©www.senckenberg.de/; download www.contributions-to-entomology.org/

KENNETH A. SPENCER[1]

A revision of the palaearctic species of the genus *Ophiomyia* BRASCHNIKOV

(Diptera: Agromyzidae)

With 13 plates (Figs. 1—86)

Contents

I. Introduction . . . 773
II. Acknowledgments . . . 774
III. Systematic Treatment . . . 775
1. Key to genus *Ophiomyia* BRASCHNIKOV . . . 775
2. Genus *Ophiomyia* BRASCHNIKOV . . . 775
3. Key to Palaearctic *Ophiomyia* species . . . 777
4. Discussion of species . . . 779
Summary . . . 806
References . . . 807

I. Introduction

This paper is not intended as a comprehensive monograph but rather as an attempt briefly to clarify the status of all *Ophiomyia* species described in the Palaearctic region. Types of all but one species have been examined and illustrations of the male genitalia are given of all species except two recently illustrated by GRIFFITHS and SASAKAWA. Thirty-five species are considered, including three new species described below. 11 new synonymies and one important misidentification have been discovered.

The sub-genus *Ophiomyia* of *Agromyza* FALLÉN was erected by BRASCHNIKOV (1897: 40) for the single species *Agromyza pulicaria* MEIGEN, stated to be a leaf-miner on *Solidago virgaurea*. BRASCHNIKOV's sub-generic concept was limited to the position of the first cross-vein far from the wing base and of the second cross-vein far from the first, as opposed to the differing venation found in *Agromyza strigata* and *A. variegata*. HENDEL (1920: 114) raised *Ophiomyia* to generic status, designating the type as *curvipalpis* ZETTERSTEDT, which he accepted as the leaf-miner on *Solidago*, considering BRASCHNIKOV's type — *pulicaria* MEIGEN — a misidentification; he also amended the generic concept to species having dark halteres and a conspicuous facial keel ("nasenartig vortretenden Mediankiel") separating the base of the antennae.

HENDEL (1931—6: 180) gave as type of the genus *maura* MEIGEN which he now accepted as a senior synonym of *curvipalpis* ZETTERSTEDT; earlier (1920: 129) *maura* MEIGEN was identified as the leaf-miner on *Delphinium staphysagria*. Despite the obvious confusion of earlier workers over the identity of the *Solidago* leaf-miner, all specialists now accept *maura* MEIGEN as representing this species.

[1] Address: 19, Redington Road, Hampstead, London N.W. 3 (England).

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

No types of *maura* are known to exist but it is nevertheless not considered necessary to designate a neotype.

The two species *pinguis* FALLÉN and *madizina* HENDEL were later placed in a new sub-genus *Tylomyza* (HENDEL, 1931—6: 181), on the basis of the proclinate orbital setulae and lack of a vibrissal horn in the male. *Tylomyza* was raised to full generic status by ENDERLEIN (1936) and followed by FREY (1941), FRICK (1952) and other workers. However, the male genitalia of these two species agree closely with those of other *Ophiomyia* species. The direction of inclination of the orbital setulae is variable in the genus *Melanagromyza* in obviously closely-related stem-boring species and the possession of proclinate setulae in *pinguis* and *madizina* (= *nasuta* MELANDER) cannot be considered of generic or even sub-generic significance. It has also been found among South African and Australian species that the vibrissal horn may sometimes be lacking (SPENCER, 1960 and 1963a). *Tylomyza* HENDEL is therefore synonymised with *Ophiomyia* herewith.

The genus *Melanagromyza* HENDEL (1920: 126) was differentiated from *Ophiomyia* by the lack of a facial keel. It has now been found that four species hitherto placed in *Melanagromyza* — *pulicaria* MEIGEN, *beckeri* HENDEL, *cunctata* HENDEL and *orbiculata* HENDEL — clearly belong to *Ophiomyia* on the basis of the male genitalia, larval characters and biology[2]. With the transfer below of these four species to *Ophiomyia* the division between *Ophiomyia* and *Melanagromyza* becomes somewhat slender and there is no longer a clear-cut distinction in external characters. It can now also be seen that a number of species placed in *Melanagromyza* in other Regions (SPENCER, 1963a; 1963c) correctly belong in *Ophiomyia*.

In many cases it is impossible to identify single caught specimens from external characters. This applies particularly to females but an attempt has been made below to provide a key which can at least be considered as a tentative guide to the identification of males. Final confirmation will frequently only be possible by examination of the male genitalia.

II. Acknowledgments

A revisionary paper of this nature must be based primarily on the examination of holotypes and I am therefore particularly grateful to the following for the loan of type material:

H. ANDERSSON, The University, Lund.
M. BEIER, Naturhistorisches Museum, Vienna.
W. N. ELLIS, Zoologisch Museum, Amsterdam.
G. C. D. GRIFFITHS, London.
E. M. HERING, Berlin.
E. KJELLANDER, Naturhistoriska Riksmuseum, Stockholm.
G. MORGE, Deutsches Entomologisches Institut, Eberswalde; custodian of STROBL collection, Admont, Austria.
E. ROHDENDORF, Entomologický Ústav Čsav, Prague.
M. SASAKAWA, Kyoto Prefectural University, Japan.
G. STEYSKAL, Department of Agriculture, c/o U.S. National Museum, Washington.

[2] As this paper goes to press I have discovered that three further *Melanagromyza* species — *euphorbiae* HENDEL, *goniaea* HENDEL and *paracelsus* HERING — represent synonyms of *Ophiomyia* species and also that *M. simplex* (LOEW) correctly belongs in *Ophiomyia*. These four species will be discussed more fully in an appendix to a revision of European *Melanagromyza* species which is now nearing completion.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

I would also like to thank Dr. H. BUHR, Mühlhausen (Thuringia) for valuable information on some of the many new species in this genus which he has discovered. The relatively large number of species now known in Europe is largely due to Dr. BUHR's assiduous and skilful collecting during the past 30 years.

Finally, I would like to thank my wife for the preparation of the genitalia drawings, which in this genus are particularly difficult to illustrate owing to their asymmetry and lack of definite form.

III. Systematic Treatment

1. Key to genus *Ophiomyia* BRASCHNIKOV

With the transfer of the *pulicaria* group to *Ophiomyia* the following amendment must be made to HENDEL's generic key (1931—6: 16):

2 Antennae normally separated by distinctly raised facial keel; male normally with vibrissal fasciculus; if neither character present male genitalia distinctive, with basiphallus elongate with two distinct sidearms and a strongly chitinised base; larva with posterior spiracles on two raised stalks (*pulicaria* group) ..... *Ophiomyia* BRASCHNIKOV

—Antennae not separated by facial keel; male without vibrissal fasciculus; male genitalia without elongate basiphallus; larval posterior spiracles not raised on two stalks ..... *Melanagromyza* HENDEL

2. Genus *Ophiomyia* BRASCHNIKOV

Agromyza FALLÉN, sub-genus *Ophiomyia* BRASCHNIKOV, 1897. Type of sub-genus *maura* MEIGEN (misidentified as *pulicaria* MEIGEN). No types extant. —

Ophiomyia BRASCHNIKOV, HENDEL, 1920. Type of genus *maura* MEIGEN (misidentified as *curvipalpis* ZETTERSTEDT). —

Ophiomyia BRASCHNIKOV, sub-genus *Tylomyza* HENDEL, 1931—6. Type of sub-genus *pinguis* FALLÉN, in Naturhistoriska Riksmuseum, Stockholm. —

Tylomyza HENDEL, ENDERLEIN, 1936, **syn. nov.**

Adult: uniformly black species, without any trace of greenish or coppery sheen, squamal fringe black in palaearctic species (except *aeneonitens* STROBL) but often white in Ethiopian and Australian species (SPENCER, 1960 and 1963a); head: normally two *ors* and two *ori*, orbital setulae normally reclinate but sometimes proclinate and also mixed (cf. *beckeri* HENDEL and *cunctata* HENDEL), ocellar triangle only moderately shining (except in *senecionina* HERING), jowls normally distinctively projecting forwards and male normally with conspicuous vibrissal fasciculus (except in *pulicaria* group, couplets 2 to 5, p. 777 and also in a number of Ethiopian, Oriental and Australian species), distinct keel of varying width and height normally separating base of antennae (except in *pulicaria* group and several tropical species); mesonotum with two strong dorso-centrals (three in *nasuta* MELANDER and *orbiculata* HENDEL), numerous rows of acrostichals, no pre-scutellars; wing length from 1.75 mm to 3 mm, second cross-vein present (except in *aeneonitens* STROBL and *spicatae* SPENCER, 1963b); halteres normally black or brown (except in *aberrans* SPENCER, 1960 from South Africa and *punctohalterata* [FROST] from Central America [cf. SPENCER, 1963b]).

Male genitalia: aedeagus with distinctive form of basiphallus and distiphallus: basiphallus with two well-defined elongate side-arms fused at base adjoining

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

phallophore and then slightly diverging (cf. Fig. 7), occasionally the one side bending upwards (cf. Fig. 11); distiphallus large, normally weakly chitinized, asymmetric and sometimes partially rotated, consisting of a complex of two or more bladders enclosing the distal tubule, which is not always apparent; there is sometimes a distinct U- or V-shaped process above (cf. Fig. 60) and always a slender bladder below, representing the mesophallus; ninth sternite pointed at apex, occasionally with distinct hypandrial apodeme (cf. Fig. 69) and always with conspicuous ventral curvature; spermal sac with greatly enlarged, dark blade; surstyli rather uniform, with the two arms extending inwards and ending in some six to ten strong teeth (cf. Fig. 56).

Host-plants: 50% of the palaearctic species with known hosts feed on the single family Compositae. All except two species feed on only a single family, the two exceptions being *O. curvipalpis* ZETTERSTEDT on Compositae and apparently Leguminosae and *O. heringi* STARÝ on Compositae and Campanulaceae. The exact host distribution is as follows:

Family	Number of species
Compositae	12
Ranunculaceae	4
Campanulaceae	3
Caryophyllaceae	2
Leguminosae	2
Liliaceae	2
Cruciferae, Labiatae, Rubiaceae, Umbelliferae	1 each
Unknown	8

Biology: In the great majority of species the larva forms a shallow external stem mine, sometimes of considerable length, pupating in the stem with the anterior spiracles projecting through the epidermis. *O. melandryi* is unusual, forming a shallow mine inside the hollow stem. The feeding habit of the *pulicaria* group and of *O. gnaphalii* HERING varies slightly, the larva feeding primarily in the midrib of the leaf, forming irregular offshoots into the leaf-blade and pupating at the leaf-base. In this group the link with the stem-mining habit is shown when the larva sometimes moves from one leaf to another by mining along a short distance of the stem separating two leaves. The type of the genus, *O. maura* and *O. delphinii* are the only true leaf-miners in the Palaearctic region but other typical *Ophiomyia* species occur as leaf-miners in other regions, such as *O. solanivora* SPENCER in Madagascar and Africa and *O. cornuta* (DE MEIJERE) in the Pacific area.

Larva: a distinctive feature differentiating this genus from *Melanagromyza* HENDEL is the form of posterior spiracles. Each spiracular process consists of either three, most commonly between 6 and 12 or in a single species (*O. heracleivora* SPENCER) 30—40 bulbs raised on a distinct stalk (cf. SPENCER, 1957, Fig. 3).

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

In the closely related genus *Melanagromyza* this narrow stalk is always lacking and the spiracular bulbs lie directly on the last abdominal segment.

Distribution: known throughout the world, as shown in following table:

Region	Number of described species		
	Endemic	Occurring elsewhere	Total
Australian	4	3	7
Ethiopian	18	2	20
Nearctic	5	3	8
Neotropical	7	1	8
Oriental	4	2	6
Palaearctic	31	4	35

Total described world species: 75

The great disparity in numbers between the Palaearctic and other regions is certainly in part due to the more intensive collecting in Europe, in particular by Dr. H. BUHR, but my own collecting in many parts of the world suggests that this genus is not represented in any great numbers in the more tropical areas.

3. Key to Palaearctic *Ophiomyia* species

0 Distinct keel separating antennae or male with vibrissal fasciculus 4
— No obvious keel present, vibrissa normal 1
1 Orbital setulae all reclinate 2
— Orbital setulae both proclinate and reclinate 3
2 Two *dc*; frons not projecting above eye . . . . . *pulicaria* (MEIGEN)
— Three or four pre-sutural *dc*; frons strongly projecting above eye *orbiculata* (HENDEL)
3 Orbital setulae long, mainly proclinate, a few in front reclinate; jowls deepest in centre . . . . . *cunctata* (HENDEL)
— Orbital setulae shorter, mainly reclinate, a few behind proclinate; jowls deepest in front . . . . . *beckeri* (HENDEL)
4 Orbital setulae all proclinate 5
— Orbital setulae all reclinate 6
5 Two *dc*; first cross-vein at centre of discal cell; upper orbital bristles present in both sexes . . . . . *pinguis* (FALLÉN)
— Three *dc*; first cross-vein at anterior third of discal cell; upper orbital bristles lacking in male . . . . . *nasuta* (MELANDER)
6 Squamal fringe white, second cross-vein lacking, male without vibrissal fasciculus . . . . . *aeneonitens* (STROBL)
— Squamal fringe black, second cross-vein present, male with vibrissal fasciculus . . . 7
7 Costa extending only to apex of vein r_5 8
— Costa reaching apex of vein m_{1+2} 14
8 Small species, wing length at most 2.4 mm 11
— Larger, stouter species, wing length 2.6 mm- 3 mm 9
9 Last and penultimate sections of vein m_4 approximately equal, wing length 2.6 mm . . . . . *rapta* HENDEL
— Last section of vein m_4 distinctly longer than penultimate 10
10 Last section of m_4 almost 1½ times penultimate in ratio 22:30; very large species, wing length 2.8 mm; vibrissal horn conspicuously broad and short (Fig. 63) . . . . . *penicillata* HENDEL

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

10 Last section of m_4 almost twice penultimate, in ratio 16:28; wing length 2.6 mm; vibrissal horn longer, with normal curvature (Fig. 22) . . . . . *cornifera* HENDEL
11 Vibrissal horn short, broad, at end blunt and white (Fig. 45); facial keel low and narrow . . . . . *heringi* STARÝ
— Vibrissal horn with normal curvature (Figs. 4, 29, 78) 12
12 Facial keel broad, bulbous: small species, wing length 1.75—2 mm. in male 13a
— Facial keel narrow; larger species, wing length up to 2.4 mm 13
13 Vibrissal horn long (Fig. 4); *acr* in six rows at level of 2nd *dc* . . *alliariae* HERING
— Vibrissal horn distinctly shorter (Fig. 29); acr more numerous, in eight rows at 2nd *dc* . . . . . *delphinii* HENDEL
13a Vibrissal fasciculus short, whitish; last and penultimate sections of vein m_4 equal . . . . . *submaura* HERING
— Vibrissal fasciculus long, dark; last section of m_4 longer than penultimate ***vitiosa* sp. n.**
14 Vibrissal angle acute, at most 60° 15
— Vibrissal angle less acute, 70°—90° 18
15 Vibrissal horn normal, curving (Figs. 36, 48) 16
— Vibrissal horn conspicuously short and thick or greatly reduced, weak, white (Figs. 26, 40) 17
16 Last and penultimate sections of m_4 equal . . . . . *galii* HERING
— Last section of m_4 substantially shorter than penultimate . . . . . ***hieracii* sp. n.**
17 Vibrissal angle extending beyond antennae, conspicuously elongated, vibrissal horn rudimentary, white (Fig. 26) . . . . . *curvipalpis* (ZETTERSTEDT)
— Vibrissal angle shorter, vibrissal horn a stout bundle of incompletely fused hairs (Fig. 40) . . . . . *gnaphalii* HERING
18 Jowls relatively narrow, one-eighth to one-fifth eye height 19
— Jowls broader, one quarter to a half eye height 27
19 Last section of vein m_4 substantially shorter than penultimate, approximately in ratio 2:3 20
— Last and penultimate sections of m_4 about equal 22
20 Ocellar triangle brilliantly shining; third antennal segment enlarged *senecionina* HERING
— Ocellar triangle only moderately shining; third antennal segment normal 21
21 Mesonotum brilliantly shining black, facial keel not greatly raised below base of antennae . . . . . *thalictricaulis* HERING
— Mesonotum less shining, facial keel conspicuously high and narrow *labiatarum* HERING
22 Frons broad, twice width of eye 23
— Frons at most one and a half times width of eye 24
23 Very small species, wing length up to 1.9 mm, facial keel narrow . ***asparagi* sp. n.**
— Larger species, wing length 2.5 mm, facial keel conspicuously widening below antennae . . . . . *ranunculicaulis* HERING
24 Facial keel broad 25
— Facial keel narrow 26
25 Keel conspicuously raised above antennae . . . . . *campanularum* STARÝ
— Keel relatively flat . . . . . *maura* (MEIGEN)
26 Small species, wing length at most 2.3 mm; ratio of second costal segment to third 4½:1 . . . . . *melandricaulis* HERING
— Larger species, wing length 2.4—2.6 mm; ratio of second costal segment to third 4:1 . . . . . *aquilegiana* LUNDQUIST
27 Jowls half vertical height of eye . . . . . *major* (STROBL)
— Jowls narrower, one-third to a quarter eye height 28
28 Frons twice width of eye 29
— Frons narrower, one and a half times width of eye 31
29 Distance separating cross-veins about equal to length of first cross-vein . . . . . *eucodonus* HERING
— Distance separating cross-veins at least twice length of first cross-vein 30
30 Facial keel conspicuously raised below base of antennae . . . *melandryi* DE MEIJERE

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

— Facial keel broad but flat below base of antennae . . . . . *heracleivora* SPENCER
31 Vibrissal horn conspicuously short, blunt at end (Fig. 18); cheeks broad; jowls and cheeks about one-third vertical height of eye . . . . . *cichorii* HERING
— Vibrissal horn with normal curvature; cheeks narrower, jowls and cheeks one-quarter height of eye 32
32 Facial keel conspicuously broad; vibrissal horn long (Fig. 12) . . . *buccata* HENDEL
— Facial keel narrow; vibrissal horn short . . . . . *kwansonis* SASAKAWA

Six of the species of what may be for convenience termed the *maura* group — that is with jowls less than a quarter eye height and vibrissal angle more than 70° — are particularly difficult to distinguish on external characters. An attempt is made in couplets 23 to 26 to provide a key for these species, but it is realised that this is far from definitive. Six characters are tabulated below (p. 780) for these six species, and it is hoped that this may provide a further aid to their identification.

