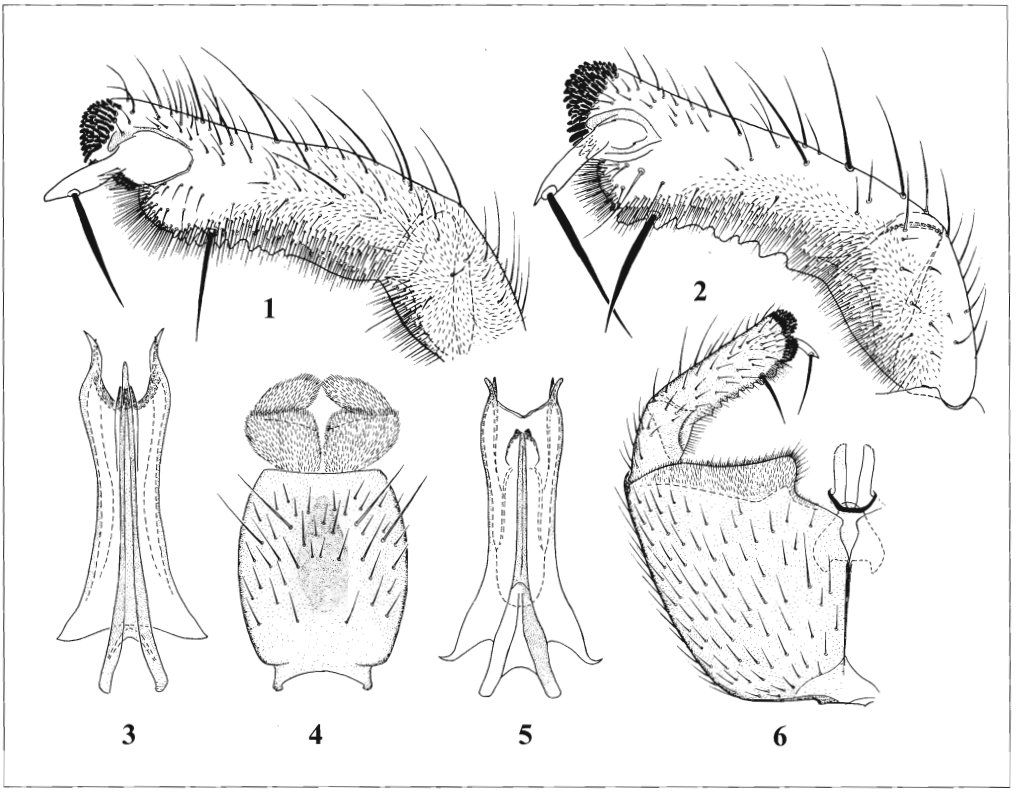
(Figs 1, 3, 9)

Material: Holotype ♂: **Tadzhikistan**: Gissar range, Anzob pass 30.vii.1956, leg. GRUNIN (ZIN).

Male. Head dark brown; clypeus oval, dark brown; mouth parts and palpi brown; antennae dark brown, scape, pedicel and base of the first flagellomere yellow, middle flagellomere 5 times as long as wide.
Thorax dark brown; mesonotum light brown with three darker longitudinal stripes; laterotergite and mediotergite bare. **Wings** hyaline; wing length 5.5 mm; C produced beyond the tip of R_5; Sc with 1-2 macrotrichia near the apex, entering C well before base of Rs; Sc_2 well developed; stem of the M fork 1.5 times as long as r-m. **Legs** yellow, tarsi brown; fore tibia 1.2 times as long as fore basitarsus; middle tibia with 4 a, 3 d, 7 p, 8 v; hind tibia with 5 a, 17 d, 7 p, 10 v.
Abdomen: dark brown; tergites II-VI with apical yellow bands; genitalia yellowish brown.

Female. Unknown.

Distribution. The species is known only from Tadzhikistan.



Figs 1-6: *Boletina* spp. – **1, 3**: *B. hissarica* spec. nov.; – **2, 4-6**: *B. erythropyga* HOLMGREN, 1883. (1,2 – gonostylus, dorsal view; 3,5 – aedeagus; 4 – male tergite IX; 6 – male genitalia, ventral view).

Remarks. *Boletina hissarica* is related to *B. erythropyga* from which it is distinguished by the shape of the apical processus of the gonostylus, the size of the apical unsclerotised area on the dorsal surface of the gonostylus, arrangement of the teeth on the inner surface of the gonostylus, shape of the aedeagus, shape and character of the sclerotization of the tergite IX.

Boletina longicornis JOHANNSEN, 1911

longicornis JOHANNSEN, 1911 – JOHANNSEN 1911: 272 (*Boletina*).

Remarks. This species was described from Idaho (USA). According to the original description and figures of the male genitalia it is very close if not identical to *B. erythropyga*. However, for the final conclusion on the synonymy the study of the type specimens is necessary.

