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Two new species of *Phyllolabis* OSTEN SACKEN from the Alps (Diptera, Limoniidae)

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Phyllolabis mendli sp. n. and *Phyllolabis geigeri* sp. n. are described from the Austrian and Swiss Alps.

Keywords: *Phyllolabis mendli* sp. n., *Phyllolabis geigeri* sp. n., Limoniidae, Austria, Switzerland.

INTRODUCTION

The genus *Phyllolabis* OSTEN SACKEN, 1877, contains about 40 species (SAVCHENKO, 1989). Some 15 of these belong to the Palearctic region and 7 occur in Europe. Only three species are known from central Europe so far (SAVCHENKO *et al.*, 1992). Specimens belonging to this genus are characterized by the presence of very large and complex male terminalia as well as by living only in the mountains. An identification key for European species was given by NIELSEN (1961).

Examination of the material deposited in the Musée d'histoire naturelle, Neuchâtel, revealed two new species of *Phyllolabis* from Switzerland, mainly characterized by the structure of the male terminalia. Additional material was provided by H. MENDEL, Kempten/Allgäu, collected by H. JANETSCHKEK in Austria and listed as *Phyllolabis* sp. n. (JANETSCHKEK, 1982). One specimen was found in the collection of the Musée de zoologie, Lausanne.

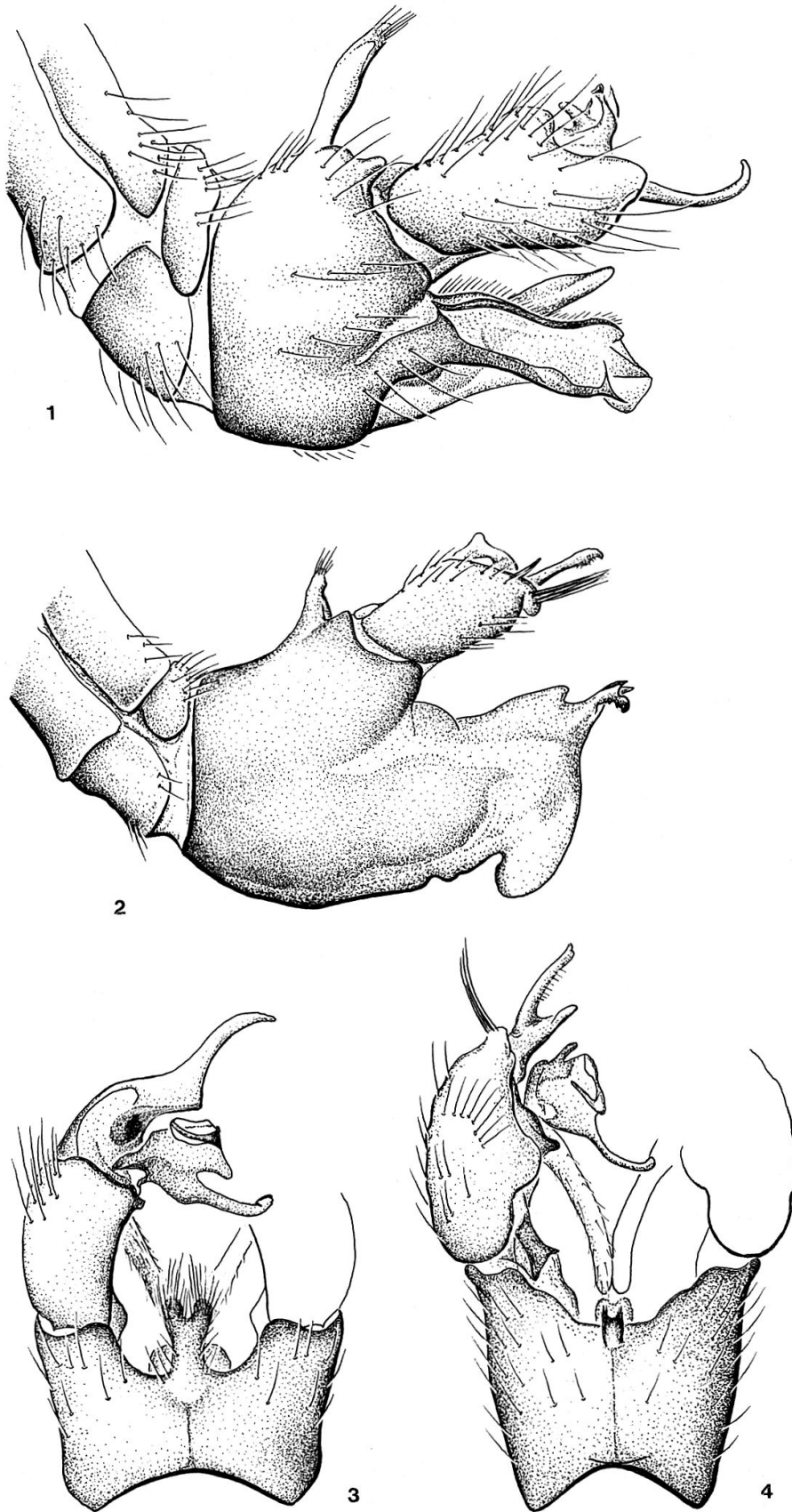
The following abbreviations are used when referring to the depository of the specimens studied: HM – collection of Hans MENDEL, Kempten/Allgäu, Germany; JS – collection of Jaroslav STARÝ, Olomouc, Czech Republic; MHN – Musée d'histoire naturelle, Neuchâtel, Switzerland; MZL – Musée de zoologie, Lausanne, Switzerland; ZMV – Zoological Museum of the Vilnius University, Vilnius, Lithuania.