4. Discussion of species

Ophiomyia aeneonitens (STROBL)

Phytomyza aeneonitens STROBL, 1893: 308. Holotype ♀ believed lost, according to HENDEL not in coll. STROBL, Admont[3]; neotype, designated below, in Naturhistorisches Museum, Vienna. —
Ophiomyia aeneonitens (STROBL); HENDEL, 1920: 128; 1931—6: 182.

Adult: wing length 1.7 mm, costa ending at vein r_{4+5}, second crossvein lacking, wings conspicuously silvery white, squamae and fringe white. Jowls narrow, not greatly projecting forwards, male without vibrissal horn, cheeks forming narrow ring below eye (head illustrated by HENDEL, 1931—6, Fig. 206). Facial keel only slightly raised, rather narrow. Ocellar triangle brilliantly shining, orbits slightly so.

Male genitalia: aedeagus in side view as in Fig. 1, basiphallus with two separate arms, not fused basally and elongate as normal in the genus; ninth sternite (Fig. 2) with greatly elongated hypandrial apodeme, without ventral curvature; surstyli (Fig. 3) rounded on inner corner, bearing a row of short spines and some longer hairs below.

Host-plant: unknown.

Distribution: Austria, Tunisia.

Material seen:

Austria: Bisamberg, nr. Vienna, 1 ♂, genitalia slide 837, 20. 7. 1919 (HENDEL), neotype; 1 ♀, 13. vi. 1888. —
Tunisia: Gafsa, 1 ♀, 22. iii. 1903 (BIRÓ).

HENDEL states that STROBL's type is lost[3] and he labelled the male caught near Vienna as "Typus". I feel it is desirable to designate this specimen as neotype.

The female from Tunisia has a distinctly broader facial keel but otherwise agrees exactly with the two Austrian specimens.

[3] A recent examination of the STROBL collection has also confirmed that it contains no specimen of *aeneonitens* although one female (Melk, 30. 6. 1883) is mentioned in STROBL's handwritten catalogue. There is also no specimen of this species under *morionella* ZETTERSTEDT or *maura* MEIGEN, where it could be according to STROBL's own details in his catalogue. MORGE (Custodian of the STROBL collection)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

	aquilegiana	*asparagi*	*campanularum*	*maura*	*melandricaulis*	*ranunculicaulis*
wing length	2.4—2.6 mm	1.75—1.9 mm	2 mm	2.5 mm	2.3 mm	2.5 mm
length of last section of vein m_4 in relation to penultimate	slightly shorter	equal	slightly shorter	equal	slightly shorter	slightly shorter
facial keel	narrow, slightly widening	narrow, conspicuously raised	broad, flat	broad, flat	narrow, conspicuously raised	conspicuously widening
jowl width in relation to eye height	one-seventh	one-sixth	one-sixth to one-eighth	one-sixth	one-seventh	one-tenth
vibrissal horn	broad at base	normal curvature	slender	normal curvature	slender, short	distinctly bending upwards
frons width in relation to eye	1½	2	1½	1½	1½	2

The coloration and wing venation clearly suggest that this is an isolated species within the genus *Ophiomyia*. The male genitalia confirm this and depart significantly form the pattern normal in the genus. Both aedeagus and also the ninth sternite with the greatly elongated hypandrial apodeme closely resemble two Australian species, *Melanagromyza dianellae* KLEINSCHMIDT (1961) and *M. paramonovi* SPENCER (1963a). On this evidence a transfer of the species to *Melanagromyza* would seem correct. However, there seems no doubt that the most closely related species to *aeneonitens* is *O. spicatae* SPENCER (1963b), a stem-miner on *Baccharis spicata* HIERON, in Brazil. This has identical wing venation, similarwhite squamae, a broad facial keel but in the male a slender vibrissal fasciculus in place of the simple bristle present in *aeneonitens*. The genitalia of *O. spicatae* are those of a typical *Ophiomyia*.

In order to justify the transfer of *O. aeneonitens* to *Melanagromyza*, it would be necessary to accept that these two distinctive and similar species, *O. aeneonitens* and *O. spicatae*, represent parallel development from different ancestors in different genera. The alternative is that *O. aeneonitens* shows a remarkable differentiation in the genitalia but is nevertheless the sister species of *spicatae*. Neither hypothesis is entirely satisfactory but until the genitalia of more of the known species throughout the world in these two genera have been examined and a revision on a worldbasis is possible, it seems preferable to retain *aeneonitens* in *Ophiomyia*.

Ophiomyia alliariae HERING

Ophiomyia alliariae HERING, 1957, Band III: 9; BUHR, 1960: 85. Holotype ♂ in coll. HERING, Berlin.

Adult: costa reaching only to vein r_{4+5}, last and penultimate sections of m_4 equal, wing length 2.3 mm.; jowls extending slightly forwards, cheeks forming narrow ring below eye,

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

vibrissal horn rather long, regularly curving (Fig. 4); facial keel narrow, not widening below antennae, scarcely raised.

Male genitalia: aedeagus as in Fig. 5, ninth sternite slightly fused at apex, with normal ventral curvature.

Host-plant: *Alliaria officinalis* ANDRZ., *Cardamine bulbifera* (L.) CR.

Larva/Biology: Posterior spiracles with 11—13 bulbs, described in detail by HERING (1954: 122); larva forming external stem-mine.

Distribution: Germany, England.

Material seen:

Germany: Berlin, Botanical Gardens, 1 ♂, genitalia slide 759, 22. vii. 1951 (Hering), holotype. —

England: Hampstead, 1 ♀, 30. v. 1953 (K. A. S.).

This species is extremely close to *O. delphinii* and with caught specimens a certain identification will probably only be possible by examining the male genitalia.

Ophiomyia aquilegiana LUNDQUIST

Ophiomyia aquilegiana LUNDQUIST, 1947: 74. Holotype ♀ in Zoological Institute, University, Lund. —
Ophiomyia thalictrina GRIFFITHS, 1963: 128, **syn. nov.** Holotype ♂ in coll. GRIFFITHS, London.

Adult: wing length 2.4 mm. in male, 2.6 mm. in female, costa extending to vein m_{1+2}, last section of m_4 slightly shorter than penultimate. Jowls distinctly projecting forwards (Fig. 6), vibrissal horn strong, uniformly curving, cheeks forming only narrow ring below eye. Facial keel conspicuously widening below base of antennae, normally distinctly raised but somewhat variable.

Male genitalia: aedeagus forked at end and also with conspicuous forked process above, additional chitinized process above end of mesophallus (Fig. 7).

Host plants: *Aquilegia vulgaris* L., *Thalictrum flavum* L.

Larva/Biology: Posterior spiracles each with 6 or 7 bulbs, described by GRIFFITHS (1963: 130); larva forming external stem-mine with widely-spaced grains of frass (HERING, 1957: 105).

Distribution: Sweden, Germany, England.

Material seen:

England: Hunts., Woodwalton Fen, 1 ♂, genitalia slide 771, 1 ♀, leg. 28. ix. 1960 ex *Thalictrum flavum*, emerged March, 1961 (K.A.S.). —

Germany: Berlin, Botanical Gardens, 1 ♂, genitalia slide 813, 20. vi. 1950, ex *Aquilegia vulgaris* (HERING). —

Sweden: Lund, 1 ♂, genitalia slide 825, 1 ♀ leg. 2. ix. 1944, emerged March, 1945, both paratypes.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

The aedeagus of *O. thalictrina* was illustrated by GRIFFITHS (1963: Fig. 4). This is distinctive, unlike that of any other species in the genus and identical with that of the two specimens I have examined from *Aquilegia*. I therefore synonymise *thalictrina* with *aquilegiana* herewith.

This species is readily distinguishable from *O. thalictricaulis* by the more matt mesonotum and longer last section of vein m_4.

Ophiomyia asparagi sp. n.

Head (Fig. 8): frons almost twice width of eye, two equal *ors*, two equal *ori*, which are distinctly weaker than *ors*; jowls narrow, one-sixth vertical height of eye, cheeks filling almost half distance between eye and lower margin of jowls; vibrissal horn with normal curvature; facial keel narrow but conspicuously raised above antennae.

Mesonotum: acrostichals in some eight rows in front, diminishing to two rows at level of first *dc*.

Wing: length in male 1.75, in female 1.9 mm., costa extending to vein m_{1+2}, last and penultimate sections of m_4 equal.

Colour: entirely black, orbits and ocellar triangle weakly shining; mesonotum and abdomen brilliantly shining.

Male genitalia: aedeagus in side view as in Fig. 9, with distiphallus partially rotated, thus appearing largely in dorsal view; aedeagus when viewed ventrally (Fig. 10) shows distiphallus in side view; two small, characteristic processes lying within distiphallus; basiphallus well developed.

Larva: described by DE MEIJERE (1937: 184) as *Ophiomyia* sp.; posterior spiracles each a short projection bearing six bulbs.

Holotype ♂, Italy, Lido de Venezia, emerged 25. viii. 1963 from stem mines on *Asparagus* (?) *officinalis* L. found 13. viii. 1963; paratypes: 1 ♀, same data as holotype; 1 ♀, caught 20. viii. 1963 on *Asparagus*, same locality (all G. C. D. GRIFFITHS); Spain, hills above Barcelona, 1 ♂, genitalia slide 784, 20. iv. 1958 (K.A.S.); Yugoslavia: Korcula, East end, 1 ♂, genitalia slide 891, 22—27. V. 1955; Slovenia, Postojna, highland meadow, 1 ♂, genitalia slide 890, 22. vii—1. viii. 1958 (both R. L. COE); Istria, Brioni, 1 ♂, 1 ♀, ex *Asparagus acutifolius*, June, 1933 (BUHR).

Ophiomyia beckeri (HENDEL), comb. nov.

Melanagromyza beckeri HENDEL, 1923: 145; 1931—6: 161. Holotype ♂ in Naturhistorisches Museum, Vienna.

Adult: wing length up to 2.5 mm., costa extending to vein m_{1+2}, sections of m_4 variable, but last distinctly shorter than penultimate, no differentiated facial keel, male without vibrissal horn, jowls deepest in front, one-fifth to one-sixth vertical height of eye; orbital setulae unique in the genus, a few conspicuously proclinate above, remainder below reclinate (cf. HENDEL, 1931—6: Fig. 183).

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Male genitalia: aedeagus in side view as in Fig. 11, ninth sternite with typical ventral curvature, aedeagal apodeme elongated, conspicuously flattened laterally.

Host-plants: *Crepis*, *Hypochoeris*, *Launaea*, *Leontodon*, *Picris*, *Taraxacum*.

Larva/Biology: described by DEMEIJERE (1943:66; 1946: 66), posterior spiracles each with 10—12 bulbs on a short stalk; larva forms a whitish mine along the midrib, with lateral offshoots into the leaf-blade, pupating in the leaf-base.

Distribution: Europe, South Africa, N. India (Chandigarh, Delhi).

Material seen:

Austria: 1 ♂, 2 ♀♀, in type series of *pulicaria* (MEIGEN), coll. WINTHEM, Vienna. —

England: Kent, Sandwich Bay, 1 ♂, genitalia slide 283, 30. vii. 1951 (E. A. FONSECA); Essex, Thames Marshes, 1 ♂, genitalia slide 877, 1 ♀, 30. vii. 1927; Somerset, Berrow, 1 ♀, 16. v. 1954 (E. A. FONSECA); Dorset, Portland, 1 ♀, 5. vi. 1963 (K.A.S.). —

France: Perpignan, 1 ♀, on *Cynara scolymus* L., 24. v. 1959 (K.A.S.); Verson, nr. Caen, 1 ♀, ex *Hypochoeris* (BUHR, 4943); La Baule, Loire, 1 ♀, ex *Leontodon hispidus* L. (BUHR, 5019). —

India: Chandigarh, 1 ♂, ex *Launaea nudicaulis* (L.) Hook. f., 1961 (SEHGAL); Delhi, leafmines on same host, Nov. 1962 (K.A.S.). —

South Africa: Pretoria, 1 ♂, ex *Sonchus*, 8. iii. 1956 (L. VÁRI); Cape Province, Banhoek Valley near Stellenbosch, 1 ♂, 1 ♀, 30. i. 1964, ex *Sonchus*; Table Mountain, 2 ♂♂, 3 ♀♀, 29. i. — 6. ii. 1964 (K.A.S.). —

Spain: Casteldefels, nr. Barcelona, 1 ♂, genitalia slide 876, 18. iv. 1958 (K.A.S.); Villalba, nr. Madrid, 1 ♀, 22. iv. 1958 (K.A.S.); Canary Is.: La Palma, 1 ♂ (holotype), 1 ♀, April, (BECKER, 47498); Tenerife, Laguna, 1 ♂, 1 ♀, April (BECKER, 47622).

This species is immediately recognisable by the distinctive orbital setulae, as illustrated by HENDEL.

Ophiomyia buccata HENDEL

Ophiomyia buccata HENDEL, 1931—6: 183. Lectotype ♂ in Naturhistorisches Museum, Vienna.

Adult: wing length 2.7 mm., costa extending to vein m_{1+2}, last section of m_4 only slightly shorter than penultimate, in ratio 24:23; jowls one-quarter vertical height of eye, cheeks well formed below eye (Fig. 12); vibrissal horn long; facial keel broad, with distinct furrow above, somewhat raised below base of antennae; frons broad, only slightly less than twice width of eye, orbits not greatly differentiated, not projecting above eye in profile; *acr* short, in 4 or 5 rows, not extending behind 2nd *dc*.

Male genitalia: aedeagus in side view as in Fig. 13, in ventral view as in Fig. 14, entirely distinct from all other species known in the genus.

Host-plant: unknown.

Distribution: Austria.

Material seen:

Austria: Baden, nr. Vienna, 2 ♂♂, genitalia slide 815, May.

I have selected as lectotype one of two males labelled by HENDEL as Type.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Ophiomyia campanularum STARÝ

Ophiomyia campanularum STARÝ, 1930: 229. Holotype ♂ in coll. STARÝ, Prague.

Adult: wing length 2 mm., last section of m_4 variable, but normally slightly shorter than penultimate in ratio 18: 20; frons at foremost ocellus only slightly less than one and a half times width of eye; jowls and vibrissal horn as in *melandricaulis* (Fig. 15); facial keel broad, distinctly raised above base of antennae.

Male genitalia: aedeagus as in Figs. 16, 17, distiphallus and basiphallus pale, V-shaped process relatively high above distiphallus, with distinct membranous connection with basiphallus.

Host-plant: *Campanula rotundifolia* L.

Larva/Biology: posterior spiracles each with five bulbs, described by DE MEIJERE (1938: 69); larva forming external stem-mine, with frass in large, widely-spaced grains (HERING, 1957: 224; 1960: 124).

Distribution: Czechoslovakia, Germany.

Material seen:

Germany: Thuringia, Berka (Werra), 1 ♂, genitalia slide 864, 1 ♀, 10. viii. 1959, ex stem-mine in *Campanula rotundifolia* (BUHR).

This species is extremely close to *melandricaulis* but with the limited material available the differences in genitalia suggest the two species are distinct. The acial keel also appears to be distinctly broader than in *melandricaulis*.

Ophiomyia cichorii HERING

Ophiomyia cichorii HERING, 1949: 21. Holotype ♂ in Zoological Museum, Berlin.

Adult: wing length 2.4 mm.; costa extending to vein m_{1+2}, last and penultimate sections equal; frons twice width of eye; jowls very broad, almost one-third vertical height of eye, cheeks over half depth of jowl; vibrissal horn stout at base, short, straight, whitish at end (Fig. 18); facial keel broad, flat above, more raised at base of antennae, uniformly tapering below.

Male genitalia: aedeagus as in Figs. 19, 20, ninth sternite (Fig. 21) with distinctive curvature, slightly upturned at apex.

Host-plant: *Cichorium intybus* L.

Larva/Biology: posterior spiracles each with 9 or 10 bulbs (DE MEIJERE, 1950: 19), larva forming external stem-mine (HERING, 1957: 292).

Distribution: E. France.

Material seen:

France: Lorraine, Kaltenhofen, 1 ♂, genitalia slide 796, ex *Cichorium intybus* (BUHR, 5303), holotype.

This species is readily recognisable by the distinctive shape of the jowls.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Ophiomyia cornifera HENDEL

Ophiomyia cornifera HENDEL, 1920: 129; 1931—6: 183. Holotype ♂ in Zoologisches Museum, Berlin.

Adult: wing length 2.6 mm., costa ending at vein r_5, last section of m_4 almost twice length of penultimate; jowls broad, with orbits greatly projecting above eye and cheeks deeply extended below (Fig. 22); vibrissal horn broad with normal curvature; facial keel narrow but conspicuously raised above base of antennae.

Male genitalia: aedeagus asymmetric, in side view as in Fig. 23, distiphallus in ventral view as in Fig. 24.

Host-plant: unknown.

Distribution: Greece.

Material seen:

Greece: Athens, 1 ♂, genitalia slide 775, 1 ♀, Apr. (?year), (BECKER, No. 49921).

HENDEL does not mention the female, which was in cop. with the male holotype.

Ophiomyia cunctata (HENDEL), comb. nov.

Melanagromyza cunctata HENDEL, 1920: 126; 1931—6: 164. Holotype ♀ in Naturhistorisches Museum, Vienna.

Adult: wing length 2.5 mm., costa extending to vein m_{1+2}, last and penultimate sections of m_4 equal; no differentiated facial keel, male without vibrissal horn; jowls rounded, deepest in centre, one-seventh vertical height of eye; orbital setulae unique in the genus, long, proclinate except a few in front which are distinctly reclinate (cf. HENDEL, 1931—6: Fig. 186).

Male genitalia: aedeagus in side view as in Fig. 25, ninth sternite with typical ventral curvature.

Host-plant: *Crepis, Hypochoeris, Lampsana, Mycelis, Picris, Sonchus, Taraxacum.*

Larva/Biology: larva described by DE MEIJERE (1925: 252, as *Ophiomyia* sp.), posterior spiracles each with 9 bulbs; leaf-mine as in *beckeri.*

Distribution: Widespread in Europe; reported from the Canary Is. and North Africa but not otherwise known outside Europe.

