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Some Fungivorous Species of Sphaeroceridae and
Drosophilidae (Diptera) from Karelia, USSR

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Abstract: The lists of the fungus host species for nine sphaerocerid and ten drosophilid species are given from materials collected in the Petrozavodsk region (Karelia, USSR). One species (*Limosina karelica* sp.n.) is new to science, two sphaerocerid and one drosophilid species are new for the fauna of the USSR.

Through the courtesy of Dr. E. B. JAKOVLEV (Institute of Forestry, Karelian Branch of the AN USSR, Petrozavodsk) I received a material of 49 vials with 89 specimens of Sphaeroceridae and 102 vials with 290 specimens of Drosophilidae, which had been reared by Dr. JAKOVLEV from fungi (Ascomycetes and Basidiomycetes) in the Petrozavodsk region. (Thus, all the material below is labelled as USSR, Russian SFSR, Petrozavodsk region, leg. E. B. Jakovlev, 1977-78.)

The fungivorous species of the family Sphaeroceridae are rather inadequately known. RICHARDS listed only nine species of the British Sphaeroceridae, which were found on fungi as imagos. The breeding records for fungivorous sphaerocerids are quite scattered (for references see PAPP, 1972), and only *Limosina fungicola* Halid. and *L. parapsio* Dahl seem common fungivorous species in Europe. In this material nine species of Sphaeroceridae were found; one of them, *Limosina karelica* sp.n. is new to science, two species (*Limosina czizeki* Duda and *Limosina schmitzi* Duda) are new for the fauna of the USSR. The hitherto unknown breeding medium for two species was ascertained and the mushrooms as breeding sites for other two species were established. Only one of the nine species (*Limosina parapsio* Dahl) was reared from fungi also in Hungary.

As regards the fungivorous species of the European Drosophilidae, numerous data are known (for detailed references see BURLA et BÄCHLI, 1968). The species of the *phalerata* species-group of the subgenus *Drosophila* are restricted to fungi as breeding media for their larvae but also some other drosophilid species are known to be fungivorous. Ten drosophilid species were found now, eight of them were reared from mushrooms also in Hungary (DELY-DRASKOVITS and PAPP, 1973). *Drosophila kuntzei* Duda is new for the fauna of the USSR. It is the first time that the breeding medium of the larvae of *Neoleucophenga quinque maculata* was ascertained.

My most sincere thanks are due to Dr. E. B. JAKOVLEV for giving me the opportunity to elaborate this interesting material.

Sphaeroceridae

Ischiolepta pusilla (Fallén, 1820) - 1 ♂: ex *Leccinium testaceoscabrum*, 1. 8. 78 (No. 22). Known as a coprophagous species, common on dung heaps.

Copromyza (Fungobia) fimetaria (Meigen, 1830) - 1 ♂: ex *Pyronema* sp., 1. 8. 78 (Dros. No. 28); 1 ♀: ex *Gyromitra esculenta* 23. 6. 77 (No. 28); 1 ♂: ex *Morchella conica* 29. 6. 77. (No. 41); 3 ♂, 1 ♀: 5. 7. 78 (No. 47, 48). The imagos have often been found on mushrooms in Scandinavia (Häckman, 1965).

Limosina claviventris Strobl, 1909 - 1 ♂, 1 ♀: ex *Gyromitra esculenta*, 25. 5. 78 (No. 33); 1 ♀: 31. 7. 78 (No. 12); 3 ♂, 2 ♀: ex *Leccinium scabrum*, 31. 7. 78 (No. 30, 32); 2 ♀: ex *Suillus luteus*, 3. 8. 78 (No. 34); 1 ♂, 1 ♀: ex *Boletus edulis*, 21. 8. 77 (No. 36). It is a terricolous species, known also from runs and nests of small mammals but the larvae feed probably exclusively on mycelia including the fruiting bodies of mushrooms.

Limosina czizeki Duda, 1918 - 1 ♀: ex *Gyromitra esculenta*, 21. 7. 78 (No. 23); 1 ♂: ex *Boletus edulis* (2. 7. 78). (No. 27). It is new for the fauna of the USSR (cf. NARTSHUK, 1970). This species has been known to be cavernicolous (DUDA, 1938). The mushrooms are new known media for the breeding of its larvae.