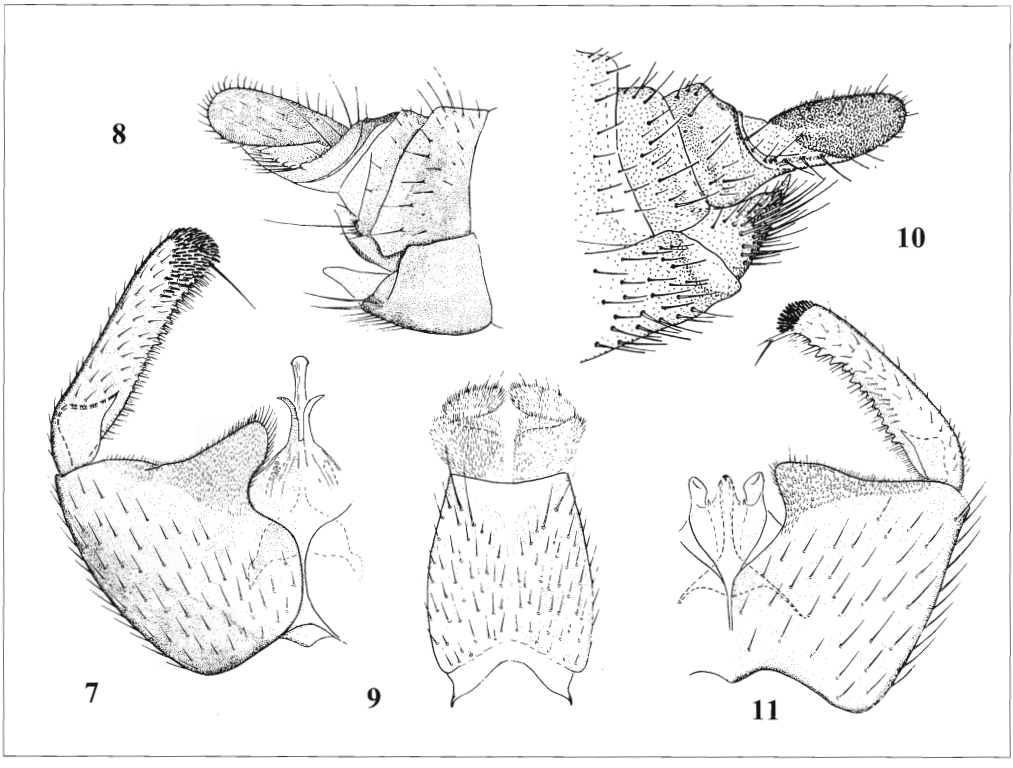
Boletina neoerythropyga spec. nov.

(Figs. 7, 8)

erythropyga ZAITZEV, 1994 – ZAITZEV 1994, fig. 70,1 (*Boletina*).

Material: Holotype ♂: **Russia**: South Yamal, V. Schutchie, Sopkei, 11.viii-21.ix.1980, VESELOVA leg. (SIEE). Paratypes: 8 ♂♂, 1 ♀, same label (SIEE); 3 ♂♂, same label (FRI).

Male. **Head** dark brown; clypeus oval, dark brown; mouth parts and palpi yellow; antennae dark brown, pedicel and base of the first flagellomere yellow; middle flagellomere 4-5 times as long as wide.



Figs 7-11: *Boletina* spp. – **7-9**: *B. neoerythropyga* spec. nov.; – **9**: *B. hissarica* spec. nov.; – **10**: *B. erythropyga* HOLMGREN, 1883; – **11**: *B. sahlbergi* LUNDSTRÖM, 1906. (7, 11 – male genitalia, ventral view; 9 – male tergite IX; 8, 10 – ovipositor, lateral view).

Thorax dark brown; mesonotum yellow or yellowish brown with three dark longitudinal stripes; laterotergite and mediotergite bare. **Wings** hyaline; wing length 5 mm; C produced beyond the tip of R_5; Sc bare, entering C well before base of Rs; Sc_2 weakly developed or absent, stem of M fork twice as long as rm. **Legs** yellow, tarsi brown; fore tibia 1.2 times as long as fore basitarsus; middle tibia with 4 a, 1 d, 1 p, 6 v, 8 av; hind tibia with 6 a, 7 d, 10 p, 8 v. **Abdomen** uniformly dark brown; genitalia yellowish brown.

Female. Similar to male in body coloration, ovipositor brown.

Distribution. The species is recorded only from the North of West Siberia (Yamal peninsula).

Remarks. The species is related to *B. sahlbergi*, and differs in the brown scape, uniformly brown abdomen, longer stem of M fork and absence of the apical processus of the gonostylus.

Boletina sahlbergi LUNDSTRÖM, 1906

(Fig. 11)

Boletina sahlbergi LUNDSTRÖM, 1906 – LUNDSTRÖM 1906: 14.
Boletina altaica ZAITZEV, 1994 **syn. nov.** – ZAITZEV 1994 : 203.