Material seen:

Austria: Kirchberg, 1 ♀, 26. vi. 1962 (HERING); Langenzersdorf, 1 ♀, June, holotype. —

England: Hampstead, London, 1 ♂, genitalia slide 285, ex *Sonchus asper*, 29. vii. 1953 (K.A.S.); Glos., Coombe Dingle, Nr. Bristol. 1 ♂, 22. v. 1948 (E. A. FONSECA); Bucks., Tring, 1 ♀, 9. viii. 1958 (K.A.S.); I. o. W., Blackgang, 5 ♀♀, ex *Taraxacum officinale*, 14. ix. 1955 (K.A.S.). —

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

France: Loire, La Baule, 1 ♂, 27. vii. 1943, ex *Crepis virens* (BUHR). —

Germany: Berlin-Dahlem, 1 ♂, 3. vii. 1955, ex *Sonchus oleraceus* (HERING); 1 ♂, genitalia slide 285, 25. vii. 1953, ex *Taraxacum officinale* (K.A.S.); Thuringia, Mühlhausen, 1 ♂, 1 ♀, 12. viii. 1954, ex *Crepis biennis* (BUHR); 1 ♀, ex *C. virens*, 27. vii. 1954 (BUHR); 1 ♂, 1954 ex *Lampsana communis* (BUHR, 725); 1 ♀, 1954, ex *Mycelis muralis* (BUHR, 725); 1 ♀, 1954, ex *Picris hieracoides* (BUHR, 734); 1 ♀, 1954, ex *Sonchus oleraceus* (BUHR, 700); 1 ♂, 1 ♀, 8. vi. 1955, ex *Taraxacum officinale* (BUHR); Kyffhäuser, Ochsenburg, 2 ♀♀, 1960, ex *Hypochoeris maculata* (BUHR, 1561 and 1652); Barbarossahöhle, 2 ♀♀, 29. vii. 1955, ex *H. uniflora* (BUHR).

Hungary: Szeged, 1 ♀, 18. v. 1901 (KERTÉSZ).

Spain: Elche, 1 ♂, May ,1933, ex *Mycelis muralis* (HERING).

Sweden: Stockholm, 1 ♀, 6. viii. 1950, ex *Sonchus arvensis* (HERING).

This species is immediately recognisable by its distinctive orbital setulae. The genitalia are typical of *Ophiomyia*, to which genus *cunctata* is now transferred.

Ophiomyia curvipalpis (ZETTERSTEDT)

Agromyza curvipalpis ZETTERSTEDT, 1848: 2782. Holotype ♂ in University collection, Lund. —
Agromyza proboscidea STROBL, 1900: 91, **syn. nov.** Two ♀ syntypes in coll. STROBL, Admont, Austria. —
Agromyza prominens BECKER, 1908: 170, **syn. nov.** Syntypes in Zoologisches Museum, Berlin. —
Ophiomyia proboscidea (STROBL), HENDEL, 1920: 129; 1931—6: 194—6. —
Ophiomyia curvipalpis (ZETTERSTEDT), HENDEL, 1920: 130; 1931—6: 188—9 (as *maura* MEIGEN). —
Ophiomyia achilleae HERING, 1937: 562, **syn. nov.** Holotype ♂ in Zoologisches Museum, Berlin.

Adult: Small species, wing length from 1.75 mm. in male to 2.2 mm. in female, in both female syntypes 1.9 mm; costa extending to vein m_{1+2}, two sections of m_4 equal. Jowls very conspicuously elongated and extended forwards, ending in a rudimentary, white vibrissal horn (Fig. 26); in female there is a normal, slender vibrissa. Facial keel moderately broad and raised below antennae.

Male genitalia: aedeagus as in Figs. 27, 28; distiphallus symmetrical, with two brown, somewhat spotted, oval bladders which arise from semicircular arms, united at base; the basiphallus is elongated, with the right-hand arm (viewed from front and below) more strongly chitinized, but varying from pale brown to black; ninth sternite similar to that of *O. penicillata* (cf. Fig. 69); surstyli projecting inwards, with a few stout hairs at end.

Host-plants: *Achillea millefolium* L. and *A. ptarmica* L.; *Anthemis tinctoria* L.; *Artemisia vulgaris* L.; *Matricaria inodora* L. Probably also *Medicago sativa* L.

Larva/Biology: larva described by DE MEIJERE (1937: 187; 1938: 72, as *achilleae*), posterior spiracle seach with three bulbs; stem-mine described by HERING (1957: 25, as *achilleae*).

Distribution: widespread in Europe incl. Canary Islands.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Material seen:

Austria: Vienna, 1 ♂, 26. v. ?, coll. HENDEL; Süd-Steirm., 1 ♀ (STROBL). —

England: Epsom, Surrey, 1 ♂, genitalia slide 625, 10. v. 1955 (K.A.S.); Boxhill, 2 ♀♀, 18. vii. 1956 (K.A.S.); Portland, Dorset, 1 ♂, 5. vi. 1963 (K.A.S.).

Germany: Mecklenburg, Neubrandenburg, 1 ♂, genitalia slide 846, 18. iii. 1936, ex *Artemisia vulgaris* L. (E. M. HERING); Warsow, 1 ♂, genitalia slide 642, 24. viii. 1935, ex *Achillea millefolium* (holotype of *O. achilleae* HERING) (BUHR). Silesia, Liegnitz, 1 ♀, July (BECKER, No. 35059). —

Hungary: Budapest, 1 ♂, genitalia slide 626, Apr. 1928 (UHL); 1 ♀, 12. v. 1896 (KERTÉSZ). Gyor, 1 ♀, July, 1904 (KERTÉSZ). Czik Szépvis, Kis Havas, 1085 m., 1 ♂, 1 ♀, 6. vii. 1917 (FODOR). —

Spain: Canary Islands, Tenerife, Orotava, 1 ♂, 1 ♀, in cop., syntypes of *prominens* BECKER, January (BECKER, No. 46959); 1 ♂, genitalia slide 627, 21. vii. 1931 (R. STORÅ); 1 ♀, 15. ii. 1963 (K. A. S.); Laguna, 1 ♂, April (BECKER, No. 47618). Also additional material from Tenerife in the University Museum, Helsinki. —

Sweden: 1 ♂ (ZETTERSTEDT), holotype. —

U. S. S. R.: Chiva, 1 ♀, 14. iv. 1927 (L. ZIMIN). —

Yugoslavia: Volosca, 2 ♀♀ (syntypes) of *proboscidea*, coll. STROBL; Österr. Litorale, 1 ♀ (STROBL); Macedonia, Lake Ochrid, 1 ♂, 14—19. vi. 1958 (R. L. COE).

The name *curvipalpis* was widely used by 19th century authors but was later synonymised with *maura* MEIGEN by HENDEL (1931—6: 188). I have now examined the holotype in Lund — labelled as a ♀ but in fact a ♂ — and can confirm that the species is not *maura* MEIGEN, which is accepted as the leaf-miner on *Solidago*, but is identical with *proboscidea* STROBL.

Examination of the two female syntypes of *proboscidea* confirms that HENDEL correctly interpreted this species. Comparison of the genitalia of a male from Tenerife of the species described by BECKER as *Agromyza prominens* with males from other parts of Europe shows that HENDEL was also correct in synonymising *prominens* with *proboscidea*. Obviously, however, HENDEL had never examined the holotype of *curvipalpis* and thus failed to establish the true identity of *proboscidea*. The holotype of *O. achilleae* HERING clearly represents the same species and *achilleae* is therefore synonymised with *curvipalpis* herewith.

This is the only European species in which the larva is known to have only three well-defined bulbs on the hindspiracles. A puparium I found at Lake Garda, Italy on *Medicago sativa* L. has this same spiracular arrangement. GRIFFITHS found numerous mines on *Medicago* near Venice on 18. viii. 1963. Unfortunately only females have been reared but these are indistinguishable from the species feeding on Compositae and it thus seems virtually certain that *curvipalpis* also occurs on *Medicago*. It is to be hoped that in due course males will be reared to provide confirmation on this important point.

A female from Potlatch Ida, 20. vi. 1907, in the Naturhistorisches Museum, Vienna, has similar projecting jowls but is substantially larger and possibly represents a further species. This is somewhat similar to but not certainly identical with the female referred to by STROBL (1900: 92) as *proboscidea* forma *major*. Until

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

males are available which can be associated with these large females, it is not desirable to treat either of them as a new species.

HERING incorrectly interpreted *proboscidea* and in a number of papers has used this name for the species bred from *Hieracium umbellatum*, described later in this paper as *hieracii* SPENCER. This misidentification accounts for HERING considering the species on *Achillea* as new and describing it as *achilleae* sp. n.

Ophiomyia delphinii HENDEL

Ophiomyia delphinii HENDEL, 1926—8: 81. Lectotype ♂, designated below, in Naturhistorisches Museum, Vienna.

Adult: wing length from 2 mm. in male to 2.4 mm. in female, costa ending just beyond vein r_5, last and penultimate sections of m_4 equal; jowls one-sixth vertical height of eye, only slightly projecting, forming angle of 60° (Fig. 29); facial keel narrow, normally with slight furrow.

Male genitalia: aedeagus with elongated basiphallus typical of the genus, mesophallus — distiphallus complex distinctly rotated, highly asymmetric, in approximate side and ventral views as in Figs. 30, 31; ninth sternite with typical ventral curvature.

Host-plant: *Delphinium staphysagria* L.

Larva/Biology: posterior spiracles each with 8 bulbs; larva forms a long, whitish, upper surface, linear mine, pupating in the leaf. Virtually all leaves of the half-dozen or so plants I saw in June, 1962 were heavily infested, with up to 20 larvae in a single leaf.

Distribution: Dalmatia.

Material seen:

Yugoslavia: Dalmatia, 5 ♂♂, genitalia slide 924, 2 ♀♀, syntype series (FRAUENFELD); Zlarin Is., nr. Šibenik, 37 ♂♂, genitalia slides 631 and 923, 18 ♀♀, June 1962 (K. A. S.).

This species was first discovered by FRAUENFELD (1855) and was identified by SCHINER (1856) as *Agromyza maura* MEIGEN. HENDEL (1920: 129) included the species in his key as *maura* MEIGEN, mentioning the locality — "Dalm." and 8 specimens; later (1928: 81) he recognised the species as distinct from *maura* and named it *delphinii* nom. nov. without however giving a description but merely referring to SCHINER's statement: „Die Larve miniert in den großen tiefgeschlitzten Blättern" (von *Delphinium staphysagria* L.). In his monograph HENDEL (1931—6: 185) gives a brief description, again mentioning Dalmatia as the single locality.

In the Zoologisches Museum, Vienna there is a female, without date, caught in the meadows beside the Danube, labelled by HENDEL as Type of *O. delphinii*. This specimen does not represent FRAUENFELD's species and is now described below as *vitiosa* sp. n. The selection of this specimen by HENDEL as type is clearly with-

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

out any justification and is the result of an obvious error. I have examined FRAUENFELD's original eight specimens referred to by HENDEL in 1920; seven of these represent *delphinii*, one is a female *Melanagromyza* sp., which can be ignored. I have selected and labelled one male as lectotype, the other six are labelled as paralectotypes.

Ophiomyia eucodonus HERING

Ophiomyia eucodonus HERING, 1960: 121. Holotype ♀ in coll. HERING, Berlin.

Adult: Wing length 2.1 mm., costa extending to vein m_{1+2}, last section of m_4 equal to or slightly longer than penultimate, first cross-vein own distance removed from second; frons broad, twice width of eye; jowls almost one-quarter vertical height of eye; facial keel flat, with distinct central furrow, distinctly widening below base of antennae; vibrissal horn in male short, regularly curving (Fig. 32).

Male genitalia: aedeagus in side view as in Fig. 33, showing slender dorsal process above mesophallus, and in ventral view as in Fig. 34; ninth sternite broadly fused at apex, with blunt hypandrial apodeme but typical ventral curvature (Fig. 35).

Host-plant: *Campanula trachelium* L. and *C. rapunculoides* L.

Larva/Biology: Larva described by HERING (1956: 261), as *Ophiomyia* spec., posterior spiracles each with 9 bulbs; external stem-mine described by HERING (1957: 223), as *Ophiomyia* spec.

Distribution: Germany: Thuringia.

Material seen:

Germany: Thuringia, Nazza/Hainich, 1 ♂, genitalia slide 797, ex *Campanula trachelium*, 29. iii. 1960 (emerged in room temperature).

The mine of this species is immediately distinguishable from that of the other *Campanula* feeders, *O. campanularum* and *O. heringi* by the virtual absence of frass.

Ophiomyia galii HERING

Ophiomyia galii HERING, 1937: 580. Lectotype ♂ in Zoologisches Museum, Berlin.

Adult: wing length 1.9 mm., costa extending to vein m_{1+2}, last and penultimate sections of m_4 equal; frons one and a half times width of eye, not projecting above eye in profile; jowls (Fig. 36) one-sixth vertical height of eye, extended forward to form angle of 45°, vibrissal horn in male broad at base, tapering to single slender hair, cheeks broad; facial keel broad, bulbous, without central furrow.

Male genitalia: aedeagus as in Fig. 37, ninth sternite (fig. 38) with conspicuous ventral curvature, spermal sac large (Fig. 39).

Host-plant: *Galium mollugo* L.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Larva/Biology: larva described by DE MEIJERE (1937: 186; 1938: 73), posterior spiracles each with four to five bulbs; external stem-mine, with frass in large, widely-spaced grains, described by HERING (1957: 464).

Distribution: Widespread in Europe with food-plant.

Material seen:

Germany: Rostock, 1 ♂, genitalia slide 646, 5. vii. 1943, ex *Galium mollugo* (BUHR), syntype, now designated as lectotype.

Ophiomyia gnaphalii HERING

Ophiomyia gnaphalii HERING, 1949: 20. Holotype ♂ in Zoologisches Museum, Berlin.

Adult: wing length 1.8 mm., costa extending to m_{1+2}, last and penultimate sections of m_4 equal; frons just less than twice width of eye, orbits well differentiated but not projecting above eye in profile; jowls (Fig. 40) greatly extended forwards, forming angle of less than 45°, vibrissal horn in male consisting of a short brush of largely unfused hairs; facial keel flat above, broad but not greatly raised.

Male genitalia: aedeagus distinctive, as in Figs. 41, 42.

Host-plant: *Gnaphalium silvaticum* L.

Larva/Biology: posterior spiracles each with some eight bulbs; larva forms irregular, upper surface mines in basal leaves, often beside mid-rib, pupating in leaf-base.

Distribution: Germany.

Material seen:

Germany: Rostock, 1 ♂, genitalia slide 887, ex *Gnaphalium silvaticum*, 12. iii. 1949 (BUHR), holotype.

This species is immediately distinguishable from all others by the distinctive form of the jowls and vibrissal horn. It is not satisfactory to differentiate this species as having only a single *ori* (cf. HERING, 1960: 122); in the holotype the normal two *ori* are present on one side.

Ophiomyia heracleivora SPENCER

Ophiomyia heracleivora SPENCER, 1957: 162–164. Holotype ♂ in author's collection.

Adult: wing length up to 2.7 mm., costa extending to m_{1+2}, last section of m_4 slightly shorter than penultimate (cf. SPENCER, 1957: Fig. 2); jowls broad, up to one-quarter vertical height of eye, not greatly projecting, forming an angle of 80°, vibrissal horn in male long, narrow, uniformly curving (cf. SPENCER, 1957: Fig. 1); facial keel wide above, narrowing at base of antennae and again widening below, but scarcely raised, distinct furrow present.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Male genitalia: aedeagus as in Figs. 43, 44; basiphallus typical of the genus, mesophallus long, linear, slightly separated from the greatly reduced, symmetrical paired process representing the distiphallus; spermal sac abnormally small.

Host-plant: *Heracleum sphondylium* L.

Larva: posterior spiracles each with some 30—40 bulbs (cf. SPENCER, 1957: Fig. 3); larva forms external mine either on stem or stalk of leaves, pupating either at leaf-base or beneath epidermis of main stem.

Distribution: England.

Material seen:

Surrey: Bookham, 1 ♂, genitalia slide 769, emerged spring, 1957, from puparium found on stem of *Heracleum sphondylium* previous winter (holotype); Hants: Silwood Park, 2 ♂♂, 2♀♀, ex same host, 1952 (P. ALLEN); Herts: Scratch Wood, 1 ♂, genitalia slide 770, 24. v. 1960 (K.A.S.)

In external characters this is entirely typical of the genus but it is nevertheless an aberrant species, as shown by the reduced aedeagus and the greatly increased number of bulbs on the larval hind-spiracles.

Ophiomyia heringi STARÝ

Ophiomyia heringi STARÝ, 1930: 230. Holotype ♂ in coll. STARÝ, Prague; 1 ♂ paratype in Zoologisches Museum, Berlin. —
Ophiomyia persimilis HENDEL, 1931—6: 193, **syn. nov.** 2 ♀ syntypes in Naturhistorisches Museum, Vienna.

Adult: wing length 2.4 mm., costa extending only to vein R_{4+5}, last and penultimate sections of m_4 equal. Jowls not greatly projecting, vibrissal horn short, blunt and white at end (Fig. 45), cheeks forming only narrow ring below eye. Facial keel very narrow and scarcely raised.

Male genitalia: aedeagus highly asymmetrical as in Figs. 46, 47.

Host-plant: *Campanula persicifolia* L., *Crepis* sp., *Hypochoeris radicata* L., *Jasione* sp., *Lapsana communis* L., *Phyteuma* sp.

Larva/Biology: larva described by DE MEIJERE (1937: 179; 1937: 182 and 1938: 701 as *persimilis*), posterior spiracles each with 11 or 12 bulbs; external stem-mine with frass in two rows of disconnected strips described by HERING (1957: 224; 1960: 124).

Distribution: Czechoslovakia, Hungary, Germany, England.

Material seen:

Austria: Vienna area, 1 ♀, May (HENDEL), syntype of *persimilis*. —

Czechoslovakia: Lower Carpathians, Držková, 1 ♂, genitalia slide 767, ex *Campanula persicifolia* L., paratype. —

England: London, 1 ♂, genitalia slide 649, 28. v. 1960 (K.A.S.). —

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

France: Loire inf., La Baule, 1 ♂, 4. vii. 1943 ex *Hypochoeris radicata* and 2 ♂♂, 26. vii. 1943 ex *Sonchus oleraceus* (BUHR). —

Germany: Mecklenburg: Teterow, 1 ♂, genitalia slide 648, 5. iv. 1936, ex *Crepis* sp. and 1 ♂, 4. iv. 1936 ex *Lampsana communis*; Serrahn, 1 ♂, genitalia slide 647, 1 ♀, July 1936, ex *Hypochoeris radicata* and 1 ♂, 15. vii. 1936, ex *Lactuca muralis*; Warsow, 1 ♂, genitalia slide 645, 1936, ex *Lampsana communis*; Rostock, 1 ♂, 28. iii. 1948 ex *Leontodon autumnalis* (all H. BUHR). —

Hungary: Felsölövö, 1 ♀, 24. v. 1909 (KERTÉSZ), syntype of *persimilis*.

