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## A STUDY OF THE FAUNA OF LEAF-MINER FLIES OF THE SUBFAMILY AGROMYZINAE (DIPTERA: AGROMYZIDAE) OF UKRAINE. REPORT 5. SEVEN NEW SPECIES FOR THE FAUNA OF UKRAINE

Гугля, Ю. О. Вивчення фауни мінуючих мушок під родини Agromyzinae (Diptera: Agromyzidae) України. Повідомлення 5. Сім нових видів для фауни України. *Вісті Харк. ентопол. т-ва*. 2017. Т. XXV, вип. 1. С. 48–56.

За результатами досліджень 2009–2016 років на території України загалом знайдено 97 видів мінуючих мушок з під родини Agromyzinae. Сім видів, а саме *Melanagromyza nigrissima* Spencer, 1976, *M. polemonii* Rohdendorf, 1953, *Ophiomyia delphinii* Hendel, 1926, *O. ononidis* Spencer, 1966, *O. verbasci* Černý, 1991, *Agromyza albitarsis* Meigen, 1830 та *A. vicifoliae* Hering, 1932, наведено вперше для України. Стаття містить описи та зображення геніталій самок *Hexomyza simplex*, *O. australis*, *O. cornifera*, *A. igniceps* та *A. vicifolia*. 6 рис., 9 назв.

**Ключові слова:** мінуючі мушки, Diptera, Agromyzidae, Agromyzinae, Україна, фауна, поширення.

Гугля, Ю. А. Изучение фауны минирующих мушек подсемейства Agromyzinae (Diptera: Agromyzidae) Украины. Сообщение 5. Семь новых видов для фауны Украины. *Изв. Харьк. энт. о-ва*. 2017. Т. XXV, вып. 1. С. 48–56.

По результатам исследований 2009–2016 годов на территории Украины всего обнаружено 97 видов минирующих мушек из подсемейства Agromyzinae. Семь видов, такие как *Melanagromyza nigrissima* Spencer, 1976, *M. polemonii* Rohdendorf, 1953, *Ophiomyia delphinii* Hendel, 1926, *O. ononidis* Spencer, 1966, *O. verbasci* Černý, 1991, *Agromyza albitarsis* Meigen, 1830 и *A. vicifoliae* Hering, 1932, приведены впервые для Украины. Статья содержит описания и изображения гениталий самок *Hexomyza simplex*, *O. australis*, *O. cornifera*, *A. igniceps* и *A. vicifolia*. 6 рис., 9 назв.

**Ключевые слова:** минирующие мушки, Diptera, Agromyzidae, Agromyzinae, Украина, фауна, распространение.

Guglya, Yu. A. A study of the fauna of leaf-miner flies of the subfamily Agromyzinae (Diptera: Agromyzidae) of Ukraine. Report 5. Seven new species for the fauna of Ukraine. *The Kharkov Entomol. Soc. Gaz.* 2017. Vol. XXV, iss. 1. P. 48–56.

During 2009–2016, 97 species of mining flies of the subfamily Agromyzinae have been recorded in Ukraine. Seven species, such as *Melanagromyza nigrissima* Spencer, 1976, *M. polemonii* Rohdendorf, 1953, *Ophiomyia delphinii* Hendel, 1926, *O. ononidis* Spencer, 1966, *O. verbasci* Černý, 1991, *Agromyza albitarsis* Meigen, 1830, and *A. vicifoliae* Hering, 1932, are recorded for Ukraine for the first time. The paper includes description and images of female terminalia of *Hexomyza simplex*, *O. australis*, *O. cornifera*, *A. igniceps*, and *A. vicifolia*. 6 figs., 9 refs.

**Keywords:** leaf-miner flies, Diptera, Agromyzidae, Agromyzinae, Ukraine, fauna, distribution.

**Introduction.** During previous investigation of mining flies fauna, 90 species were found in Ukraine (Guglya, 2016a). This paper contains additional data on Agromyzinae collected predominantly during 2016.

**Material and methods.** Material was collected mostly by the author (other collectors see below in the checklist) in 24 localities predominantly in the Northeastern and Southwestern Ukraine in 2009–2016. Adults were collected mostly by a sweeping net. Dissected genitalia were macerated in potassium hydroxide solution, then washed in faint acetic acid solution and distilled water, examined in glycerol, and stored in a microvial pinned underneath the fly specimen. Some adults are reared from larva using the methods described by Yu. Guglya (2010). Plants are identified using ‘A key to higher plants of Ukraine’ (Prokudin, 1987). All drawings are made by the author. The keys by Papp and Černý (2015), Spencer (1964, 1966, 1976), and Guglya (2013, 2016b) were used for species identification. All the material is deposited in the collection of the Museum of Nature of the Vasyl Karazin Kharkiv National University.