Limosina fungicola Haliday, 1836 - 1 ♂: ex *Peziza* sp., 1. 8. 78 (No. 18); 7 ♂, 9 ♀: ex *Gyromitra esculenta*, 14. 8. 77., 12. 6. - 15. 8. 78 (No. 13, 14, 19, 20, 23, 24, 31, 39); 1 ♂: ex *Morchella conica*, 31. 8. 77 (No. 45); 3 ♂: ex *Verpa bohemica*, 15. 8. 78 (No. 17); 2 ♂: ex *Fomes fomentarius*, 19. 6. 78 (No. 7); 1 ♀: ex *Amanita muscaria*, 10. 10. 77 (No. 38); 2 ♂: ex *Suillus luteus*, 24. 8. 77 (No. 44); 2 ♂, 3 ♀: ex *Boletus edulis*, 25. 6. - 30. 9. 78 (No. 8, 25, 35); 5 ♂, 2 ♀: ex *Leccinium scabrum*, 31. 7. 78, 6., 11. 9. 77 (No. 21, 26, 46); 2 ♂, 2 ♀: ex *Leccinium testaceoscabrum*, 18. 6., 1. 8. 78, 1. 9. 77 (No. 3, 16, 42); 2 ♂, 1 ♀: ex *Lactarius* sp., 10., 29. 8. 78 (No. 5, 9); 1 ♀: 2. 8. 78 (No. 29); 2 ♂: 7. 8. 77 (No. 43). It is a well known terricolous, mycophagous species, it has been reared from mushrooms also in USSR (PAPP, 1979).

Limosina karelica sp. n.

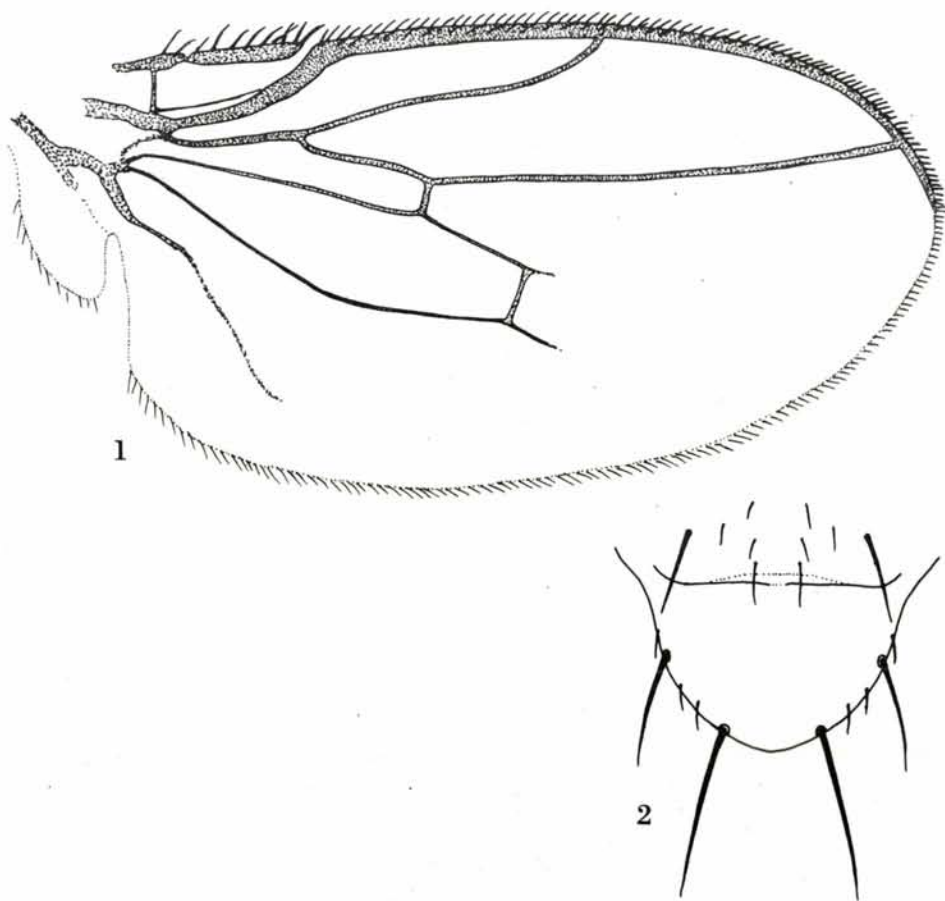
Body dark brown, wings light greyish brown with light brown veins. Bristles of head short, four pairs of very short if. Third antennal joint with long hairs apically. Arista 0.55 mm long, somewhat thickened (!) with moderately long pubescence. Vibrissae comparatively short, genal and peristomal bristles weak and short. Eyes big, smallest genal width only 1/3 or less of the longitudinal axis of eyes. Scutellum besides the two pairs of sc, with one pair of small basal sc and 2-3 small bristles on each side (Fig. 2) (not completely paired) between the basal and apical scutellars (Holotype: two on the left three on the right; paratype ♀: two bristles each on the left and on the right; other paratype: three on the left, two on the right). Only one pair of dc bristles in prescutellar position; acmi scattered four (more anteriorly six) poorly arranged rows between dc lines. One long and one short st, other thoracic bristles as usual. Legs comparatively short and thick. Mid tibia with a strong dorsal bristles at 4/5, moderately long anteroventral at 3/3, ventroapical bristle well developed; anterodorsals: a long one at 12/35 and one moderately long at 5/7; a row of 5 thick and short but still distinct posterodorsals from 3/7 to 6/7 of tibia. Costal index of holotype female: 0.94, vein r_{4+5} slightly upcurving (Fig. 1) ending far from wing apex. Costa produced very far beyond r_{4+5} . $t_a - t_p / t_p$ of holotype: 2.12. Halteres dark. Female cerci with one very long apical, on long dorsomedial and with some short hairs.