O. heringi has hitherto been believed to be monophagous on *Campanula*. The specimens mentioned above from Compositae were identified by HERING as *O. persimilis* HENDEL. The male genitalia and distinctive vibrissal horn of these specimens show without doubt that they represent *O. heringi*. A further distinctive feature of both males and females is the well-marked furrow in the facial keel.

HENDEL (1931—6: 193) in his brief description of *O. persimilis* refers to a male and female from Austria and a female from Hungary. The male represents *O. submaura* HERING (cf. p. 805). The paper by STARÝ (1930) containing the description of *O. heringi* was not considered by HENDEL.

Ophiomyia hieracii sp. n.

Head: frons one and a half times width of eye, not projecting above eye in profile; ocellar triangle broad, rather short, apex extending only to lower *ors*; jowls narrow, at mid-point of eye one-eighth vertical height of eye, strongly projecting forwards, forming angle of about 60° (Fig. 48), vibrissal horn slender, curving; facial keel relatively broad, distinctly widening below base of antennae and somewhat bulbous, central furrow normally but not always present.

Legs: mid-tibiae with one lateral bristle.

Wing: length 2 to 2.2 mm., costa extending to vein m_{1+2}, last section of m_4 distinctly shorter than penultimate in ratio 16:21, front cross-vein just beyond mid-point of discal cell.

Colour: frons matt black, ocellar triangle and orbits weakly shining; mesonotum distinctly shining, greyish-black, when viewed from behind, abdomen more brilliantly shining black; squamae grey, fringe black.

Male genitalia: aedeagus as in Fig. 49, open above, with a distinct distal tubule, a conspicuously chitinised angle below, bladder below distiphallus complex unusually stout.

Holotype ♂, Germany, Crossen a. O., 6. vii. 1937, ex stem-mine on *Hieracium umbellatum* L.; 4 ♂♂, 5 ♀♀ paratypes, same data (a'l E. M. HERING). Holotype in coll. HERING, Berlin; paratypes: 2 in coll. HERING, 2 in Staatliches Museum für Naturkunde, Stuttgart, 4 in author's collection. There are two further specimens from this same series in the U.S. National Museum, Washington.

This species was misidentified by HERING as *O. proboscidea* (STROBL) and has been referred to under this name in all HERING's papers during the past 25 years.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

BUHR (1960: 106) found mines presumably referable to this species on *H. umbellatum*, *H. lachenalii* GMELIN, *H. sabaudum* L. and *H. laevigatum* WILLD. at various localities in Thuringia between August and October, 1954—1957 (identified as *proboscidea*). The larva has been described by DE MEIJERE (1937: 184, as *proboscidea*).

Ophiomyia kwansonis SASAKAWA

Ophiomyia kwansonis SASAKAWA, 1961: 355. Holotype ♂ in Entomological Laboratory, Kyoto Prefectural University.

Adult: wing length 2—2.5 mm., costa extending to vein m_{1+2}, last section of m_4 only slightly shorter than penultimate; jowls one-quarter to one-sixth eye height, forming an angle of about 80° in front, vibrissal horn in male strong, slightly curving; facial keel according to SASAKAWA "indistinct".

Male genitalia: illustrated by SASAKAWA (1961: Fig. 37), basiphallus elongate, typical of the genus, mesophallus bearing some 30 spines internally.

Host-plant: *Hemerocallis fulva kwanso* REGEL (Liliaceae).

Larva/Biology: posterior spiracles each with some 30 bulbs; larva forms upper or lower surface leaf-mine, normally approaching mid-rib and pupating at leaf-base.

Distribution: Japan: Shimogamo, Kyoto.

Material seen:

Japan: Kyoto, 1 ♂, with genitalia slide, 28. vi. 1956 (SASAKAWA).

This species closely resembles *O. buccata* HENDEL but is immediately distinguishable by the narrower facial keel.

Ophiomyia labiatarum HERING

Ophiomyia labiatarum HERING, 1937: 509. Lectotype ♂ in Zoologisches Museum, Berlin.

Adult: wing length up to 2.3 mm., costa extending to m_{1+2}, last section of m_4 two-thirds penultimate (head collapsed in all material examined); jowls relatively narrow, forming angle of 70° in front, vibrissal horn narrow, slightly curving; facial keel narrow but very high, bulbous below base of antennae.

Male genitalia: aedeagus in side view as in Fig. 50, distiphallus in dorsal view as in Fig. 51, basiphallus and ninth sternite typical of the genus.

Host-plant: *Stachys silvatica* L., *S. palustris* L., *S. recta*, *S. officinalis*; *Lamium album* L., *L. galeobdolon* (L.) CH., *L. maculatum* L.; *Calamintha clinopodium* BENTH.; *Galeopsis* sp.

Larva/Biology: posterior spiracles each with seven bulbs, described by DE MEIJERE (1937: 180; 1938: 72; 1941: 16; 1950: 19); larva forms external stem-mine, pupating near a node (cf. HERING, 1957: 589).

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Distribution: Widespread in W. Europe and recorded from Bulgaria (BUHR).

Material seen:

Germany: Mecklenburg, Warsow, 1 ♂, genitalia slide 791, ex *Stachys silvatica*, 1. ix. 1936 (BUHR), lectotype. Brandenburg, Güntersberg a. O., 1 ♀, ex *Calamintha clinopodium*. —

England: Hunts., Woodwalton Fen, puparia in stems of *Stachys palustris*, 28. ix. 1960 (K.A.S.); Oxon, Bagley Wood, 1 ♂, genitalia slide 893, 11. viii. 1912. —

U. S. A.: Ind., La Fayette, 1 ♂, genitalia slide 901, 6. vii. 1915, reared from "catnip" (*Nepeta* sp.) (Satterthwait).

The facial keel is distinctly higher here than in the otherwise very similar *O. thalictricaulis*.

FRICK (1959: 371) misidentified as *proboscidea* STROBL the specimen from Indiana bred from *Nepeta*, which is identical in all respects with *labiatarum* HERING from Europe.

Ophiomyia major (STROBL)

Agromyza curvipalpis ZETTERSTEDT, var. *major* STROBL, 1900: 92. Lectotype ♂ in Naturhistorisches Museum, Vienna. —

Ophiomyia major (STROBL); HENDEL, 1920: 130; 1931—6: 187.

Adult: very large species, wing length in male 2.8 mm., costa extending to vein m_{1+2} but weak from r_5, last and penultimate sections of m_4 equal; jowls broad, vibrissal horn strong (Fig. 52); frons broad, twice width of eye, projecting above eye in profile; facial keel distinctly raised below base of antennae but rather narrow.

Male genitalia: aedeagus pale, as in Fig. 53, ninth sternite broadly fused at apex.

Distribution: Yugoslavia, Spain, Italy.

Host-plant: unknown.

STROBL (1900: 82) names as var. *major* a large female of *proboscidea* from Karaula in Bosnia. Some lines below under *curvipalpis* var. *major* is mentioned again, this time a male from Ragusa. It was this specimen on which HENDEL based his detailed description of the species and which I now designate as lectotype.

HENDEL (loc. cit.) synonymised *vibrissata* (MALLOCH) from Georgia with *major*. I have examined the genitalia of what is believed to be one of MALLOCH's syntypes in the Naturhistorisches Museum, Vienna; *O. vibrissata* is definitely distinct from *major* and HENDEL's synonymy is rejected.

Material seen:

Yugoslavia: Ragusa (Dubrovnik), 1 ♂, genitalia slide 816, date illegible, lectotype. —

Italy: Alassio, 1 ♀, May, ?year, No. 48869 (BECKER). —

Spain: Algeciras, 1 ♂, no date, genitalia slide 817 (CZERNY).

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Ophiomyia maura (MEIGEN)

Agromyza maura MEIGEN, 1838: 399. No types extant. —
Ophiomyia maura (MEIGEN); HENDEL, 1920: 129; 1931—6: 188—9. —
Ophiomyia asteris KURODA, 1954: 82. Holotype ♀ in Biological Laboratory, Yazu High School, Tottori Pref., Japan.

Adult: wing length 1.9 to 2.5 mm., costa extending to m_{1+2}, last and penultimate sections of m_4 normally equal but distinctly variable (I have seen one male with the last section longer, in ratio 21:16 with penultimate); frons one and a half times width of eye; jowls narrow, between one-sixth and one-eighth vertical height of eye, not greatly projecting, forming vibrissal angle of about 80°; vibrissal horn in male rather slender; facial keel broad but rather flat, with slight central furrow (head illustrated by HENDEL, 1931—6: Figs. 213—215).

Male genitalia: aedeagus asymmetric, as in Figs. 54, 55; surstyli with about six blunt teeth and two or three fine hairs at end (Fig. 56).

Host-plant: *Solidago* spp., *Aster* spp.

Larva/Biology: posterior spiracles each with four bulbs on one arm and seven on the other, described by DE MEIJERE (as *curvipalpis* ZETTERSTEDT, 1925: 249); larva forms long, winding, upper surface leaf-mine with frass in conspicuous, widely-spaced black grains, pupating in leaf.

Distribution: Widespread in Europe; Japan, N. America.

Material seen:

England: Kent, Darenth, 3 ♀♀, 17. iv.—6. v. 1954, ex *Solidago virgaurea* (K.A.S.); Westerham, 3 ♀, 28. viii. 1954, ex same host (K.A.S.). —

Germany: Berlin, 1 ♂, genitalia slide 787, 22. vi. 1931, ex same host (HERING); Stuttgart, Kräherwald, 1 ♀, ex same host, 25. v. 1954 (GROSCHKE). —

Italy: Venice, 6 exx., Aug. 1963, ex same host (GRIFFITHS). —

Yugoslavia: Slovenia, Postojna, 4 ♂, genitalia slides 792 and 894, 13. vii. —1. viii. 1958 (COE.)

HENDEL (1931—6: 188) discusses this species very fully. He places as synonyms *curvipalpis* ZETTERSTEDT (which is now revived on p. 786) and also *Agromyza affinis* MALLOCH (1913: 317) and *A. texana* FROST (1924: 42). *A. affinis* was described from a single female and this synonymy is certainly doubtful. *A. texana* MALLOCH (nec FROST) represents a distinct species, described from a male bred from *Roripa* sp. (Cruciferae). FROST was incorrect in following MELANDER, who suggested *texana* was a var. of *curvipalpis*.

O. maura does occur in N. America as a leaf-miner on *Aster* spp. and *Solidago* spp. FRICK (1959: 370) refers to the species from widespread localities but the exact distribution requires confirmation.

It is not considered necessary to designate a neotype, as all specialists agree on the correct identity of this species.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Ophiomyia melandricaulis HERING

Ophiomyia melandricaulis HERING, 1943: 55. Holotype ♂ in coll. HERING, Berlin. —
Ophiomyia moehringiae HERING, 1962: 34, **syn. nov.** Holotype ♂ in coll. HERING, Berlin.

Adult: wing length 2.3 mm., last section of m_4 shorter than penultimate in ratio 20:23; frons one and a half times width of eye, jowls one-seventh vertical height of eye, vibrissal horn slender, short (Fig. 57); facial keel conspicuously raised above base of antennae but slender.

Male genitalia: aedeagus as in Fig. 58, with distinctive V-shaped process above, as in *melandryi*, whole distphallus complex conspicuously dark.
Host-plant: *Melandrium diurnum* (SIBTH.) FRIES., *M. album* (MILL.) GARCKE and certainly other *Melandrium* spp. (cf. BUHR, 1960: 118); *Moehringia trinervia* (L.) CLAIRV.

Larva/Biology: larva described by DE MEIJERE (1943: 67), having posterior spiracles each with 9 to 11 bulbs, and forming a shallow external stem-mine (as opposed to *O. melandryi* which mines inside the hollow stem); mine described by HERING (1957: 676).

Distribution: France, Germany, England.

Material seen:

France: Verson, nr. Caen, 1 ♂, 1. vii. 1942, ex stem-mine on *Melandrium diurnum* (BUHR), holotype. —

Germany: Halle (Saale), 1 ♂, 16. v. 1961, ex stem-mine on *Moehringia trinervia* (BUHR), holotype of *moehringiae*.

This species is distinctly smaller than *O. melandryi* and the jowls are substantially narrower. The genitalia of *O. moehringiae* HERING agree exactly with those of *O. melandricaulis* and the minor differences in the adults reported by HERING cannot be considered of specific significance. *O. moehringiae* is therefore synonymised with *O. melandricaulis* herewith.

O. melandricaulis closely resembles *O. campanularum* STARÝ but the facial keel is substantially narrower and the genitalia confirm the distinctness of the two species.

Ophiomyia melandryi DE MEIJERE

Ophiomyia melandryi DE MEIJERE, 1924: 137; lectotype ♂ in Zoological Museum, Amsterdam. —

Ophiomyia latifrons HENDEL, 1931—6: 185, **syn. nov.** Holotype ♀ in Naturhistorisches Museum, Vienna.

Adult: wing length up to 2.6 mm., costa extending to vein m_{1+2}, last section of m_4 variable, shorter than penultimate, in ratio between 30:20 and 22:20. Frons broad, twice width of eye; jowls deep, one-quarter vertical height of eye (not half eye height as stated by de Meijere), only slightly projecting in front to form angle

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

of somewhat less than 90°; vibrissal horn rather short; cheeks variable, extending to half distance between eye margin and lower margin of jowls or rather more (Fig. 59); facial keel of medium width, distinctly raised below base of antennae, with or without central furrow. Described in detail by HENDEL (1931—6: 191).

Male genitalia: aedeagus as in Figs. 60, 61; distiphallus complex with characteristic black U-shaped process above, with an asymmetrical membranous flap on one side only, mesophallus uniformly rounded behind.

Host-plant: *Melandrium* spp., *Lychnis* spp.

Larva/Biology: posterior spiracles each with 12—13 bulbs in a regular ellipse, puparium distinctly brownish, described by DE MEIJERE (1925: 251; 1937: 181; 1938: 70); larva forms a shallow mine inside the hollow stem, pupating normally within the stem near a node.

Distribution: Widespread in Europe.

Material seen:

Great Britain: Surrey, Godalming, 1 ♂, ex stem *Melandrium rubrum*, 11. vi. 1955 (K.A.S.); Somerset, Radstock, 1 ♀, 5. vi. 1954 (K.A.S.); Derby, Miller's Dale, 1 ♂, genitalia slide 889, 1 ♀, 1. vi. 1956 (K.A.S.); Scotland, 1 ♂, genitalia slide 764, 1910 (MALLOCH); Wales, Llanridian, 1 ♂, 1. iv. 1962 ex *M. rubrum* (GRIFFITHS). —

Germany: Thuringia, Mühlhausen, 1 ♂, genitalia slide 762, 1 ♀, 28. v. 1958, ex stem *Melandrium album* (BUHR). —

Holland: Amsterdam, 2 ♂♂, genitalia slide 771, 11. 1. 1923 and 11. ii. 1923, forced ex stem *Melandrium* sp.; Haarlem, 1 ♀, 11. ii. 1923, ex *M. rubrum*; 1 ♀, 14. vi. 1920 (?) (all DE MEIJERE). —

Italy: Rapallo, 1 ♀, 20. iv. (?year), (BECKER, 41513), holotype of *latifrons*.

DE MEIJERE based his description on some 10 specimens. I have seen four and designate one male from Amsterdam as lectotype; the three others are labelled as paralectotypes.

I have examined the holotype of *latifrons* HENDEL and find this is identical with *melandryi*, with which it is now synonymised. The main difference suggested by HENDEL between *latifrons* and *melandryi* is the longer last section of vein m_4 in the former. This is not so; the ratio of the last and penultimate sections is 20: 22 and I have seen bred specimens of *melandryi* with exactly this ratio.

The genitalia of *melandryi* place it in a clear group with *melandricaulis* HERING and *campanularum* STARÝ; all have the distinctive V-shaped process above the distiphallus complex. *O. melandricaulis* which forms a mine on the outside of the stem is smaller, with narrow jowls and fewer bulbs on the larval posterior spiracles.

SASAKAWA (1961: 359) records this species from Japan. However, the aedeagus as shown in his Fig. 39d is not that of *melandryi* DE MEIJERE. I have now examined a male from Japan: Hokkaido, 25. v. 1951 (Y. NISHIJIMA) identified by SASAKAWA as *melandryi* and can confirm that it represents a new species; this will be described later by SASAKAWA.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Ophiomyia nasuta (MELANDER), **comb. nov.**

Agromyza maura var. *nasuta* MELANDER, 1913: 260. Lectotype ♂, designated by FRICK (1957: 201), in U. S. National Museum. —

Tylomyza nasuta (MELANDER); FRICK, 1957: 201; 1959: 372. —

Agromyza youngi MALLOCH, 1914: 312. Holotype ♂, New York State Museum, Albany, N. Y. —

Ophiomyia madizina HENDEL, 1920: 130. Syntypes in Naturhistorisches Museum, Vienna. —

Tylomyza madizina HENDEL, 1931—6: 185 (as sub-genus); FREY, 1941: 19. —

Siridomyza madizina (HENDEL); ENDERLEIN, 1936: 179.

Adult: wing length 2—2.3 mm, costa extending to vein m_{1+2}, first cross-vein at anterior third of discal cell; male without vibrissal horn, facial keel conspicuously bulbous, almost spherical, below base of antennae; upper orbital bristles lacking in male; orbital setulae long, proclinate, sparse in female, more numerous in male; strong third *dc* present, slightly behind suture.

Male genitalia: aedeagus typical of the genus (Fig. 62), elongate arms of basiphallus well-developed but left arm bends laterally at rightangles to aedeagus.

Host-plant: *Taraxacum officinale* WEBER (N. America).

Distribution: Europe, Japan, North America.

Material seen:

America: Ind. Lafayette, June, 1923, 4 ♀♀; Troy, 14. vi. 1908, 1 ♂; Washington, Kamiac Butte, 2 ♂♂, 1. vi. and 13. vii. 1912 (genitalia slide 900); Pullman, 19. v. 1912, 4 ♂♂, 1 ♀ (all coll. MELANDER); Mich., Detroit, 23. v. 1937 (G. STEYSKAL); New York, 22 exx., 1908—1910 (M. C. VAN DUZEE); Iowa, Ames, 16. viii. 1954, 1 ♀. —

Austria: Steiermark, 2 ♂♂ (coll. MELANDER). —

Canada: Ont., Toronto, 5. x. 1909, 1 ♀ (VAN DUZEE). —

Czechoslovakia: Tatranska Polianka, Tatra Mts., 3,300 ft., 1 ♂, genitalia slide 805, 12. vi. 1932 (D. AUBERTIN, E. TREWAVAS). —

Finland: Helsinki, 1 ♂, 1 ♀, no date (R. FREY). —

U.S.S.R.: Moscow District, 1 ♂, genitalia slide 847, 1 ♀, 30. vi. 1955 (ROHDENDORF).