**Results and discussion.** In this paper, 60 species of four genera are listed: *Hexomyza* — 1 species, *Melanagromyza* — 13 species, *Ophiomyia* — 27 species, and *Agromyza* — 19 species. A total of 399 specimens (187 ♂♂ and 209 ♀♀) were identified by the author.

**List of locations of collected material.** **Donetsk** — 47°59' N, 37°52' E; **Dvorichna** — Kharkiv Region (49°51' N, 37°40' E); **Esen** — Transcarpathian Region (48°23' N, 22°18' E); **Irpın** — Kyiv Region (50°30' N, 30°15' E); **Kamyanets-Podilsky** — Khmelnytskyi Region (48°40' N,

26°33' E); **Kharkiv, Pivnichna Saltivka** — 50°01' N, 36°22' E; **Khotyn** — Chernivtsi Region (48°31' N, 26°29' E); **Kuzemyn** — Sumy Region, The National Nature Park 'Hetmanskyi' (50°08' N, 34°40' E); **Kyiv: Botanical Garden** — M. M. Gryshko National Botanical Garden of the NAS of Ukraine (50°24' N, 30°33' E); **Kyrylivskiy Yar** — (50°28' N, 30°27' E); **Kytsivka** — Kharkiv Region (49°51' N, 36°49' E); **Luchky** — Poltava Region (48°57' N, 34°09' E); **Petrivske** — Kharkiv Region (49°10' N, 36°58' E); **near Poltava** — (49°34' N, 34°36' E); **Putyla** — Chernivtsi Region (47°46' N, 24°58' E); **Rubizhne** — Kharkiv Region (50°10' N, 36°47' E); **Sharivka** — Kharkiv Region (50°02' N, 35°26' E); **Shatsk Natural Reserve** — Volyn Region (51°34' N, 23°54' E); **Stara Pokrovka** — Kharkiv Region (49°48' N; 36°32' E); **Stara Ushytsa** — Khmelnytskyi Region (48°35' N, 27°04' E); **Stary Merchyk** — Kharkiv Region (48°17' N, 31°10' E); **Vasylivka** — Dnipropetrovsk Region (48°41' N, 35°35' E); **Zhovtneve** — Khmelnytskyi Region, near Kamyanets-Podilskiy (48°39' N, 26°37' E).

### Genus *Hexomyza* Hendel, 1920

#### *Hexomyza simplex* (Loew, 1869)

**Description of female terminalia (Fig. 1, a–c).** Both spermathecae are identical, highly elongated, acute apically, weakly sclerotized, looking hyaline. All surface is sparsely covered with minute denticles. Ventral seminal receptacle s-shaped, with centrally located strong narrowing. Egg guide with a few small scales located basally along the medial margin and a few apically along lateral margin. Proximal margin of egg guide acute.

**Material.** Stara Pokrovka, motley grass on the slope, 13.06.2009 — 1 ♀.



**Fig. 1.** Female terminalia of *Hexomyza simplex*: a — egg guide, left blade; b — spermatheca; c — ventral seminal receptacle.

### Genus *Melanagromyza* Hendel, 1920

#### *Melanagromyza aenea* (Meigen, 1830)

**Material.** Near Vasylivka, thickets of *Urtica dioica* on large clearing, 01–02.05.2016 — 12 ♂♂, 27 ♀♀, Stary Merchyk, clearing with *Urtica*, *Sambucus*, *Solidago canadensis*, *Ballota nigra*, 08.05.2016 — 1 ♂, 7 ♀♀; Sharivka, 09.05.2016 — 3 ♀♀; near Luchky, *Urtica dioica*, sweeping on swamped clearing in deciduous forest stand, 16.05.2016 — 2 ♂♂.

#### *Melanagromyza albocilia* Hendel, 1931

**Material.** Near Luchky, meadow and high grass on a slope (Poaceae, *Medicago*, *Hieracium*, *Gallium*, *Vicia*, *Euphorbia*), 15–16.05.2016 — 2 ♀♀; same location, high grass on the edge of a deciduous forest and low grass on a hayfield (Poaceae, *Trifolium*, *Plantago*), 24 and 26.06.2016 — 1 ♂, 3 ♀♀.

#### *Melanagromyza astragali* Spencer, 1976

**Material.** Near Luchky, swamped saline flood-land, 15.05.2016 — 6 ♂♂, motley grass along shadowy path in deciduous forest stand, 16.05.2016 — 3 ♀♀, meadow, 16.05.2016 — 3 ♂♂, 6 ♀♀, swamped clearing in deciduous forest stand, 16.05.2016 — 2 ♂♂; near Vasylivka, opening in deciduous forest (*Trifolium*, *Cicorium*, *Elymus*, *Urtica*, *Sambucus*, *Verbascum*, *Arctium*), 20.06.2016 — 1 ♂; near Luchky, semishadowy path on swamped right bank of the River Vorskla, 25.06.2016 — 3 ♂♂, 3 ♀♀, semishadowy motley grass (*Astragalus*, *Vicia*, *Knautia*, *Medicago*, *Verbascum*, *Hieracium*, Poaceae), 26.06.2016 — 1 ♂, 3 ♀♀.