DESCRIPTIONS

Phyllolabis mendli sp. n. (Figs 1, 3, 5, 7)

Diagnosis. General body colouration yellowish brown, abdomen paler than thorax. Male terminalia with posterior margin of tergite 9 deeply concave, with conspicuous, long, bilobed process medially. Body length 6.65–8.5 mm, wing length 7.6–9.0 mm.

Male. Head yellowish brown with darker area posteriorly beyond eyes. Palpus short, yellowish brown, covered with brown hairs. Antenna 16-segmented, yellowish brown, reaching somewhat beyond wing base. Scape cylindrical, pedicel



Figs 1–4: – 1: *Phyllolabis mendli* sp. n., male genitalia, lateral view (Obergurgl); – 2: *P. geigeri* sp. n., the same; – 3: *P. mendli* sp. n., male genitalia, dorsal view (Obergurgl); – 4: *P. geigeri* sp. n., the same.

oval, the former twice as long as the latter. Both these segments slightly darker than proximal flagellomeres. Flagellomeres elongate proximally, more or less oval distally. Verticils brown, from one third to half the length of the respective segments.

Thorax yellowish brown, dorsal part darker than pleuron. Prescutum without any stripes. Wings (Fig. 7) unpatterned, pterostigmal region and area around Rs fork slightly darkened. Wing membrane without macrotrichia. Venation as usual for the genus: Sc₁ ending approximately at level of R₂₊₃-R₄ fork; Sc₂ opposite half the length of R₂₊₃₊₄; Rs arcuated proximally, without any vein spur; R₂₊₃ and R₄ slightly sinuous, parallel to each other; discal cell pentagonal, generally narrow, about 2.5 times as long as high; cross-vein m-cu at fork of M₃ and M₄. Halteres yellow. Coxae yellowish brown. Femur 1: 5.0 mm, tibia 1: 6.2 mm, tarsus 1: 5.5 mm.

Abdomen yellowish brown. Male terminalia large and complex in structure, as usual for the genus, generally brown, yellowed distally. Posterior margin of tergite 9 deeply concave, with conspicuous, long, bilobed process medially. Species-specific structure of gonostyli and various other appendages are evident from Figs 1, 3, 5. Outline of aedeagal complex and associated parts of sternite 9 in lateral view is one of the most distinctive features (Fig. 1).

Female. Similar to male, but generally darker. Abdomen with rather dense, yellowish brown pubescence which covers nearly whole surface of all tergites and sternites. Cercus of female terminalia externally indistinguishable from *Phyllolabis geigeri* sp. n.

Material examined: Holotype ♂: Austria: Tirol: Obergurgl (2000 m), 12.VIII.1977 (label "MI, 77/08/12, 3.00–6.00") (H. JANETSCHEK leg., HM). – Paratypes: Switzerland/Valais: S. Bernard, 15.VIII.1980, 1 ♂, 2 ♀♀ (W. GEIGER leg., MHN). Austria/Tirol: Obergurgl, "Roßkar" (2630 m), 08.IX.1977, 1 ♂ (label "MIII, 77/09/08, 18.00–21.00") (H. JANETSCHEK leg., ZMV). The material is preserved in 75% ethanol.

Discussion. The wing membrane of *Phyllolabis mendli* sp. n. is without macrotrichia, and this is a good character separating it from the related *P. pubipennis* LACKSCHEWITZ, 1940. From all known European *Phyllolabis* species, *P. mendli* n. sp. differs by the structure of the male terminalia: the medial process of tergite 9 is nearly as long as in *P. pubipennis*, but differs from the latter by the bilobed tip (Fig. 3). Gonostyli and other appendages are very specific and provide good characters to separate this species.