This species forms a clear group with *pinguis* (FALLÉN) but, in view of the extreme similarity of the genitalia of both species to those of other typical species in the genus, there seems no justification in treating these two species as a separate genus or even as a sub-genus.

SASAKAWA (1961: Fig. 40) illustrates the genitalia of *madizina* from Japan.

MELANDER in his description of this species (1913: 261) refers to 16 specimens, all males, from Troy, Idaho, Pullman, Washington and Steiermark in Europe. FRICK (1957: 201) designated as lectotype a male labelled Kamiac Butte, Washington, 1. vi. 1912. Kamiac Butte is a mountain in the immediate vicinity of Pullman and there is little doubt that the specimen selected by FRICK as lectotype is in fact one of MELANDER's syntypes, although Kamiac Butte was not mentioned as a locality in the original description.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

American specimens of *nasuta* are identical with European examples of *madizina* HENDEL and also with *youngi* MALLOCH, described from Albany, New York.

Ophiomyia orbiculata (HENDEL), comb. nov.

Melanagromyza orbiculata HENDEL, 1931—6: 169. Holotype ♂ in Naturhistorisches Museum, Vienna. —

Melanagromyza hexachaeta HENDEL, 1931—6: 166, **syn. nov.** Two ♀ syntypes in Naturhistorisches Museum, Vienna. —

Melanagromyza nostradamus HERING, 1933: 39, **syn. nov.** Holotype ♀ in Zoologisches Museum, Berlin. —

Melanagromyza cagliostro ROHDENDORF-HOLMANOVÁ, 1958: 385, **syn. nov.** Holotype ♂ in coll. E. ROHDENDORF, Prague.

Adult: wing length 2—2.5 mm., costa extending to vein m_{1+2}, m_4 sections variable, last normally slightly shorter than penultimate; frons broad, twice width of eye, orbits well-differentiated and strongly projecting above eye in profile, cheeks forming distinct ring below eye, jowls one-quarter vertical height of eye; base of antennae separated by narrow, low facial keel; male without vibrissal fasciculus; mesonotum shining black, with first and second *dc* normal and either a strong third *dc* near the suture or two or even three smaller pre-sutural *dc*, which can occur irregularly between the second *dc* and the suture; squamae grey, fringe black.

Male genitalia: aedeagus as in Fig. 63; basiphallus with strongly chitinised, linear side-pieces, the left-hand one dividing, one arm extending to above distiphallus, the other almost linking with the right-hand arm; distiphallus bowl-shaped, fringed with some 12 minute spinules, an upturned, elongate bladder behind and two tubules distally; ninth sternite with slight ventral curvature, rounded at apex; surstyli without teeth but with some six long hairs.

Host-plant: *Pisum* and probably *Vicia* spp.

Larva/Biology: posterior spiracles each with some 15 irregular bulbs on a short, thick stalk (Fig. 64); a normal stem mine is formed and pupation takes place deep in the low stem or even in the root, with the anterior spiracles projecting through the epidermis.

Distribution: widespread in Western Europe.

Material seen:

Austria: Bisamberg bei Vienna, 1 ♂, genitalia slide 915, holotype. —

England: Hampstead, 1 ♀, 19. vii. 1956 (K.A.S.); Mddx., Scratch Wood, 1 ♂, genitalia slide 857, 27. v. 1956 (K.A.S.); Potters Bar, 1 ♀, emerged Dec., 1962 from puparium in pea stem collected 13. vii. 1962 (I. C. DEEMING); Surrey, Box Hill, 1 ♀, 31. v. 1960 (K.A.S.). —

France: Langres, 1 ♀, 27. v. 1957 (K.A.S.). —

Germany: Crossen a. O., 2 ♂♂, genitalia slide 916, 71. vi. 1934 (HERING); Rügen, 1 ♀, no date, syntype of *hexachaeta* (HENDEL); Berlin-Rüdersdorf, 1 ♀, 13. vii. 1929, holotype of *nostradamus* (HERING). —

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Hungary: Caix Szépriz, 1 ♀, 27. v. 1917 (FODOR). —

Switzerland: Stalden, 1 ♂, 1 ♀, genitalia slide 856, 3. viii. 1956 (K.A.S.); Orsières, 2 ♀♀, 29. v. 1957 (K.A.S.). —

U.S.S.R.: Dedinovo, Moscow Dist., 3 ♂♂ (including holotype of *cagliostro*), 6 ♀♀, 10. vi. till 28. vii. 1955 (E. ROHDENDORF). —

Yugoslavia: Laibach, 1 ♀, no date (PALMÉN).

In addition to the genitalia of the three males from England, Germany and Switzerland, I have also seen genitalia of an immature male extracted from an unemerged specimen by GRIFFITHS; these all agree with the genitalia of the holotype of *orbiculata* HENDEL. Both type specimens of *hexachaeta* HENDEL are females with a third, strong *dc* near the suture; this was the essential character leading HENDEL to believe the species was distinct from *orbiculata* in which the third *dc* is nearer the second, with in most cases an additional small fourth *dc*. The male from Crossen, genitalia slide 916, has the exact arrangement of *dc* found in *hexachaeta* but the genitalia are identical with those of *orbiculata*. In the female holotype of *nostradamus* HERING there are a small third and fourth *dc* which are largely broken and were overlooked by HERING. I therefore synonymise *hexachaeta* and *nostradamus* with *orbiculata* herewith.

The form of genitalia is essentially that found in *Melanagromyza centrosematis* DE MEIJERE (cf. SPENCER, 1961: Fig. 2c). The two species are clearly closely related and *centrosematis* correctly belongs to *Ophiomyia*. Although the genitalia diverge slightly from the typical form of *Ophiomyia*, the larval spiracles immediately confirm the correct generic placing of these two species.

I would like to take this opportunity of thanking Mr. DEEMING of the British Museum (Natural History) for allowing me to examine his material bred from pea stems; his discovery of the host-plant and larval biology has been instrumental in clarifying the correct status of this species.

HERING (1963: 248) refers to an *Ophiomyia* sp. discovered in Czechoslovakia by ZAVŘEL in stems of *Vicia cracca* L. which almost certainly represents this species. I have caught specimens on or near this plant and for some years have suspected it as a likely host.

The larvae must appreciably affect the growth of young pea plants and it is considered that this species may represent a pest of some economic importance.

Ophiomyia penicillata HENDEL

Ophiomyia penicillata HENDEL, 1920: 129; 1931—6: 192. Lectotype ♂ in Zoologisches Museum, Berlin.

Adult: wing length 2.8 mm., costa extending only to vein r_{4+5}, last section of m_4 one and a half times as long as penultimate; frons twice width of eye, substantially projecting above eye in profile (Fig. 65); jowls deep, quarter vertical height of eye, not greatly projecting, vibrissal horn short, stout, whitish; facial keel conspicuously widening below base of antennae but flat.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Male genitalia: aedeagus distinctive as in Figs. 66, 67, ninth sternite with finely pointed hypandrial apodeme and typical ventral curvature (Figs. 68, 69).

Distribution: Austria, Crete, Yugoslavia.

Host-plant: Not known.

Material seen:

Greece: Crete, Kandia, 1 ♂, genitalia slide 624, March (BECKER, 49732), lectotype.

In the description of the species, which applies accurately to the specimen before me, four specimens are mentioned — from Austria and Dalmatia. However, BECKER's male from Crete is labelled "Type" and also bears HENDEL's label "*penicillata* n. sp." Although HENDEL failed to mention this specimen in his description, it seems obvious he must have seen it when describing the species and I therefore feel justified in designating it as lectotype.

Ophiomyia pinguis (FALLÉN)

Madiza pinguis FALLÉN, 1820: 10. Lectotype ♀ in Riksmuseum, Stockholm. —
Ophiomyia pinguis (FALLÉN), HENDEL, 1920: 130. —
Tylomyza pinguis (FALLÉN), HENDEL, 1931—6: 193 (as sub-genus); ENDERLEIN, 1936: 179; FREY, 1941: 19; FRICK, 1952: 384.

Adult: wing length slightly more than 2 mm, costa extending to vein m_{1+2}, last section of m_4 normally somewhat shorter than penultimate, first cross-vein at centre of discal cell; jowls distinctly projecting but male without vibrissal horn (head illustrated by HENDEL, 1931—6: Fig. 219); facial keel conspicuously bulbous below antennae; orbital setulae long, proclinate; two fully developed *dc*.

Male genitalia: aedeagus as in Fig. 70, typical of other species in the genus; basiphallus elongate, strongly chitinised at base, distiphallus complex, asymmetrical; ninth sternite with normal ventral curvature.

Host-plant: *Cichorium intybus* L., *Leontodon* sp.

Larva/Biology: larva described by DE MEIJERE (1925: 249), with further references (1934: 263; 1937: 184), posterior spiracles each having 9 bulbs; leafmine in basal leaves (HERING, 1957: 293).

Distribution: Europe, Japan. Although the species was earlier recorded in N. America, it can now be accepted as purely Palaearctic. The two American specimens I have examined in Mr. SABROSKY's collection both proved to be *O. nasuta* (MELANDER).

Material seen:

England: London, 1 ♀, ex bought chicory, 10. iv. 1960 (K.A.S.); Cambridge, 1 ♂, 26. iii. 1961, ex bought chicory (GRIFFITHS). —

France: Briançon, 1 ♀, 7. vii. 1960 (K.A.S.). —

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Germany: Berlin, 1 ♀, 8. vi. 1929; Crossen a. O., 1 ♀, ex *Leontodon autumnale*, 15. viii. 1933 (both HERING). —

Hungary: Budapest, 1 sex indet., 21. v. 1896 (KERTÉSZ). —

Italy: Trieste, 1 ♀, "Alte Sammlung", no date, in Naturhistorisches Museum, Vienna. —

Sweden: 1 ♀, July, lectotype (FALLÉN). —

Yugoslavia: R. Csaba, 1 ♂, genitalia slide 803, 24. vii. 1896 (KERTÉSZ).

Of FALLÉN's two type specimens, one is *Agromyza nigripes* (MEIGEN); the other, without its head, could well represent the species now generally accepted as *pinguis* FALLÉN and is designated as lectotype.

This species is aberrant in lacking a vibrissal horn in the male and in the possession of proclinate orbital setulae but the bulbous facial keel and characteristic male genitalia confirm its close relationship with other typical representatives of the genus.

The larva is a serious pest of cultivated chicory in Belgium and Holland.

Ophiomyia pulicaria (MEIGEN), comb. nov.

Agromyza pulicaria MEIGEN, 1830: 170. Lectotype ♀ in coll. WINTHEM, Vienna. —
Melanagromyza pulicaria (MEIGEN); HENDEL, 1920: 127; 1931—6: 171—3.

Adult: wing length 1.9 to 2.2 m., costa extending to m_{1+2}, last section of m_4 slightly shorter than penultimate; frons about one and a half times width of eye, not projecting above eye in profile; jowls one-sixth vertical height of eye, cheeks linear; vibrissal horn and facial keel lacking; mesonotum brilliantly shining black. Male genitalia: aedeagus as in Figs. 71, 72, distiphallus complex, typical of many species in the genus, ninth sternite with conspicuous ventral curvature, spermal sac very large.

Host-plants: *Crepis, Hieracium, Hypochoeris, Leontodon, Picris, Sonchus, Taraxacum.*

Larva/Biology: described by DE MEIJERE (1928: 149; 1938: 68), posterior spiracles each with 11—14 bulbs; larva forms a whitish blotch-mine along the mid-rib, with lateral offshoots into the leaf-blade.

Distribution: widespread in Europe.

Material seen:

Austria: Bad Hall, 1 ♂, genitalia slide 850, 6. vi. 1899 (CZERNY). —

England: Bucks., nr. Tring, 3 ♂♂, 1♀, genitalia slides 853, 854, 9. viii. 1958 (K.A.S.); Ivinghoe, 1 ♂, genitalia slide 851, 30. viii. 1955 (K.A.S.); Marlow, 1 ♂, genitalia slide 852, 18. vii. 1954 (K.A.S.); Kent, Wrotham, 1 ♀, 19. vii. 1958 (K.A.S.); Otford, 2 ♂♂, genitalia slide 855, 2 viii. 1958 (K.A.S.); Mddx., Scratch Wood, 1 ♂, ex *Hypochoeris radicata*, 12. viii. 1962 (GRIFFITHS). —

France: Hautes Alpes, Argentière, 1 ♀, ex unidentified Composite, 27. vii. 1954 (K.A.S); Normandy, 1 ♂, ex *Crepis virens* (BUHR, 670); Loire, La Baule, 1 ♀, ex *Hypochoeris radicata*, 19. v. 1943 (BUHR); 1 ♀, ex *Sonchus asper*, 1943 (BUHR, 543). —

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Germany: Berlin-Dahlem, 2 ♂♂, 1 ♀, genitalia slides 843, 875, ex *Taraxacum officinale*, 25. vii. 1953 (K.A.S.); Thuringia, Mühlhausen, 1 ♂, ex *Hieracium pilosella* (BUHR, 6181); 1 ♂, ex *Leontodon autumnalis* (BUHR, 979); 1 ♂, ex *Picris hieracoides*, 1954 (BUHR, 728); 2 ♀♀, ex *Sonchus asper*, 1954, 1955 (BUHR, 722 and 975); 1 ♀, ex *Sonchus arvensis*, 1955 (BUHR, 983); South. Kyffhäuser, 1 ♀, ex *Crepis biennis*, 25. viii. 1955 (BUHR, 1022). — Hungary: Budapest, 1 ♀, 26. vi. 1963 (K.A.S.).

I have examined MEIGEN's type series of nine specimens in the coll. WINTHEM, Vienna. Only one of these, a female, represents the species now accepted as *pulicaria* and this is designated herewith as lectotype. Three of the other specimens represent *O. beckeri* (HENDEL), one is *O. cunctata* (HENDEL) and the others are female *Melanagromyza* spp. which cannot be positively identified.

On external characters this species has hitherto been justifiably placed in the genus *Melanagromyza*. DE MEIJERE (1938: 68), in describing the larva, correctly pointed out the similarity with more typical *Ophiomyia* species. The genitalia conform to the normal pattern in *Ophiomyia*.

Ophiomyia ranunculicaulis HERING

Ophiomyia ranunculicaulis HERING, 1949: 22. Holotype ♂ in coll. HERING, Berlin.

Adult: wing length 2.5 mm., last section of m_4 slightly shorter than penultimate in ratio 20: 23; frons broad, twice width of eye; jowls narrow, one-tenth vertical height of eye, flat below, vibrissal horn distinctly bending upwards at end (Fig. 73); facial keel conspicuously widening below base of antennae.

Male genitalia: aedeagus (Fig. 74) with two distinct processes rising above main distiphallus complex.

Host-plant: *Ranunculus lanuginosus* L., *R. acer* L. and almost certainly other *Ranunculus* spp.

Larva/Biology: larva described by DE MEIJERE (1946: 70, as *Ophiomyia* spec.), bearing numerous bulbs, up to a total of 28 (DE MEIJERE, 1946: Fig. 8); stem-mine described by HERING (1957: 875).

Distribution: Germany, France.

Material seen:

Germany: Rostock, 1 ♂, genitalia slide 785, Sept. 1948, ex stem-mine on *R. lanuginosus* (BUHR), holotype.

This species is readily distinguishable by the very narrow jowls, bending vibrissal horn and the entirely distinct genitalia.

Ophiomyia rapta HENDEL

Ophiomyia rapta HENDEL, 1931—6: 196. Holotype ♀ in Naturhistorisches Museum, Vienna.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Adult: costa reaching only to vein r_{4+5}, last section of m_4 slightly shorter than penultimate, large species, wing length 2.6 mm.; jowls deep, quarter vertical height of eye, not greatly projecting, cheeks forming broad ring below eye, orbits projecting above eye in profile; facial keel substantially widening below base of antennae, with well marked central furrow, but scarcely raised.

Host-plant: unknown.

Distribution: Austria.

Material seen:

Austria: South Tirol, Stilfserjoch, 1 ♀, July (HENDEL), holotype.

A male from Budapest (KERTÉSZ), 26. iv. 1896 in coll. HENDEL is possibly referable to *rapta*. It has the same broad jowls (Fig. 75), projecting orbits and large size; but the facial keel is distinctly more raised, there are four *ori* and the last section of m_4 is slightly longer than the penultimate. The exact status of this specimen can only be decided when additional material becomes available. The aedeagus is shown in Figs. 76, 77; this is unusual in having a second bladder behind and above the distiphallus complex. The surstyli each end in some 15 short teeth.

Ophiomyia senecionina HERING

Ophiomyia senecionina HERING, 1944: 57. Holotype ♂ in Zoologisches Museum, Berlin.

Adult: wing length 1.9 mm. in male to 2.3 mm. in female, costa extending to m_{1+2}, last section of m_4 slightly longer than penultimate; jowls one-fifth vertical height of eye, distinctly projecting forward, forming an angle of about 70°, vibrissal horn slender (in one specimen the five or six hairs are not fused); facial keel narrow; third antennal segment distinctly enlarged in both sexes; ocellar triangle brilliantly shining.

Male genitalia: aedeagus highly asymmetric, with several distinct lobes, as in Figs. 78, 79.

Host-plant: *Senecio jacobaea* L., *S. erucifolius* L.

Larva/Biology: larva described by DE MEIJERE (1946: 68); posterior spiracles each with six or seven bulbs; external stem-mine described by HERING (1957: 970).

Material seen:

France: Loire, La Baule, 1 ♂, genitalia slide 801, 24. x. 1943, ex mine on *Senecio jacobaea*, paratype. —

England: Surrey: Bookham, 1 ♂, ex *S. erucifolius*, 4. vii. 1949; Ashtead, 1 ♂, ex *S. jacobaea*, 10. v. 1948; Banstead, 1 ♀, ex *S. jacobaea*, 29. v. 1950 (H. NIBLETT); Boxhill, Stepping Stones, 2 ♀♀, 31. v. 1960 (K.A.S.).

This species is immediately recognisable by the brilliantly shining ocellar triangle and the enlarged third antennal segment.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Ophiomyia submaura HERING

Ophiomyia submaura HERING, 1926, Deutsch. ent. Zeit. p. 332; HENDEL, 1931–6: 197. Holotype ♂ in Zoologisches Museum, Berlin. —

Ophiomyia aragonensis HERING, 1943: 52, **syn. nov.** Holotype ♀ in Zoologisches Museum, Berlin.