#### *Melanagromyza asymmetrica* Guglya, 2016

**Material.** Stara Ushytsa, motley grass under *Picea* sp. (*Taraxacum*, *Vicia*, *Fragaria*, *Ranunculus*, *Lamium*, *Cichorium*, etc.), 26.05.2016 — 1 ♀; Khotyn, motley grass near fortress, 27.05.2016 — 4 ♀♀.

#### *Melanagromyza cunctans* (Meigen, 1830)

**Material.** Near Poltava, motley grass on the River Vorskla bank, 07.08.2016 — 1 ♂; Esen, ruderal motley grass along the road, 19.09.2016 — 2 ♂♂, 1 ♀.

#### *Melanagromyza cuprea* Guglya, 2016

**Material.** Near Vasylivka, wet motley grass on the River Samara bank, 19.06.2016 — 1 ♀; near Poltava, motley grass on the River Vorskla bank, 07.08.2016 — 1 ♂, 1 ♀; Kharkiv, Pivnichna Saltivka, *Cirsium vulgare* with empty pupa and imago, 28.08.2016 — 1 ♂ (T. Zhebina leg.).

**Distribution.** Hitherto known only from Northeastern Ukraine (Guglya, 2016b).

***Melanagromyza nigrissima* Spencer, 1976**

**Material.** Stary Merchyk, small motley grass clearing in deciduous forest, 08.05.2016 — 1 ♂, 1 ♀; near Luchky, swamped clearing in deciduous forest stand, 16.05.2016 — 1 ♂.

**Distribution.** Belarus, Czech Republic, Denmark, Estonia, Latvia, Lithuania, Finland, France, Sweden, and Hungary (Papp and Černý, 2015). First record for Ukraine.

***Melanagromyza polemonii* Rohdendorf, 1953**

**Material.** Near Kytsivka, steppe slope, 04.05.2012 — 1 ♂.

**Distribution.** Russia (Moscow Region), Czech Republic and Lithuania (Papp and Černý, 2015). First record for Ukraine.

***Melanagromyza pratensis* Guglya, 2016**

**Material.** Near Rubizhne, shadowy motley grass, 17.05.2014 — 1 ♂.

**Distribution.** Hitherto known only from Northeastern Ukraine (Guglya, 2016b).

***Melanagromyza pubescens* Hendel, 1923**

**Material.** Near Luchky, high grass on the edge of a deciduous forest, 24.06.2016 — 1 ♂; Esen, ruderal motley grass along the road, 19.09.2016 — 1 ♀.

***Melanagromyza submetallens* Spencer, 1966**

**Material.** Donetsk, Botanical Garden, 25.04.2014 — 1 ♂.

***Melanagromyza trapezoidea* Guglya, 2016**

**Material.** Near Luchky, swamped clearing in deciduous forest stand, 16.05.2016 — 1 ♀.

**Distribution.** Hitherto known only from Northeastern Ukraine (Guglya, 2016b).

***Melanagromyza zlobini* Pakalniskis, 1996**

**Material.** Donetsk, Botanical Garden, 25.04.2014 — 1 ♂; Irpin, oak wood, 20.05.2015 — 1 ♀; near Kuzemin, 22.05.2010 — 1 ♂; Kamyanets-Podilsky, Karvasary, motley grass on a slope (*Poaceae*, *Salvia*, *Timus*, *Fragaria*, etc.), 25.05.2016 — 1 ♂; Stara Ushytsa, motley grass under *Picea* sp. (*Taraxacum*, *Vicia*, *Fragaria*, *Ranunculus*, *Lamium*, *Cicorium*, etc.), 26.05.2016 — 3 ♀♀.