Material: **Russia**: ♂, Altai, Teletskoe lake, Artybash, 22-24.vi.1981, leg. ZAITZEV (Holotype of *B. altaica* – ZIN); ♂, Karelia Kb: 6909:421, Tolvojarvi, Malaise trap, 15-28.viii.1998, leg. TIETÄVÄINEN (FRI). **Finland**: ♂, Kb: 6993:728, Ilomantsi, Pirhu, 12-13.vii1993, leg. POLEVOI (FRI); Ta: Nälkähittenkangas, light trap, 25.viii-16.ix.1998, leg. KUUSSAARI (FRI).

Male. **Head** dark brown; clypeus oval, dark brown; mouth parts and palpi yellow; antennae dark brown, scape, pedicel and base of the first flagellomere yellow; middle flagellomere 3 times as long as wide.
Thorax dark brown; mesonotum shining yellow with three dark longitudinal stripes; anepisternum and mesepimeron brown, upper parts of katepisternum and laterotergite yellow; laterotergite and mediotergite bare. **Wings** hyaline; wing length 3.8 mm; C not producing beyond the tip of R_5; Sc bare apically, entering C well before base of Rs; Sc_2 well developed; stem of M fork 1.5 times as long as r-m. **Legs** yellow, tarsi brown; fore tibia 1.1 times as long as fore basitarsus; middle tibia with 5 a, 3 d, 3 p, 3 v; hind tibia with 5 a, 9 d, 8 p, 6 pd, 7 v.
Abdomen dark brown; tergites I-IV with wide apical yellow bands; genitalia yellowish brown.

Female. Unknown.

Distribution. Occurence of this species in Sweden (PLASSMANN 1974, 1974 a, 1978) is confirmed by recent records in Swedish Lapland (HEDMARK pers. com.). It is known also from Finland, European part of Russia, West Siberia (OSTROVERCHOVA 1979). In the Swiss checklist (CHANDLER 1998) *B. erythropyga* was given with *B. sahlbergi* cited as synonym. Dr P. CHANDLER (pers. com.) re-examined two specimens (Gr. Zernew, 15-18. VIII. 1978, leg. G. BÄCHLI) and confirmed they to be *B. sahlbergi*. Material determined by PLASSMANN need to be re-examined to confirm the occurence of this species in Sweden (PLASSMANN 1974, 1974a, 1978) and Austria (PLASSMANN 1984).

Remarks. We did not study the holotype, but Dr. P. VILKAMAA (Helsinki) kindly compared our drawings and description with type specimens and confirmed their identity. The coloration of abdomen appear to be a subject variation. First tergite is completely black in some Swedish specimens. Tergite V and VI have distal margin narrowly yellow in some specimens from Sweden and Switzerland (CHANDLER pers. com., HEDMARK pers. com.).

Key to Holarctic species of *Boletina erythropyga*-group

1 Mesonotum yellow or yellowish brown with three dark longitudinal stripes. Middle and hind coxae yellow. Stem of M_1+M_2 fork 1.5-2 times as long as r-m **2**
– Mesonotum uniformly black. Middle and hind coxae black. Stem of M_1+M_2 fork as long as r-m. Taiwan. ..... ***B. laticauda*** **SAIGUSA**
2 Abdomen uniformly dark brown without yellow bands. Scape dark brown. Stem of M_1+M_2 fork 2 times as long as r-m. Sc_2 weakly developed or absent. Gonostylus without apical processus (Fig. 7). Ovipositor (Fig. 8). North of West Siberia. ..... ***B. neoerythropyga*** **spec. nov.**
- Most of the abdominal tergites with distinct apical yellow bands. Scape yellow. Stem of M_1+M_2 fork 1.5 times as long as rm. Sc_2 well developed. Gonostylus with apical processus (Figs 1, 2, 6, 11). **3**
3 Abdominal tergites II-VI dark brown with apical yellow bands. Apical processus of the gonostylus bears 1 seta near the tip. Gonostylus curved with one strong seta on the inner margin (Fig. 1, 2) **4**
- Abdominal tergites I-IV dark brown with apical yellow bands. Apical processus of the gonostylus bears 2 setae, one of them on the tip (Fig. 11). Gonostylus straight, without strong seta on the inner margin. Europe, Siberia. ..... ***B. sahlbergi*** **LUNDSTRÖM**
4 Apical processus of the gonostylus as in Fig 1. Unsclerotised area around the base of apical processus of gonostylus well developed. Teeth on the inner surface of the

gonostylus limited to distal part, not reaching the curve (Fig. 1). Apical part of tergite IX weakly sclerotized (Fig. 9). Aedeagus as in Fig. 3. Tadzhikistan. ..... ***B. hissarica* spec. nov.**

- Apical processus of the gonostylus as in Fig 2. Unsclerotised area around the base of apical processus of gonostylus hardly developed. Teeth on the inner surface of the gonostylus reaching the curve (Fig. 2). Tergite IX with oval sclerotised area in the middle (Fig. 4). Aedeagus as in Fig. 5. ..... ***B. erythropyga* HOLMGREN (North Europe)**
..... ***B. longicornis* JOHANNSEN (North America)**

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