Adult: small species, wing length 1.75–1.9 mm., costa ending at r_5, last sections of m_4 equal; frons broad, twice width of eye; jowls relatively broad, about one-fifth height of eye (Fig. 80); vibrissal horn short, distinctively white at end; facial keel broad, bulbous, in holotype without furrow but distinct furrow present in Hungarian specimen.

Male genitalia: aedeagus (Figs. 81, 82) asymmetric, with two distinctive flaps projecting upwards above level of distiphallus; spermal sac as in Fig. 83.

Host plant: unknown.

Distribution: Germany, Hungary, Spain.

Material seen:

Germany: Brandenburg, Bellinchen, 1 ♂, genitalia slide 745, 13. v. 1926, holotype. —

Hungary: Peszér, 1 ♂, genitalia slide 704, no date (KERTÉSZ). —

Spain: Albarracin, 1 ♀, caught on *Centaurea*, early June, holotype of *aragonensis*.

Although HERING cites minor differences in venation and number of acrostichals to differentiate *aragonensis* from *submaura*, in my opinion the form of jowls and cheeks and in particular the conspicuously broad and bulbous facial keel clearly indicate the identity of the two species. I therefore synonymise *aragonensis* with *submaura* herewith.

The male from Hungary is a specimen identified by HENDEL as *persimilis*. However, it is certainly not conspecific with the two females labelled by HENDEL as types of *persimilis* and its genitalia link it beyond doubt with *submaura*.

Ophiomyia thalictricaulis HERING

Ophiomyia thalictricaulis HERING, 1962: 36. Holotype ♂ in coll. HERING, Berlin.

Adult: wing length 2.4 mm., costa extending to vein m_{1+2}, last section of m_4 substantially shorter than penultimate, in ratio 3:5; frons one and a half times width of eye, not projecting above eye in profile; jowls one-seventh vertical height of eye, not greatly projecting forward, forming angle of 80°; vibrissal horn (cf. HERING, 1962: Fig. 3) conspicuously stout at base, facial keel narrow, slightly widening below base of antennae, not bulbous; mesonotum shining black.

Male genitalia: aedeagus illustrated by GRIFFITHS (1962: Fig. 6), mesophallus with distinctive double curving process dorsally.

Host-plant: *Thalictrum minus* L.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Larva/Biology: posterior spiracles each with five to six bulbs, larva forms short, broad stem-mine.

Distribution: Germany.

Material seen:

Germany: Thuringia, Leutra-Tal, nr. Jena, 1 ♂, ex *Thalictrum minus* (BUHR, 1641), holotype.

This species is extremely close to *O. aquilegiana* but is distinguishable by the more shining mesonotum and shorter last section of vein m_4; the genitalia are entirely distinct. It can only be distinguished from *O. labiatarum* by the slightly flatter facial keel; a reliable identification in caught specimens will only be possible from the male genitalia.

Ophiomyia vitiosa sp. n.

Head (Fig. 84): frons slightly wider than eye, not projecting above eye in profile; orbital setulae all reclinate; jowls distinctly projecting forwards, in centre one-sixth vertical height of eye in male, somewhat narrower in female; vibrissal horn in male long, curving; facial keel broad, distinctly bulbous below base of antennae.

Mesonotum: acrostichals in six rows in front, only a few scattered hairs behind second *dc*.

Wing: length 2 mm., costa ending just beyond apex of vein r_{4+5}, last section of m_4 distinctly longer than penultimate, in ratio 20:15.

Male genitalia: aedeagus large, conspicuously dark-brown, divided distally, covered with numerous minute spinules (Figs. 85, 86).

Holotype ♂, Vienna, meadows beside Danube, August (HENDEL), in Naturhistorisches Museum, Vienna; paratypes: 1 ♀, same data as holotype; 2 ♀, Spain, Tibidabo, near Barcelona, 20. iv. 1958 (K.A.S.).

This species closely resembles *O. submaura* HERING but is distinguishable by the longer, darker and more slender vibrissal fasciculus and the entirely distinct genitalia.

The female from Vienna was erroneously labelled by HENDEL as type of *O. delphinii* HENDEL (cf. p. 788).

Summary

All known Palaearctic species of the genus *Ophiomyia* BRASCHNIKOV have been examined. Thirty-five confirmed species are considered, three new species are described and ten new synonymies are established. — Many species can only be satisfactorily identified by the genitalia of the male and these are illustrated for all but two species. — Three species — *Ophiomyia maura* (MEIGEN), *Ophiomyia labiatarum* HERING and *Ophiomyia nasuta* (MELANDER) are found to have a Holarctic distribution. — A new key to species has been prepared, based on but departing substantially from the earlier keys of HENDEL and HERING.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

Zusammenfassung

Es wurden alle bekannten palaearktischen Arten der Gattung *Ophiomyia* BRASCHNIKOV untersucht. Fünfundreißig gesicherte Arten werden berücksichtigt, drei neue Arten werden beschrieben und zehn neue Synonymien zusammengestellt. — Viele Arten können nur durch die Genitalien des Männchens hinreichend identifiziert werden, die für alle Arten bis auf zwei durch Abbildungen dargestellt werden. — Bei drei Arten, nämlich *Ophiomyia maura* (MEIGEN), *Ophiomyia labiatarum* HERING und *Ophiomyia nasuta* (MELANDER) wurde eine holarktische Verbreitung festgestellt. — Es wird ein neuer Bestimmungsschlüssel für die Arten vorgelegt, der sich auf die früheren von HENDEL und HERING stützt, aber wesentlich von ihnen abweicht.

Резюме

Были исследованы все известные палеарктические виды рода *Ophiomyia* BRASCHNIKOV. Учтены 35 достоверных видов, описаны три новых вида и составлены десять новых синонимий. — Многие виды достоверно можно определить лишь на мужскипм оловым органам, кроме двух видов все остальные половые органы изображены на рисунках. — Для трех следующих видов было установлено их голарктическое распространение: *Ophiomyia maura* (MEIGEN), *Ophiomyia labiatarum* HERING и *Ophiomyia nasuta* (MELANDER). — Предлагается новый ключ для видов, который основывается на старых ключах HENDEL и HERING, но значительно от них отличается.

References

BECKER, TH., Dipteren der Kanarischen Inseln. Mitt. zool. Mus. Berlin, **4**, 170 (p. 1—180); 1908.

BRASCHNIKOV, W. C., Zur Biologie und Systematik einiger Arten minierender Diptera. Ann. Inst. agron. Moscow, **3**, 40; 1897.

BUHR, H., Bemerkenswerte oder neue Gallen und Minen aus Thüringen. Mitt. Thür. Bot. Ges., **2**, 56—150; 1960.

ENDERLEIN, G., 22. Ordnung. Zweiflügler, Diptera. In: BROHMER et al., Die Tierwelt Mitteleuropas. Insekten. Teil 3. Diptera, **6**, Lfg. 2, 179—183; 1936.

FALLÉN, C. F., Diptera Sveciae. Vol. 2. Oscinides Sveciae, p. 1—10; Lundae, 1820.

FRAUENFELD, G., Beitrag zur Insektengeschichte (Aus der dalmatinischen Reise). Verh. zool.-bot. Ver. Wien, **5**, 13—22; 1855.

FREY, R., Enumeratio Insectorum Fenniae. VI. Diptera. Brachycera (excl. Muscidae, Tachinidae). p. 19 (1—31); Helsingfors, 1941.

FROST, S. W., A Study of the leaf-mining Diptera of North America. Mem. Cornell Univ. Agr. Exp. Sta., **78**, 1—228; 1924.

FRICK, K. E., A generic revision of the family Agromyzidae (Diptera) with a catalogue of New World species. Univ. Calif. Publ. Ent. **8**, 339—452; 1952.

—, Nomenclatural changes and type designations of some New World Agromyzidae (Diptera). Ann. ent. Soc. America, **50**, 201 (p. 198—205); 1957.

—, Synopsis of the species of Agromyzid leaf miners described from North America (Diptera). Proc. U. S. Nat. Mus., **108**, 347—465; 1959.

GRIFFITHS, G. C. D., The Agromyzidae (Diptera) of Woodwalton Fen. Ent. month. Mag., **98**, 125—158; 1963.

HENDEL, F., Die paläarktischen Agromyziden. Arch. f. Naturgesch., **84** (A) (1918), 109—174; 1920.

—, Blattminenkunde Europas. I. Die Dipterenminen. Wien. Lief. 1, p. 1—64, Taf. I—II; 1926. — Lief. 2, p. 65—100, Taf. III—V; 1928.

—, Agromyzidae. In: LINDNER, E., Die Fliegen der paläarktischen Region, **59**, 1—570; 1936.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

HERING, E. M., Zwei neue Agromyziden aus dem Naturschutzgebiet von Bellinchen a. Oder. Dtsch. Ent. Ztschr., 1926, 331—334; 1926.
—, Neue Agromyziden (Dipt.). Konowia, **12**, 33—40; 1933.
—, Die Blatt-Minen Mittel- und Nord-Europas einschließlich Englands. XII & 631 S.; Neubrandenburg, 1935—1937.
—, Neue palaearktische Agromyzidae (Dipt.). Eos, **19**, 52—54 (p. 51—62); 1943.
—, Minenstudien 17. Mitt. Dtsch. ent. Ges., **12**, 56—62; 1944.
—, Neue palaearktische Agromyziden. Notul. ent., **29**, 18—32; 1949.
—, Die Larven der Agromyziden (Diptera). 1. Tijdschr. Ent., **97**, 115—136; 1954.
—, Die Larven der Agromyziden (Diptera). 2. Tijdschr. Ent., **98**, 257—281; 1956.
—, Bestimmungstabellen der Blattminen von Europa einschließlich des Mittelmeerbekkens und der Kanarischen Inseln. Bd. 1—3. s'Gravenhage, 1957.
—, Neue Blattminen-Studien (Dipt., Lep.) Dtsch. ent. Ztschr. (N. F.), **7**, 119—145; 1960.
—, Neue Blattminen-Studien (Col., Dipt., Lep.) II. Dtsch. ent. Ztschr. (N. F.), **9**, 30—65; 1962.
—, Neue Blattminen-Studien (Dipt., Lep.). III. Dtsch. Ent. Ztschr. (N. F.), **10**, 221—250; 1963.
KLEINSCHMIDT, R. P., New Species of Agromyzidae from Queensland. Queensl. Journ. Agr. Sci., **17**, 321—337; (Dated Dec., 1960) 1961.
KURODA, M., Three new species and a new subspecies of Agromyzid flies from Japan. Kontyû, **21**, 76—83; 1954.
LUNDQVIST, A., Agromyzider från Södermanland. Opusc. ent., **12**, 74—75 (p. 61—76); 1947.
MALLOCH, J. R., A revision of the species in *Agromyza* FALLÉN and *Cerodontha* RONDANI (Diptera). Ann. ent. Soc. Amer., **6**, 269—340; 1913.
MEIGEN, J. W., Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. **6**, XI & 401 S.; Hamm, 1830.
—, Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. **7**, XII & 434 S.; Hamm, 1838.
MEIJERE, J. C. H. DE, Verzeichnis der holländischen Agromyzinen. Tijdschr. Ent., **67**, 119—155; 1924.
—, Die Larven der Agromyzinen. I. Tijdschr. Ent. **68**, 195—293; 1925.
—, Die Larven der Agromyzinen. Erster Nachtrag. Tijdschr. Ent., **71**, 145—178; 1928.
—, Die Larven der Agromyzinen. Dritter Nachtrag. Tijdschr. Ent., **80**, 167—243; 1937.
—, Die Larven der Agromyzinen. Vierter Nachtrag. Tijdschr. Ent., **81**, 61—116; 1938.
—, Die Larven der Agromyzinen. Siebenter Nachtrag. Tijdschr. Ent., **86**, 61—76; 1943.
—, Die Larven der Agromyzinen. Neunter Nachtrag. Tijdschr. Ent., **92**, 15—33; 1950.
ROHDENDORF-HOLMANOVÁ, E. B., Die Minierfliegen (Diptera, Agromyzidae) des Moskauer Gebiets. 1. Agromyzinae. Rev. Ent. USSR, **37**, 380—391; 1958.
SASAKAWA, M., A Study of the Japanese Agromyzidae (Diptera). 2. Pacific Insects, **3**, 307—472; 1961.
SCHINER, J. R., Anmerkungen zu dem im Bande V, pag. 13 dieser Verhandlungen abgedruckten Aufsatze FRAUENFELD's: Beitrag zur Insecten-Geschichte. Verh. zool.-bot. Ver. Wien, **6**, 222 (p. 215—224); 1856.
SPENCER, K. A., A new species of Agromyzidae (Diptera) from Britain. Proc. R. ent. Soc. London. (B) **26**, 162—164; 1957.
—, Records of further Ethiopian Agromyzidae (Diptera), mainly from South Africa, including eighteen species new to science. Trans. R. ent. Soc. London. **112**, 15—36; 1960.
—, Notes on the African Agromyzidae (Diptera) — 1. (Ergebnisse der Forschungsreise LINDNER 1958/59 — Nr. 3) Stuttgarter Beitr. Naturk. **46**, 1—5; 1961.
—, The Australian Agromyzidae (Diptera, Insecta). Rec. Austr. Mus., **25**, 305—354; 1963a.
—, A Synopsis of the neotropical Agromyzidae (Diptera). Trans. R. ent. Soc. London, **115**, 291—389; 1963b.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

—, Agromyzidae. In: Insects of Micronesia, **14** (5), 135—162; Honolulu, 1963c.

STARÝ, B., O minujicím hmyzu v zemi Moravskoslezské. Über minierende Insekten Mährens und Schlesiens. Práce Morav. Přírod. Spol., **6**, 125—242; 1930.

STROBL, G., Neue österreichische Muscidae Acalyptratae. IV. Theil. Wien. ent. Ztg., **12**, 306; 1893.

—, Dipterenfauna von Bosnien, Hercegovina und Dalmatien. Wiss. Mitt. Bosn. u. Hercegov., **7**, 176—294; 1900.

ZETTERSTEDT, J. W., Diptera Scandinaviae, **7**, 2728—2844; Lundae, 1848.

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

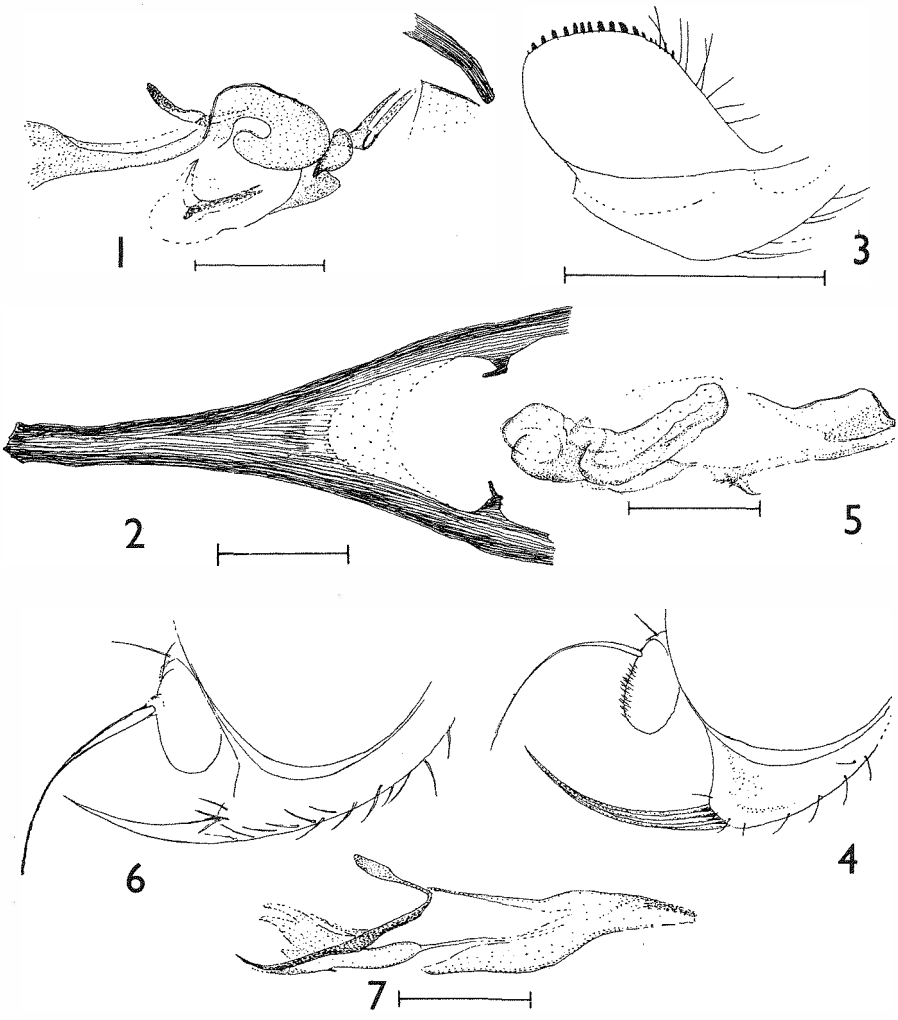

Plate 1

Figs. 1—3. *Ophiomyia aeneonitens* (STROBL): 1, aedeagus, side view; 2, ninth sternite; 3, surstylus. —

Figs. 4—5. *Ophiomyia alliariae* HERING: 4, head; 5, aedeagus. —

Figs. 6—7. *Ophiomyia aquilegiana* LUNDQUIST: 6, head; 7, aedeagus.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