**Genus *Ophiomyia* Braschnikov, 1897**

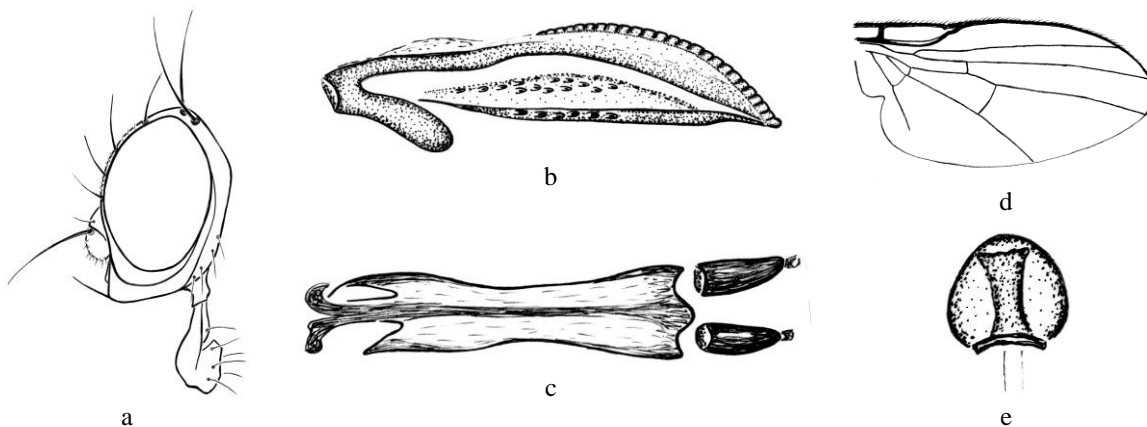
***Ophiomyia aeneonitens* (Strobl, 1873)**

**Material.** Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♂.

***Ophiomyia australis* Guglya, 2013 (Fig. 2, a–e)**

**Description of female terminalia (Fig. 2, b, c, e).** Spermatheca are equal in size and shape: rounded, slightly acute apically, with visible deep invagination located basally, kollar narrow. Egg guide acute apically, with two group of scales located on medial membrane and medial margin of egg guide. Teeth on lateral margin of egg guide rounded. Length of egg guide 0.9× as length of 9<sup>th</sup> abdominal segment.

**Material.** Near Luchky, semishadowy motley grass (*Astragalus*, *Vicia*, *Knautia*, *Medicago*, *Verbascum*, *Hieracium*, *Poaceae*), 26.06.2016 — 1 ♂, 2 ♀♀.



**Fig. 2. *Ophiomyia australis*:** a — female head (lateral view); b — egg-guide; c — 9<sup>th</sup> abdominal segment; d — wing; e — spermatheca.

***Ophiomyia beckeri* (Hendel, 1923)**

**Material.** Shatsk National Reserve, near Pulmo, motley grass on the edge of a coniferous forest near Stuky location, 11.08.2016 — 1 ♂.

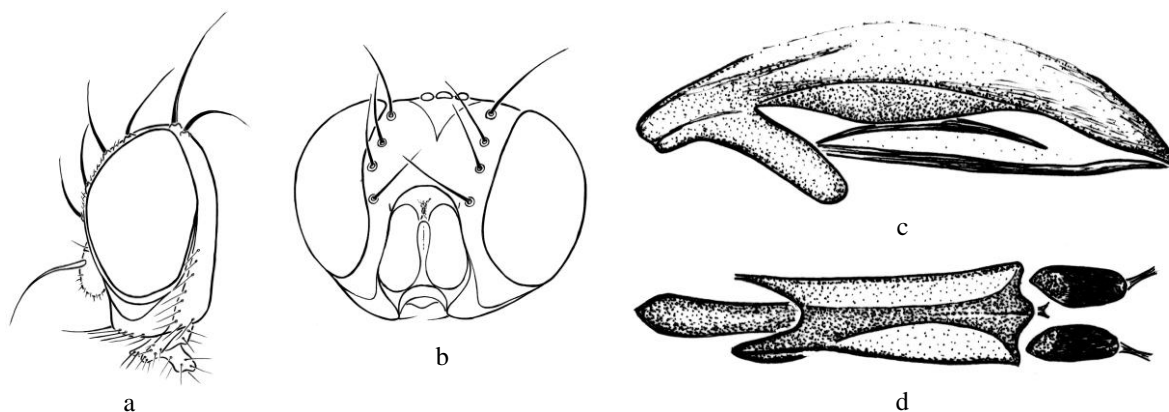
***Ophiomyia collini* Spencer, 1971**

**Material.** Stary Merchyk, clearing, 08.05.2016 — 1 ♂; Dvorichna, 16.05.2014 — 1 ♀; near Luchky, sweeping, shadowy path (*Lactuca*, *Ballota*, *Chenopodium*, *Convolvulus*, *Allium*, *Elytrigia*, *Cirsium*), 27.06.2016 — 1 ♂.

***Ophiomyia cornifera* Hendel, 1920 (Fig. 3, a–d)**

**Description of female terminalia (Fig. 3, c–d).** Egg guide without any scales on medial membrane. Teeth on lateral margin of egg guide minute, scarcely visible. Medial margin of egg-guide dark brown, lateral light-colored. Egg guide and 9<sup>th</sup> abdominal segment are equal in length.

**Material.** Stary Merchyk, clearing, 08.05.2016 — 1 ♂; Khotyn, motley grass near fortress, 27.05.2016 — 12 ♂♂, 1 ♀.



**Fig. 3.** *Ophiomyia cornifera*: a — female head (lateral view); b — female head (frontal view); c — egg-guide; d — 9<sup>th</sup> abdominal segment.