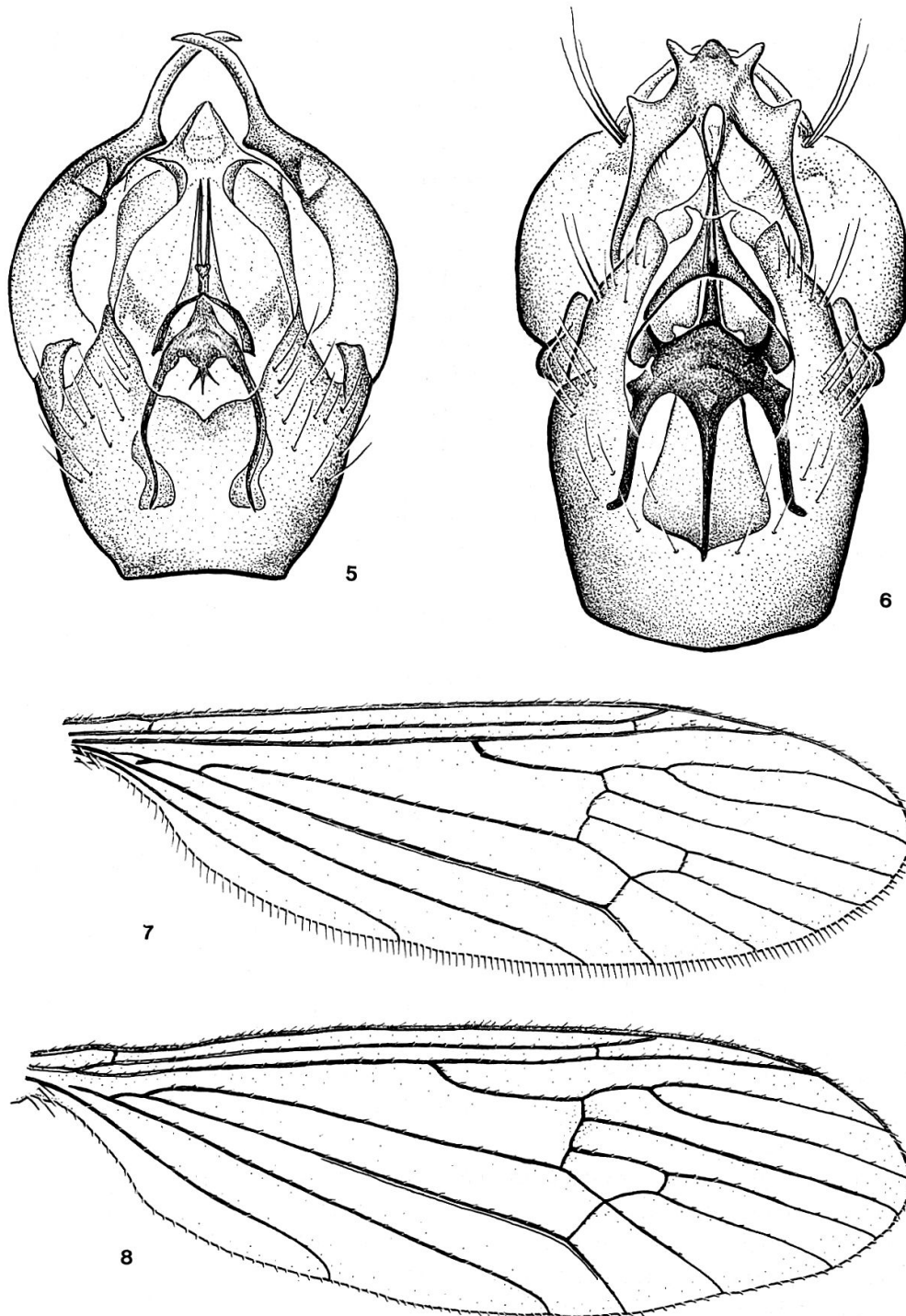
Ecology. High mountainous species collected at altitudes of 2000–2630 m, from mid-August to mid-September. The species is attracted by light. Habitats: hayfields with *Peucedanum-Ranunculus acer* growths rounded with *Trollius*, *Luzula alpino-pilosa* growths, and *Hygrocurvuletum* type of alpine meadows (with prevailing *Carex curvula*).

Derivation of name: We are honoured to dedicate this species to our friend and colleague Dr. Hans MENDEL, Kempten/Allgäu, Germany.

Phyllolabis geigeri sp. n. (Figs 2, 4, 6, 8)

Diagnosis. General body colouration brown, abdomen slightly paler than thorax. Male terminalia with posterior margin of tergite 9 rather concave, with short but distinct bifid process medially. Body length 6.5–8.3 mm, wing length 8.0–9.2 mm.