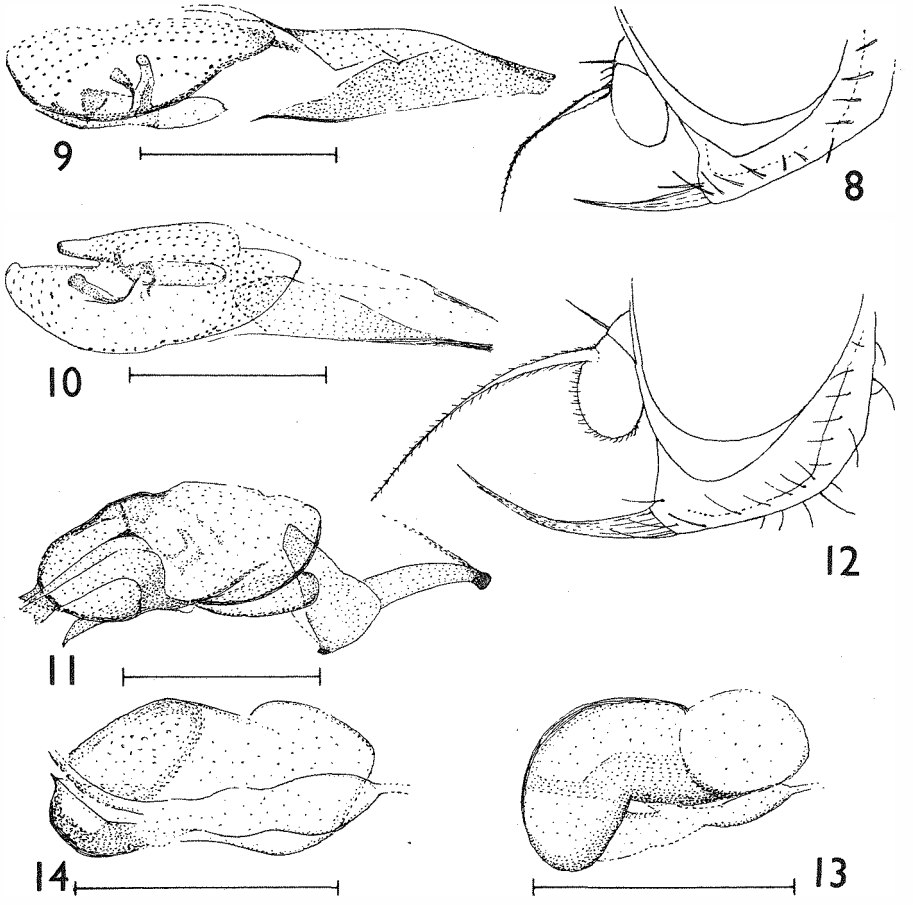

Plate 2

Figs. 8—10. *Ophiomyia asparagi* sp. n.: 8, head; 9, aedeagus, side view; 10, same, ventral view. —

Fig. 11. *Ophiomyia beckeri* (HENDEL): Aedeagus. —

Figs. 12—14. *Ophiomyia buccata* HENDEL: 12, head; 13, aedeagus, side view; 14, same, ventral view.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

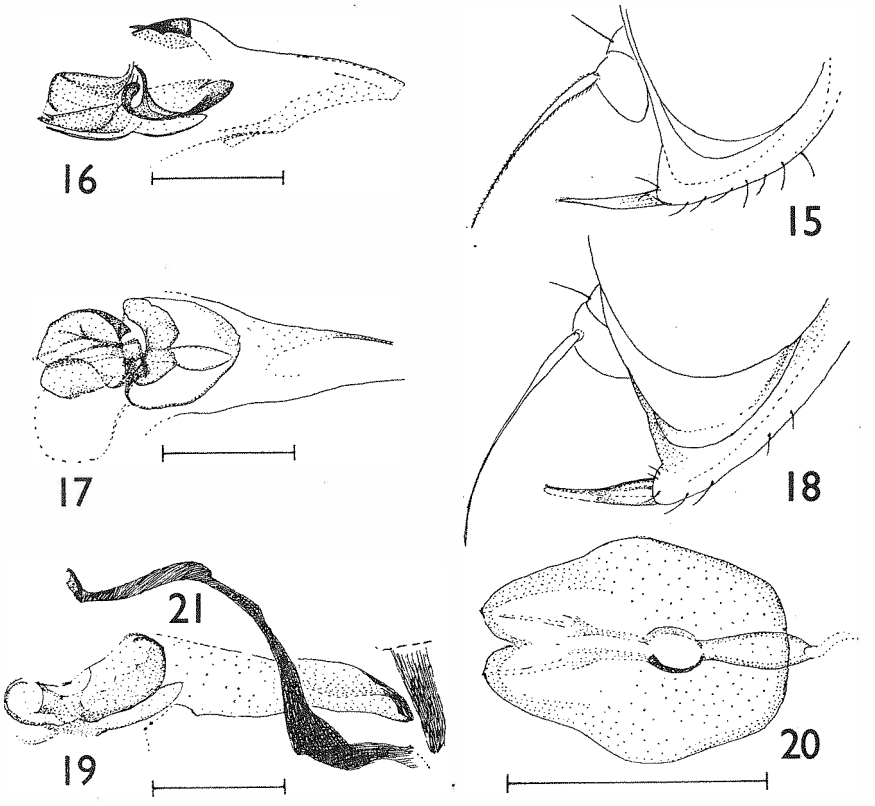

Plate 3

Figs. 15—17. *Ophiomyia campanularum* STARÝ: 15, head; 16, aedeagus, side view; 17, same, dorsal view. —

Figs. 18—21. *Ophiomyia cichorii* HERING: 18, head; 19, aedeagus, side view; 20, same, ventral view; 21, ninth sternite.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

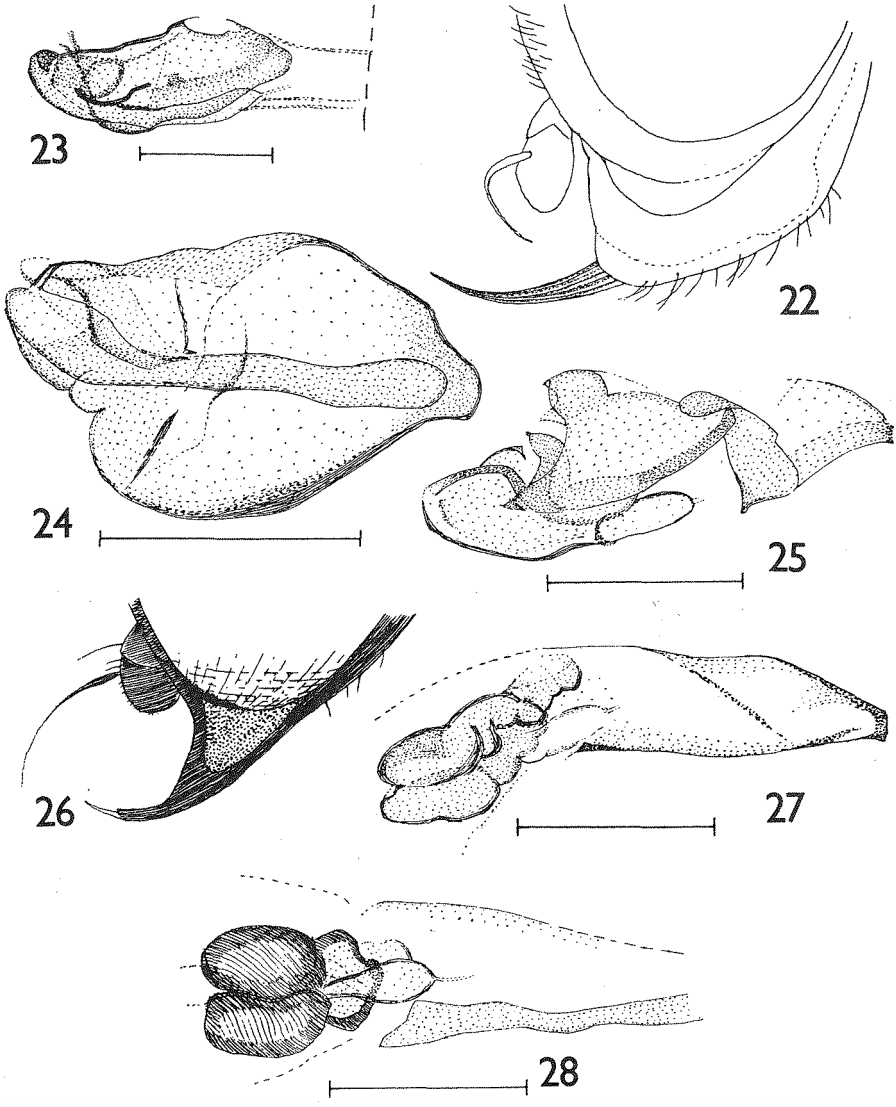

Plate 4

Figs. 22—24. *Ophiomyia cornifera* HENDEL: 22, head; 23, aedeagus, side view; 24, same, ventral view. —

Fig. 25. *Ophiomyia cunctata* (HENDEL): Aedeagus. —

Figs. 26—28. *Ophiomyia curvipalpis* (ZETTERSTEDT): 26, head; 27, aedeagus, side view; 28, same, ventral view.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

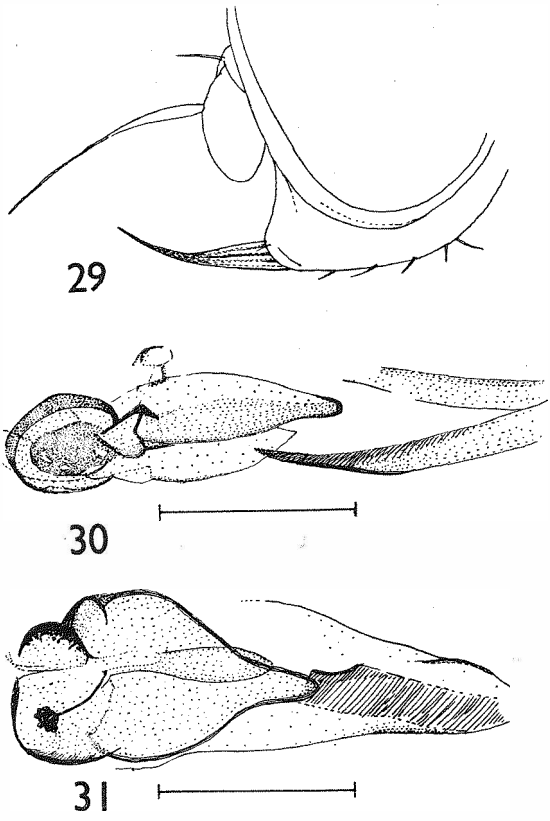

Plate 5

Figs. 29—31. *Ophiomyia delphinii* HENDEL: 29, head; 30, aedeagus, side view; 31, same, ventral view.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

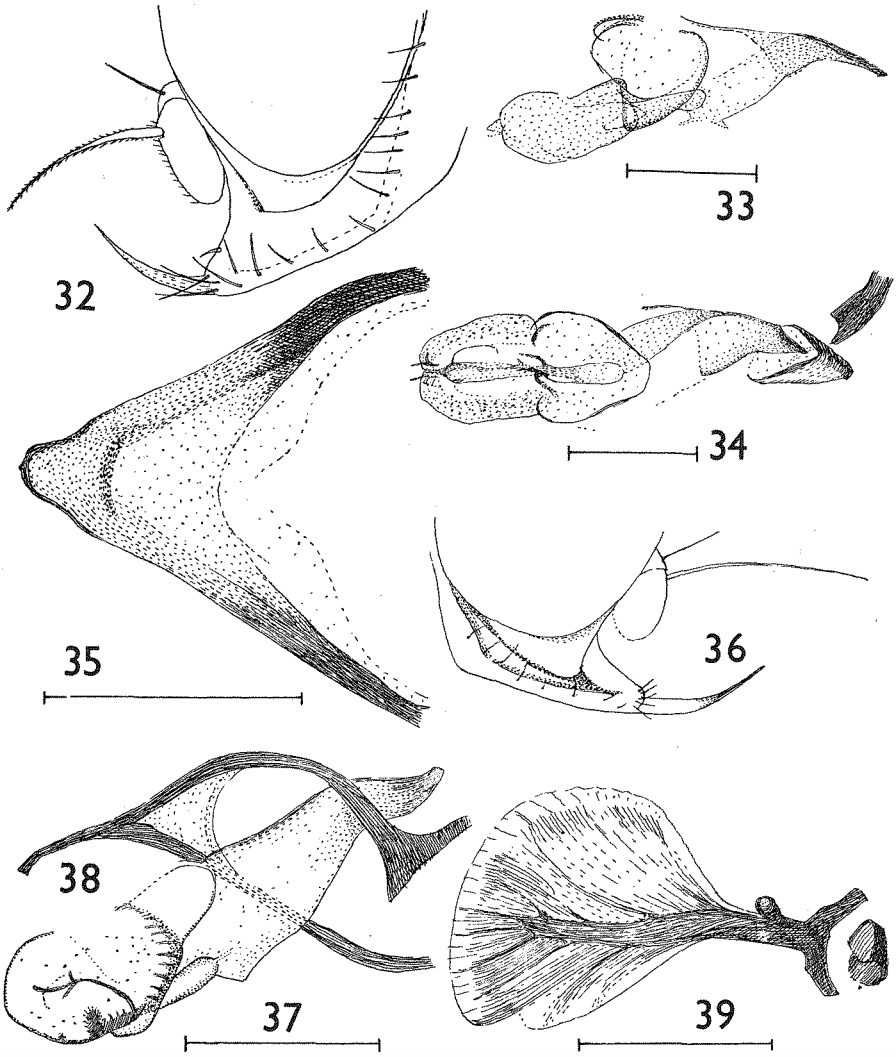

Plate 6

Figs. 32—35. *Ophiomyia eucodonus* HERING: 32, head; 33, aedeagus, side view; 34, same ventral view; 35, ninth sternite. —

Figs. 36—39. *Ophiomyia galii* HERING: 36, head; 37, aedeagus, side view; 38, ninth sternite; 39, spermal sac.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

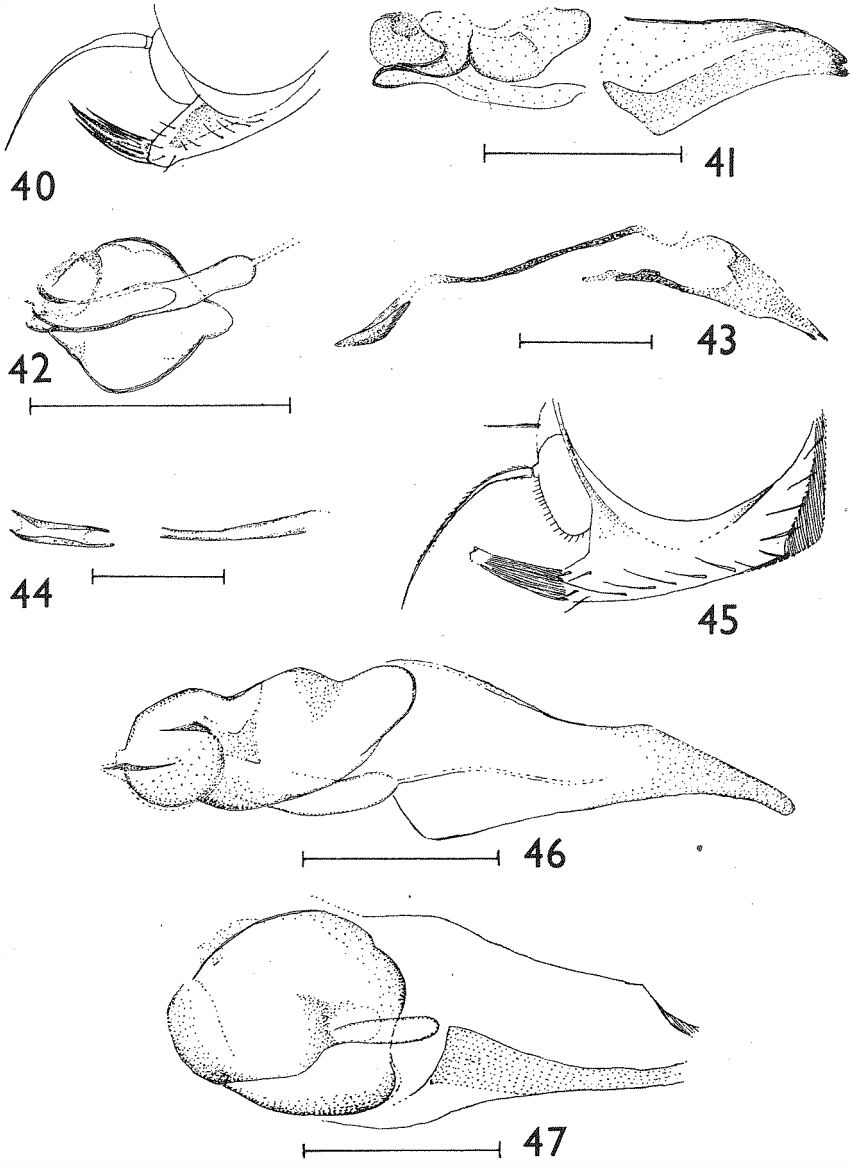

Plate 7

Figs. 40—42. *Ophiomyia gnaphalii* HERING: 40, head; 41, aedeagus, side view; 42, same, ventral view. —

Figs. 43—44. *Ophiomyia heracleivora* SPENCER: 43, aedeagus, side view; 44, distiphallus, dorsal view. —

Figs. 45—47. *Ophiomyia heringi* STARÝ: 45, head; 46, aedeagus, side view; 47, same, ventral view.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

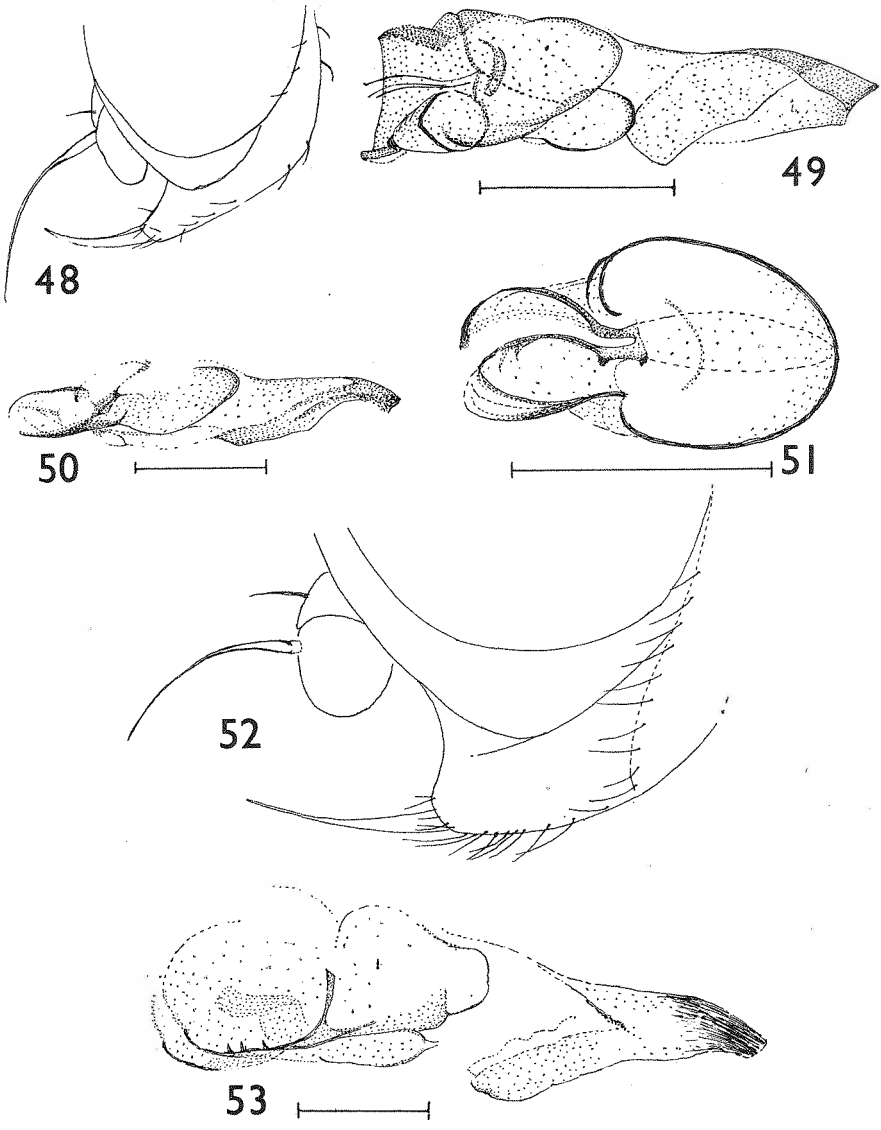

Plate 8

Figs. 48—49. *Ophiomyia hieracii* sp. n.: 48, head; 49, aedeagus. —

Figs. 50—51. *Ophiomyia labiatarum* HERING: 50, aedeagus, side view; 51, distiphallus, dorsal view. —