***Ophiomyia cunctata* (Hendel, 1920)**

**Material.** Stara Ushytza, motley grass under *Picea* sp. (*Taraxacum*, *Vicia*, *Fragaria*, *Ranunculus*, *Lamium*, *Cicorium*, etc.), 26.05.2016 — 1 ♀; Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♀.

***Ophiomyia curvipalpis* (Zetterstedt, 1848)**

**Material.** Near Vasylivka, motley grass on a sunny clearing, 20.06.2016 — 1 ♂; near Luchky, semishadowy motley grass (*Astragalus*, *Vicia*, *Knautia*, *Medicago*, *Verbascum*, *Hieracium*, Poaceae), 26.06.2016 — 1 ♀; Shatsk National Reserve, low motley grass on the Pesochne Lake bank, 09.08.2016 — 1 ♀; near Uzhhorod, 'Skalka', dry meadow, 17.09.2016 — 1 ♂; Esen, ruderal motley grass along the road, 19.09.2016 — 2 ♂♂, 1 ♀.

***Ophiomyia delphinii* Hendel, 1926**

**Material.** Near Vasylivka, motley grass under *Acer* (blossoming *Anthriscus*, *Ornithogallum*, *Alopecurus*, *Veronica*), 02.05.2016 — 1 ♂.

**Distribution.** Occurs in Dalmatia, Turkey, Hungary (Papp and Černý, 2015), Russia (Saratov Region) (Guglya, 2013). First record for Ukraine.

***Ophiomyia disordens* Pakalniškis, 1998**

**Material.** Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♂; near Luchky, high grass on the edge of a deciduous forest, 24.06.2016 — 1 ♂, psammophytous meadow on the left bank of the River Vorskla, 26.06.2016 — 1 ♂.

***Ophiomyia galii* Hering, 1937**

**Material.** Near Luchky, sweeping, shadowy path (*Lactuca*, *Ballota*, *Chenopodium*, *Convolvulus*, *Allium*, *Elytrigia*, *Cirsium*), 27.06.2016 — 1 ♂, motley grass at the foot of Zmiyina Hill (*Gallium*, *Ballota*, *Urtica*), 27.06.2016 — 1 ♂.

***Ophiomyia inaequalis* (Hendel, 1931)**

**Material.** Near Luchky, semishadowy motley grass (*Astragalus*, *Vicia*, *Knautia*, *Medicago*, *Verbascum*, *Hieracium*, Poaceae), 26.06.2016 — 1 ♂, 3 ♀♀.

***Ophiomyia labiatarum* Hering, 1937**

**Material.** Near Vasylivka, motley grass on the hill (*Salvia*, *Centaurea*, *Asparagus*, *Tanacetum*, *Potentilla*, *Convolvulus*, *Falcaria*), 19.06.2016 — 1 ♂; near Luchky, sweeping, shadowy path (*Lactuca*, *Ballota*, *Chenopodium*, *Convolvulus*, *Allium*, *Elytrigia*, *Cirsium*), 27.06.2016 — 1 ♂, motley grass at the foot of Zmiyina Hill (*Gallium*, *Ballota*, *Urtica*), 27.06.2016 — 2 ♂♂.

### *Ophiomyia longilingua* (Hendel, 1920)

**Material.** Khotyn, motley grass near fortress, 27.05.2016 — 1 ♂; Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♂, 1 ♀; near Vasylivka, opening in deciduous forest (*Trifolium*, *Cicorium*, *Elymus*, *Urtica*, *Sambucus*, *Verbascum*, *Arctium*), 20.06.2016 — 1 ♂, 2 ♀♀, motley grass on a sunny clearing, 20.06.2016 — 2 ♀♀.

### *Ophiomyia maura* (Meigen, 1832)

**Material.** Shatsk Natural Reserve, Lake Pesochne bank, serpentine mines with numerous pupae on *Solidago virgaurea*, 20.08.2016 — ex pupae — 1 ♂, 1 ♀.

### *Ophiomyia melandricaulis* Hering, 1943

**Material.** Near Luchky, semishadowy motley grass (*Astragalus*, *Vicia*, *Knautia*, *Medicago*, *Verbascum*, *Hieracium*, Poaceae), 26.06.2016 — 1 ♀.

### *Ophiomyia melandryi* de Meijere, 1924

**Material.** Near Luchky, sweeping, shadowy path (*Lactuca*, *Ballota*, *Chenopodium*, *Convolvulus*, *Allium*, *Elytrigia*, *Cirsium*), 27.06.2016 — 2 ♂♂.

### *Ophiomyia nasuta* (Melander, 1830)

**Material.** Near Luchky, meadow, 16.05.2016 — 1 ♂; Kamyanets-Podilsky, Karvasary, motley grass on a slope (Poaceae, *Salvia*, *Timus*, *Fragaria*, etc.), 25.05.2016 — 1 ♂; Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♀.