Male. Head greyish brown, sometimes with slightly darker area posteriorly beyond eyes. Palpus short, brownish, covered with sparse brown hairs. Antenna 16-segmented, brownish, reaching somewhat beyond wing base. Scape cylindrical,



Figs 5–8: – 5: *Phyllolabis mendli* sp. n., male genitalia, ventral view after boiling with KOH to show inner structures (Obergurgl); – 6: *P. geigeri* sp. n., the same; – 7: *P. mendli* sp. n., wing (Switzerland); – 8: *P. geigeri* sp. n., the same.

pedicel somewhat conical, the former twice as long as the latter. Both these segments slightly paler than proximal flagellomeres. Flagellomeres brownish proximally, becoming paler distally; flagellomeres 1 and 2 cylindrical, the former longer than the latter, the others shorter and more oval. Verticils from one third to half the length of the respective segments.

Thorax brown. Prescutum mostly plain, sometimes with three indistinct stripes. Scutellum paler, yellowed. Pleuron light-brown. Wings (Fig. 8) unpatterned, tinged with brownish, pterostigmal region and area around Rs fork slightly darker. Wing membrane without macrotrichia. Venation as usual for the genus: Sc₁ ending approximately at level of R₂₊₃-R₄ fork; Sc₂ opposite from one fourth to half the length of R₂₊₃₊₄; Rs arcuated proximally, without any vein spur; R₂₊₃ and R₄ straight, nearly parallel to each other; discal cell pentagonal, generally narrow, about 2.5 times as long as high; cross-vein m-cu at fork of M₃ and M₄. Halteres brownish. Coxae yellowish brown. Legs yellowed at base, becoming darker distally. Femur 1: 6.5 mm, tibia 1: 6.8 mm, tarsus 1: 6.1 mm.

Abdomen slightly paler than thorax. Segment 8 light-brown, both dorsally and ventrally. Male terminalia large and complex in structure, as usual for the genus, generally brown, only tips of appendages yellow. Posterior margin of tergite 9 rather concave, with short but distinct bifid process medially. Species-specific structure of various appendages, including gonostyli, is evident from Figs. 2, 4, 6. Outline of aedeagal complex and associated parts of sternite 9 in lateral view is one of the most distinctive features (Fig. 2).

Female. In body colouration and other external characters resembling male. Abdomen with yellowish pubescence. Cercus of female terminalia externally indistinguishable from *Phyllolabis mendli* sp. n.

Material examined: Holotype ♂: Switzerland/Uri, Urseren, Furkastraße (2000 m), mid-Sept. 1981 (L. REZBANYAI leg. – light trap, MHN). Paratypes: Austria/Tirol, Obergurgl, 24.VIII.1977, 1 ♂ (label “MI, 77/08/24, 3.00–6.00”) (H. JANETSCHEK leg., HM); Obergurgl, “Roßkar”, 25.VIII.1977, 1 ♂ (label “MIII, 77/08/25, 21.00–6.00”) (H. JANETSCHEK leg., HM); same locality, 08.IX.1977, 1 ♂ (label “MIII, 77/09/08, 18.00–21.00”) (H. JANETSCHEK leg., ZMV). Switzerland: Valais: Emosson (2000–2850 m) (label “558/101”), 09.VIII.1980, 1 ♂, 1 ♀ (C. RUEDI leg., JS); Moiry (2000 m) (label “609/111”), 17.IX.1980, 4 ♀ ♀ (W. GEIGER leg., MHN); Moiry (2400 m), 17.IX.1980, 2 ♂ ♂ (W. GEIGER leg., MHN); Proz, 23.VII.1948, 1 ♂ (F. SCHMID leg., MZL); Zermatt, Schwarzsee, 27.VII.1980, 1 ♂ (L. REZBANYAI leg. – light trap, JS). Except for the two latter specimens, the material is preserved in 75 % ethanol.

Discussion. As in the foregoing species, *Phyllolabis geigeri* sp. n. has the wing membrane without macrotrichia, which is a good character separating it from the related *P. gohli* MENDL, 1976, and *P. macroura* (SIEBKE, 1863). From all known European species of the genus it differs by the structure of the male terminalia: gonostyli and other appendages are very specific (Figs 2, 4, 6) and provide good characters to separate this species.

Ecology. High mountainous species collected at altitudes of 2000–2850 m, from late July to mid-September. It occurs in similar habitats as *P. mendli* sp. n., being likewise attracted by light.

Derivation of name. The new species is dedicated to our friend and colleague Dr. Willy GEIGER, Neuchâtel, Switzerland.

ACKNOWLEDGEMENTS

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