Length of body: holotype female: 1.58 mm, paratype females: 1.31-1.42 mm. Length of wing: holotype female: 1.49 mm, paratypes: 1.45-1.49 mm, width of wing: holotype female: 0.71 mm, paratypes: 0.67-0.70 mm.

Holotype female: USSR, Russian SFSR, Karelia, Petrozavodsk region, ex *Pyronema* sp., 1. 8. 1978, leg. E. Jakovlev. Paratypes: 2 ♀: data same as for holotype. The holotype and a paratype are deposited in the collection of the Zoological Institute, Academy of Sciences, Leningrad (preserved in alcohol), one paratype is in the collection of the Zoological Department of the Hungarian Natural History Museum, Budapest (pinned).

Limosina karelica sp. n. is an easily recognizable species. In contrast with all the known *Limosina* species its scutellum bears one pair of small basal scutellars and 2-3 short bristles on both sides between the apical and basal scutellars (Fig. 2). On its wings the up-curving vein r_{4+5} is very characteristic (Fig. 1). It has only one pair of dc and it does not fit to any known species-groups of the genus *Limosina*.

Limosina parapsuo Dahl, 1909 - 2 ♀: ex *Russula* sp., 10. 10. 78 (No. 2); 1 ♀: ex *Gyromitra esculenta*, 25. 7. 78 (No. 6). It is a well-known obligate mycophagous parthenogenetic species (PAPP, 1972, RICHARDS, 1930, DUDA, 1938). The species was already known from various fungus species.



Figs. 1-2. *Limosina karelica* sp. n., paratype female
1: wing, 2: scutellum, dorsal view

Limosina rufilabris Stenhammar, 1854 - 3 ♂, 1 ♀: ex *Leccinum testaceoscabrum*, 7., 15. 8. 78 (No. 11, 37). A little-known species, the above data are the first reliable ones concerning the places and the media for breeding of its larvae.

Limosima schmitzi Duda, 1918 - 2 ♀: ex Ramaria invali, 8. 11. 78 (No. 1); 1 ♂: ex Lactarius resimus, 5. 8. 78 (No. 15); 2 ♀: ex Leccinum testaceoscabrum, 20. 9. 77 (No. 40). New for the fauna of the USSR (cf. NARTSHUK, 1970, HACKMAN, 1972, PAPP, 1979). The imagos were found in the runs and nests of small mammals (RICHARDS, 1930), first of all on forest cleanings (DUDA, 1938), but the above data are the first concerning the breeding sites of the larvae.

Drosophilidae

Scaptomyza (Parascaptomyza) pallida (Zetterstedt, 1847) - 4 ♂, 2 ♀: ex Lactarius resimus, 29. 6. 78, 11. 8. 77 (No. 1, 20); 1 ♀: ex Suillus luteus, 16. 8. 77 (No. 35). A widely distributed Holarctic species, developing in vegetable debris (HACKMAN, 1955) and in mushrooms (DELY-DRASKOVITS and PAPP, 1973).