### *Ophiomyia ononidis* Spencer, 1966

**Material.** Near Kytsivka, thicket of *Carex* and *Erigeron* in an apple orchard near a bog, 26.07.2014 — 3 ♂♂.

**Distribution.** Germany, England, Czech Republic, Lithuania and Spain (Papp and Černý, 2015). First record for Ukraine.

### *Ophiomyia orbiculata* (Hendel, 1913)

**Material.** Kamyanets-Podilsky, Karvasary, motley grass on a slope (Poaceae, *Salvia*, *Timus*, *Fragaria*, etc.), 25.05.2016 — 1 ♂; Stara Ushytsa, motley grass under *Picea* sp. (*Taraxacum*, *Vicia*, *Fragaria*, *Ranunculus*, *Lamium*, *Cicorium* etc.), 26.05.2016 — 1 ♀; Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♂; near Vasylivka, flood land, thickets of *Astragalus*, *Lathyrus*, *Lotus*, *Medicago*, 19.06.2016 — 1 ♀, wet motley grass on the River Samara bank, 19.06.2016 — 2 ♀♀; opening in deciduous forest (*Trifolium*, *Cicorium*, *Elymus*, *Urtica*, *Sambucus*, *Verbascum*, *Arctium*), 20.06.2016 — 3 ♀♀, near Luchky, motley grass between deciduous forest and hill, 25.06.2016 — 1 ♀.

### *Ophiomyia pinguis* (Fallén, 1820)

**Material.** Near Luchky, wet grass on the meadow, after rain, 15.05.2016 — 8 ♂♂, 7 ♀♀; Kamyanets-Podilsky, Karvasary, motley grass on a slope (Poaceae, *Salvia*, *Timus*, *Fragaria* etc.), 25.05.2016 — 1 ♂, 1 ♀; Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♂, 1 ♀; near Vasylivka, flood land, thickets of *Astragalus*, *Lathyrus*, *Lotus*, *Medicago*, 19.06.2016 — 1 ♀, opening in deciduous forest (*Trifolium*, *Cicorium*, *Elymus*, *Urtica*, *Sambucus*, *Verbascum*, *Arctium*), 20.06.2016 — 1 ♂, 1 ♀; near Luchky, motley grass between deciduous forest and hill, 25.06.2016 — 1 ♀; Esen, ruderal motley grass along the road, 19.09.2016 — 1 ♂.

### *Ophiomyia ranunculicaulis* Hering, 1949

**Material.** Near Vasylivka, shadowy motley grass on the slope under *Ulmus*, *Acer* and *Quercus*, 02.05.2016 — 1 ♂; near Luchky, meadow, 16.05.2016 — 1 ♂; Stara Ushytsa, motley grass under *Picea* sp. (*Taraxacum*, *Vicia*, *Fragaria*, *Ranunculus*, *Lamium*, *Cicorium*, etc.), 26.05.2016 — 1 ♂; Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♀.

### *Ophiomyia slovac* Černý, 1994

**Material.** Near Vasylivka, motley grass (*Alopecurus*, *Anthascus*, *Heracleum*), 02.05.2016 — 2 ♂♂, motley grass on a clearing in a small deciduous forest, 03.05.2016 — 1 ♂.

### *Ophiomyia spenceri* Černý, 1985

**Material.** Near Luchky, swamped clearing in deciduous forest stand, 16.05.2016 — 1 ♂; Esen, ruderal motley grass along the road, 19.09.2016 — 1 ♂.

### *Ophiomyia submaura* Hering, 1926

**Material.** Near Vasylivka, flood land, thickets of *Astragalus*, *Lathyrus*, *Lotus*, *Medicago*, 19.06.2016 — 2 ♀♀, opening in deciduous forest (*Trifolium*, *Cicorium*, *Elymus*, *Urtica*, *Sambucus*, *Verbascum*, *Arctium*), 20.06.2016 — 1 ♀; near Luchky, sweeping, shadowy path (*Lactuca*, *Ballota*, *Chenopodium*, *Convolvulus*, *Allium*, *Elytrigia*, *Cirsium*), 27.06.2016 — 1 ♀, motley grass between deciduous forest and hill, 25.06.2016 — 1 ♂, 1 ♀.

### *Ophiomyia verbasci* Černý, 1991

**Material.** Irpin, 08.07.2000 — 1 ♂ (E. Kameneva, V. Korneyev leg.).

**Distribution.** Czech Republic (Papp and Černý, 2015). First record for Ukraine.

### *Ophiomyia vimmeri* Černý, 1994

**Material.** Near Luchky, swamped saline flood-land, 15.05.2016 — 2 ♂♂.

***Ophiomyia vitiosa* Spencer, 1964**

**Material.** Near Luchky, sweeping, shadowy path (*Lactuca*, *Ballota*, *Chenopodium*, *Convolvulus*, *Allium*, *Elytrigia*, *Cirsium*), 27.06.2016 — 4 ♂♂.