Figs. 52—53. *Ophiomyia major* (STROBL): 52, head; 53, aedeagus. — (Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

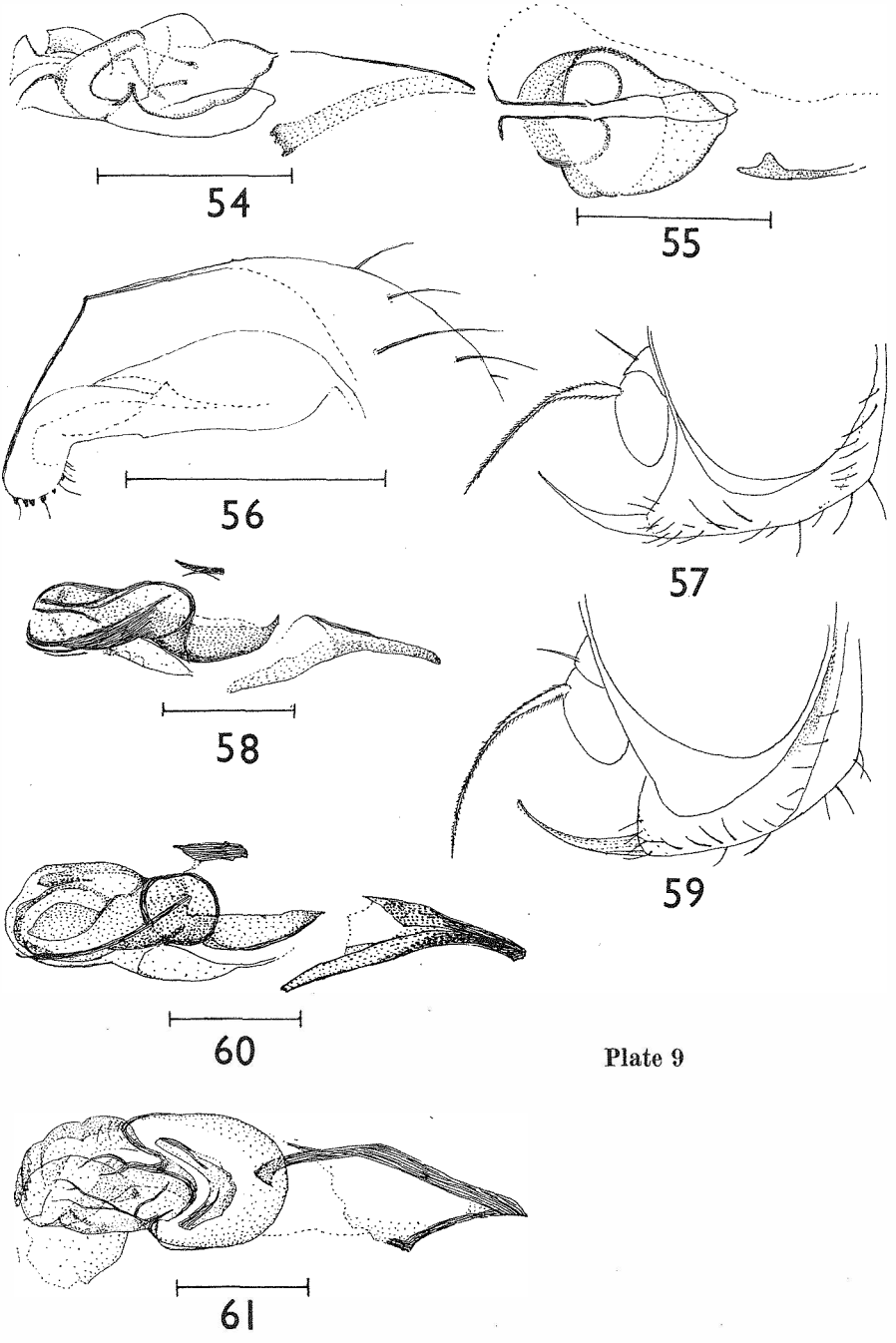

Plate 9

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

← **Plate 9**

Figs. 54—56. *Ophiomyia maura* (MEIGEN): 54, aedeagus, side view; 55, same, ventral view; 56, surstylus. —

Figs. 57—58. *Ophiomyia melandricaulis* HERING: 57, head; 58, aedeagus. —

Figs. 59—61. *Ophiomyia melandryi* DE MEIJERE: 59, head; 60, aedeagus, side view; 61, same, dorsal view.
(Scale line = 0.1 mm.)

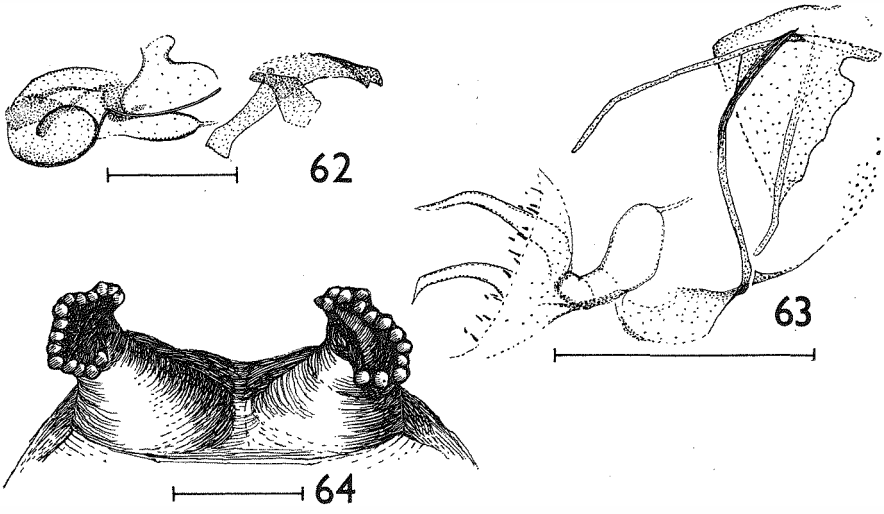

Plate 10

Fig. 62. *Ophiomyia nasuta* (MELANDER): Aedeagus. —

Figs. 63—64. *Ophiomyia orbiculata* (HENDEL): 63, aedeagus; 64, posterior spiracles of puparium.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

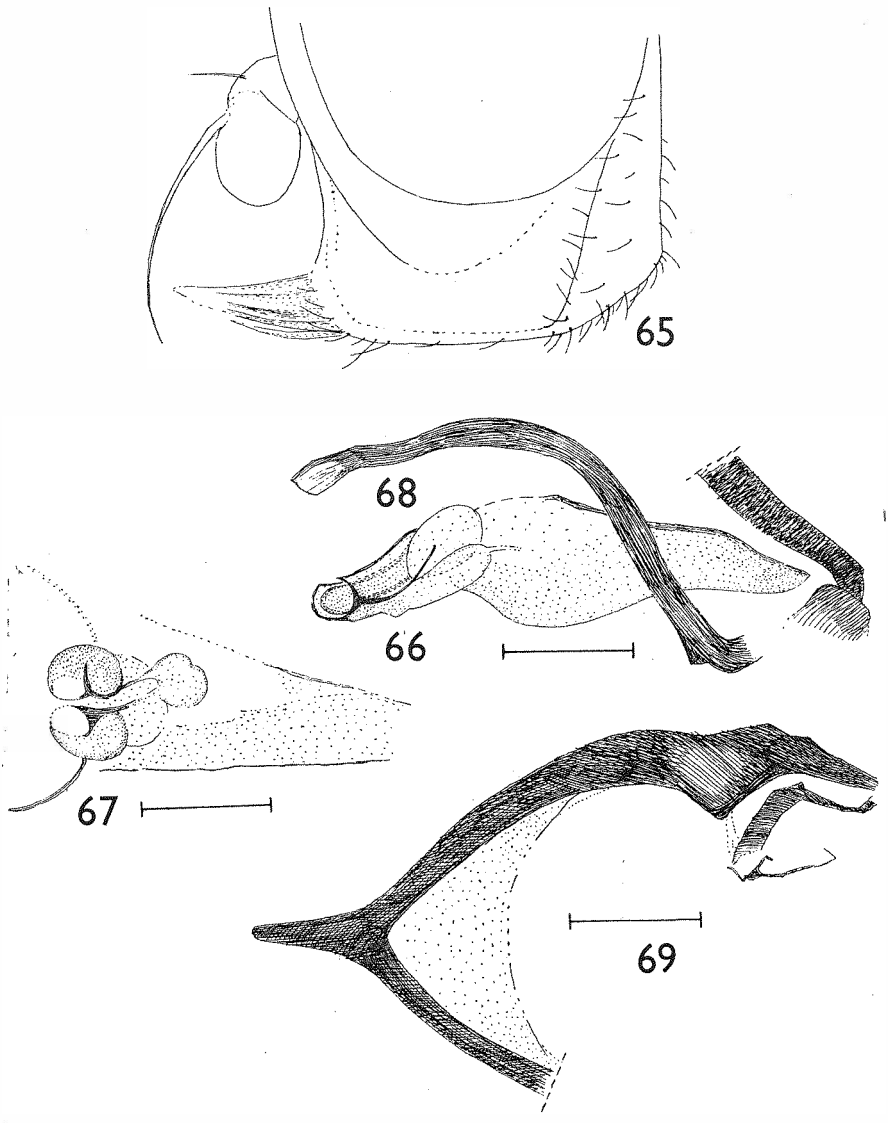

Plate 11

Figs. 65—69. *Ophiomyia penicillata* HENDEL: 65, head, 66, aedeagus, side view; 67, same, ventral view; 68, ninth sternite; 69, same, dorsal view.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

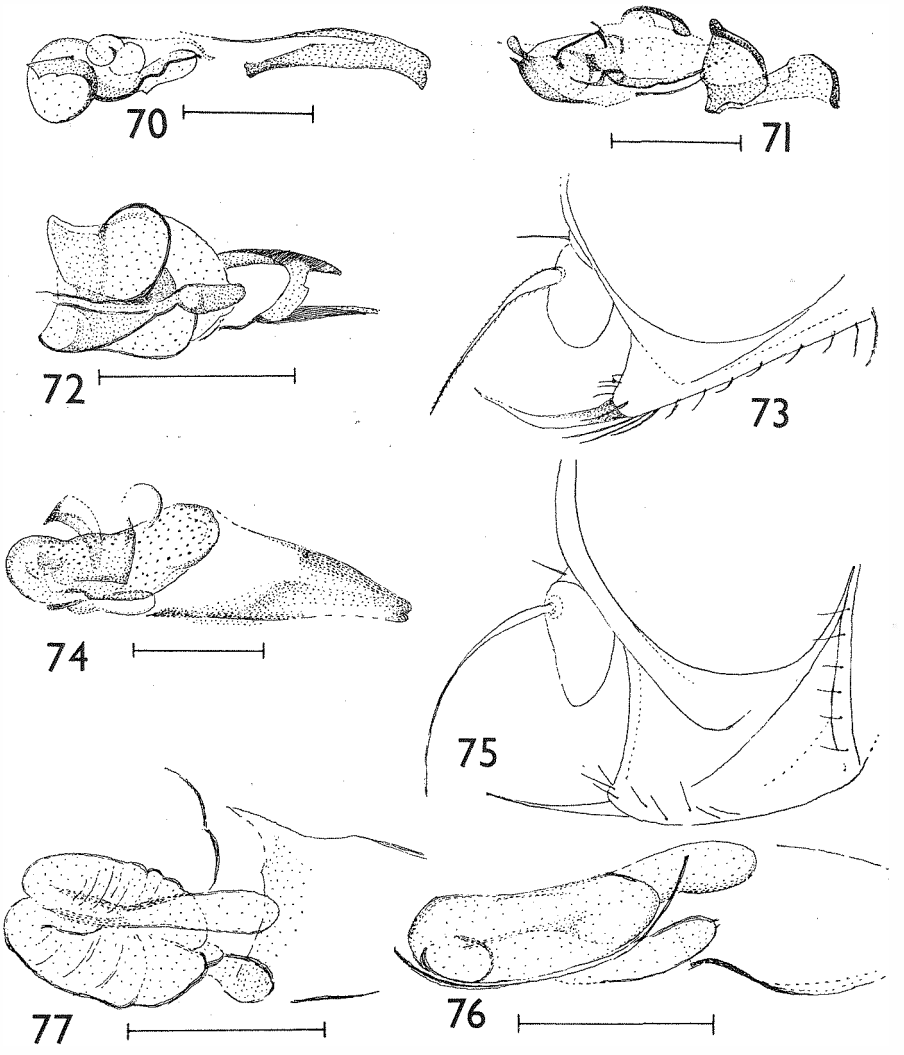

Plate 12

Fig. 70. *Ophiomyia pinguis* (FALLÉN): Aedeagus. —

Figs. 71—72. *Ophiomyia pulicaria* (MEIGEN): 71, aedeagus, side view; 72, same, ventral view. —

Figs. 73—74. *Ophiomyia ranunculicaulis* HERING: 73, head; 74, aedeagus. —

Figs. 75—77. *Ophiomyia* sp. near *rapta* HENDEL: 75, head; 76, aedeagus, sid view; 77, same, ventral view.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

©www.senckenberg.de/; download www.contributions-to-entomology.org/

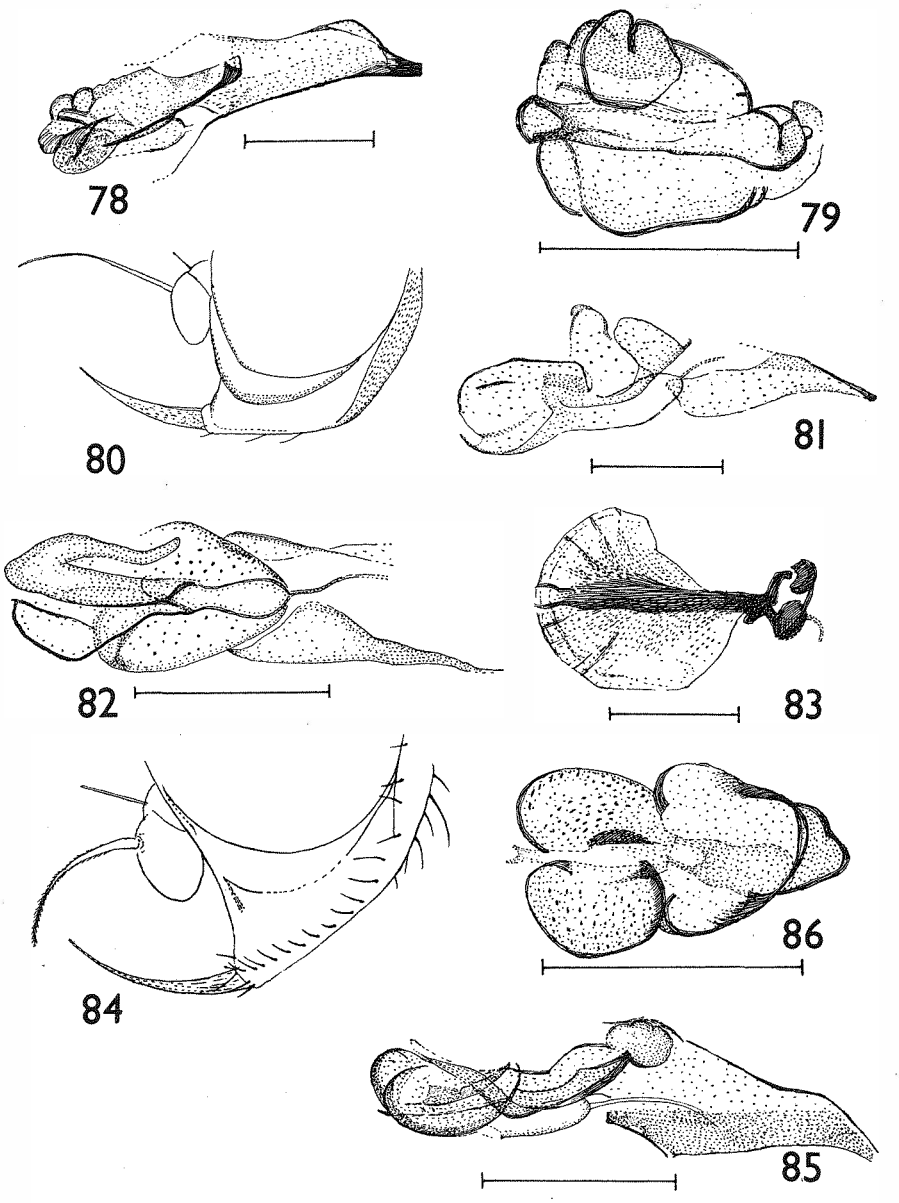

Plate 13

Figs. 78—79. *Ophiomyia senecionina* HERING: 78, aedeagus, side view; 79, same, ventral view. —

Figs. 80—83. *Ophiomyia submaura* HERING: 80, head; 81, aedeagus, side view; 82, same, ventral view; 83, spermal sac. —

Figs. 84—86. *Ophiomyia vitiosa* sp. n.: 84, head; 85, aedeagus, side view; 86, distiphallus complex, ventral view.
(Scale line = 0.1 mm.)

DOI: 10.21248/contrib.entomol.14.7-8.773-822

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Beiträge zur Entomologie = Contributions to Entomology

Jahr/Year: 1964

Band/Volume: 14

Autor(en)/Author(s): Spencer Kenneth A.

Artikel/Article: A revision of the palaearctic species of the genus Ophiomyia Braschnikov (Diptera: Agromyzidae). 773-822