Neoleucophenga quinquemaculata (Strobl, 1893) - 4 ♂: 31. 7. 78 (No. 24); 2 ♂, 1 ♀: 31. 7. 78 (No. 25); 2 ♂, 2 ♀: 31. 7. 78 (No. 26). A very rare species, known only from Germany, Austria, Italy and the USSR. Hitherto the breeding media of the larvae were unknown, though its relative, Leucophenga maculata Duf. was reared many times from mushrooms.

Drosophila (Hirtodrosophila) trivittata Strobl, 1893 - 1 ♂: ex Lentinus lepideus, 10. 7. 78 (No. 27); 2 ♀: ex Pleurotus ostreatus, 2. 8. 78 (No. 104). A widely distributed but rare species (HACKMAN, 1957), in all probability its larvae develop exclusively in fungi.

Drosophila (Dorsilopa) busckii Coquillett, 1901 - 1 ♂, 1 ♀: ex Suillus luteus, 16. 8. 77 (No. 3, 17); 4 ♂, 2 ♀: ex Leccinum testaceoscabrum, 24. 7. - 8. 8. 77 (No. 4, 6, 16); 4 ♂: ex Lactarius resimus, 22. 8. 77 (No. 12); 1 ♀: ex Amanita muscaria, 10. 10. 77 (No. 13); 4 ♂, 1 ♀: ex Boletus edulis, 18. 8. 77 (No. 14); 3 ♀: ex Leccinum scabrum, 21. 6. 78, 6. 9. 77 (No. 15, 18). An omnivorous species, frequently reared also from fungi (see BURLA and BÄCHLI, 1968).

Drosophila (Drosophila) funebris (Fabricius, 1787) - 3 ♂, 1 ♀: ex Suillus luteus, 31. 10. 77 (No. 8); 3 ♂, 4 ♀: ex Boletus edulis, 30. 9. 77, 19. 9. 78 (No. 9, 11); 8 ♂, 2 ♀: ex Leccinum scabrum, 6. 7. 77, 2. 11. 78 (No. 10, 22); 2 ♀: ex Lactarius resimus, 22. 8. 77 (No. 7); 4 ♂: Gyromitra esculenta, 6. 7. 77 (No. 21).

Drosophila (Drosophila) kuntzei Duda, 1924 - 1 ♀: ex Lentinus lepideus, 12. 8. 78 (No. 68). New for the fauna of the USSR (cf. STACKELBERG, 1970). The larvae develop exclusively in fungi (without host specificity).

D. (Drosophila) limbata von Roser, 1840 - 2 ♂: ex Gomphidium glutinosus, 18. 8. 78 (No. 95); 1 ♂, 2 ♀: ex Rozites caperata, 18. 8. 78 (No. 96); 2 ♂ ex Hydnum coralloides, 18. 8. 78 (No. 97); 3 ♂: ex Russula sp., 21-23. 8. 78 (No. 98, 99); 1 ♂, 1 ♀: ex Laccaria laccata, 20. 8. 78 (No. 101). It appears to be the rarest species of the phalerata species-group of the subgenus Drosophila, which unites closely related species both morphologically and ecologically.

D. (Drosophila) phalerata Meigen, 1830 - 4 ♂: ex Tricholoma sp., 11. 8. 78 (No. 64); 2 ♂: ex Leccinum testaceoscabrum, 31. 6. 78 (No. 103). A common mycophagous species, known also from this region of the USSR (HACKMAN, 1957).

D. (Drosophila) testacea von Roser, 1840 - 2 ♂, 2 ♀: ex Amanita muscaria, 5. 9. 77 (No. 5). The larvae develop only in fungi (without host specificity).

D. (Drosophila) transversa Fallén, 1823 - 114 ♂, 84 ♀: ex Peziza sp., Gyromitra esculenta, Morchella conica, Verpa bohemica, Piptoporus boletinus, Lentinus lepideus, Amanita muscaria, Inocybe lacera, Suillus luteus, Suillus variegatus, Xerocomus subtomentosus, Boletus edulis, Leccinum scabrum, L. testaceoscabrum, Lactarius resimus, Lactarius necator, Russula aeruginea, Russula sp., Agaricales sp., 6. 7. - 30. 9. 77, 14. 6. - 23. 8. 78 (from 27 cultures). It is the commonest species in this material. The colour and pattern of the abdomen were found highly variable, the identifications are partly based on the study of the female and male genitalia. It is a common species in the entire Holarctic region but the larvae develop only in fungi. It was reared en masse from 139 fungus species in Hungary (see DELY-DRASKOVITS and PAPP, 1973).

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