**Genus *Agromyza* Fallén, 1810*****Agromyza abdita* L. Papp, 2015**

**Material.** Near Vasylivka, sweeping on floodland (Poaceae, *Thalictrum*, *Medicago*, *Urtica*, *Humulus*), 01.05.2016 — 1 ♀, motley grass (*Alopecurus*, *Anthascus*, *Heracleum*), 02.05.2016 — 1 ♂, motley grass under *Acer* (blossoming *Anthriscum*, *Ornithogallum*, *Alopecurus*, *Veronica*), 02.05.2016 — 1 ♂, 1 ♀, motley grass on a clearing in a small deciduous forest, 03.05.2016 — 3 ♀♀; near Luchky, grasses in a gully, 16.05.2016 — 1 ♀, motley grass (*Carex*, *Ornithogallum*, *Ajuga*, *Galium*, *Clematis*, *Hieracium*), 16.05.2016 — 1 ♂, meadow, 16.05.2016 — 1 ♂.

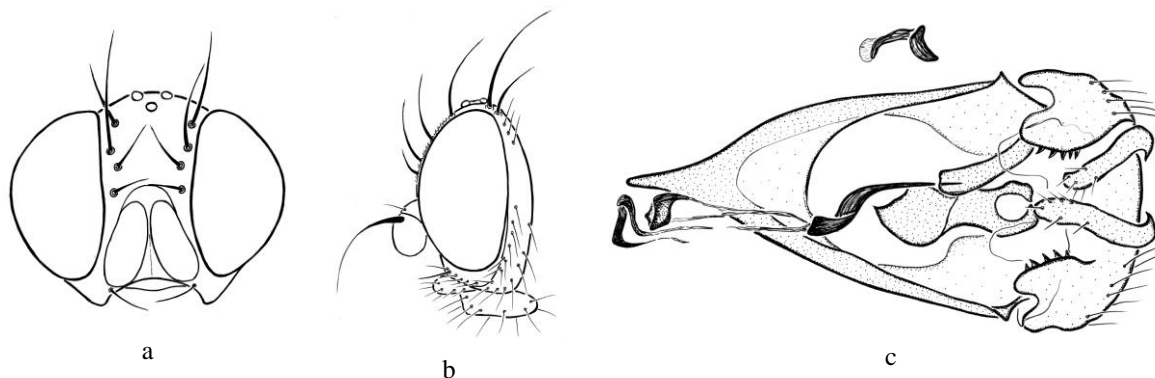
***Agromyza abiens* Zetterstedt, 1948**

**Material.** Near Vasylivka, brown blotch mine on *Cynoglossum officinale* with 3 larva — 19.06.2016, reddish-brown pupa outside of mine — 21.06.2016, ex pupae — 03.09.2016 — 3 ♂♂.

***Agromyza albitarsis* Meigen, 1830 (Fig. 4, a–c)**

**Material.** Shatsk National Reserve, motley grass between the road and oak wood (*Populus*, *Urtica*, *Aegopodium*, *Impatiens*, *Arctium*, *Galeopsis*, *Geranium*), 12.08.2016 — 1 ♂.

**Distribution.** Widespread European species (Denmark, Sweden, Norway, Finland (Spencer, 1976), Hungary, Croatia (Papp and Černý, 2015)). First record for Ukraine.



**Fig. 4. *Agromyza albitarsis*:** a — male head (frontal view); b — male head (lateral view); c — male terminalia (ventral view).

***Agromyza anthracina* Meigen, 1830**

**Material.** Kyiv, Kyrylivskiy Yar, 19.05.2015 (E. Kameneva, V. Korneyev leg.) — 2 ♂♂, 2 ♀♀; Shatsk National Reserve, motley grass between the road and oak wood (*Urtica*, *Aegopodium*, *Impatiens*, *Arctium*, *Galeopsis*, *Geranium*), 12.08.2016 — 1 ♀.

***Agromyza bicaudata* (Hendel, 1920)**

**Material.** Staryi Merchyk, clearing, 08.05.2016 — 1 ♀.

***Agromyza bromi* Spencer, 1966**

**Material.** Near Vasylivka, motley grass (*Alopeculus*, *Anthascus*, *Heracleum*), 02.05.2016 — 3 ♂♂; near Luchky, grasses in a gully, 16.05.2016 — 1 ♀; Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♂.

***Agromyza cinerascens* Maquart, 1835**

**Material.** Near Putyla, Perkalaba, pastoral meadow, 1,000 m a. s. l., 15.05.2015 — 1 ♂.

***Agromyza frontella* (Rondani, 1878)**

**Material.** Near Vasylivka, sparse growth of trees on the slope, 01.05.2016 — 1 ♂; near Luchky, high grass on a slope (Poaceae, *Medicago*, *Hieracium*, *Gallium*, *Vicia*, *Euphorbia*), 16.05.2016 — 1 ♂; Kamyanyets-Podilskiy, Karvasary, motley grass on a slope (Poaceae, *Salvia*, *Timus*, *Fragaria*, etc.), 25.05.2016 — 1 ♂; near Luchky, low grass on a hayfield (Poaceae, *Trifolium*, *Plantago*), 26.06.2016 — 2 ♀♀.

***Agromyza idaeiana* Hardy, 1853**

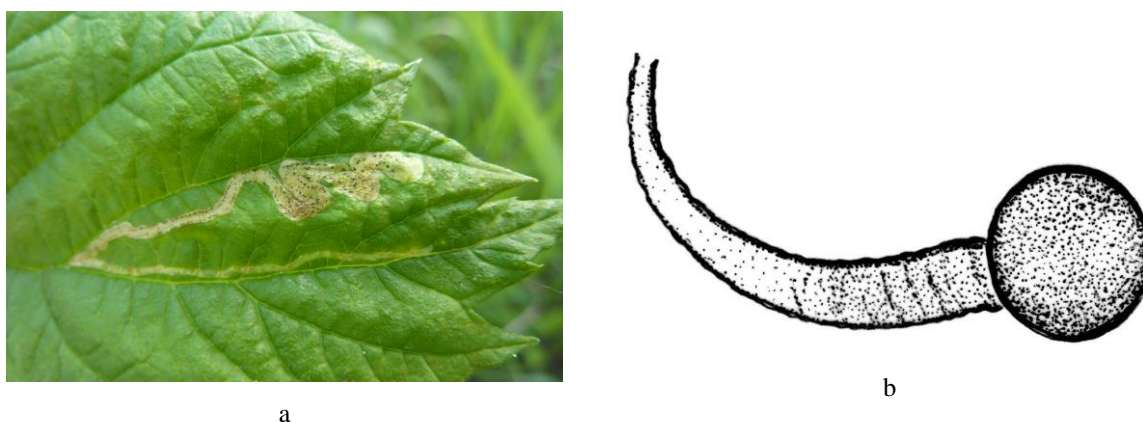
**Material.** Kamyanyets-Podilskiy, Rusky Filvarky, motley grass on the River Smotrych bank, before the rain, 24.05.2016 — 1 ♂.

***Agromyza igniceps* Hendel, 1920 (Fig. 5, a, b)**

**Description of female terminalia (Fig. 5, b).** Both spermathecae are identical, spherical, strongly sclerotized, dark brown. Seminal ductus very wide, strongly sclerotized. Seminal ductus at the base of spermatheca  $2.5 \times$  as narrow as a diameter of spermatheca.

**Material.** Near Vasylivka, larva — 03.05.2016, pupa — 04.05.2016, linear-blotch mine on *Humulus lupulus*, ex pupae — 08.03.2017 — 2 ♀♀; near Petrivske, edge (*Urtica*, *Humulus*, *Verbascum*), 09.05.2014 — 3 ♀♀, thicket of *Humulus* on the edge of deciduous forest, 10.05.2014 — 1 ♀; near Luchky, linear-blotch mine on *Humulus lupulus*, larva — 14.05.2016, pupa — 15.05.2016, ex pupae — 11.03.2017 — 1 ♂; Kyiv, Botanical Garden, motley grass (Poaceae, *Urtica*, *Humulus*), 21.05.2015 — 1 ♀.

**Notes.** Larva of this species forms very specific-shaped mine. Firstly larva forms linear mine along the midrib from the leaf margin directed to the leaf base since reaching the first midrib divergence. Then it turns back and forms widening serpentine mine that finally becomes blotch. In Spencer (1976), another mine pattern is given. In one mine normally develops one larva. On one leaf may be founded 1–3 mines. According of our observations this type of mines can be founded everywhere in Western (Khmelnysky and Chernivtsi Regions), Central (Chernihiv and Kyiv Regions) and Eastern (Sumy, Poltava, Kharkiv, and Dnipropetrovsk Regions) Ukraine, but only on leaves at the base of plant, because larva develops only in May. Thus, there is only one generation per year.



**Fig. 5.** *Agromyza igniceps*: a — linear-blotch mine on *Humulus lupulus*; b — spermatheca.

***Agromyza mobilis* Meigen, 1830**

**Material.** Near Vasylivka, motley grass on a clearing in a small deciduous forest, 03.05.2016 — 1 ♀; Staryi Merchyk, small motley grass clearings in deciduous forest, 08.05.2016 — 2 ♀♀, motley grass along shadowy path in deciduous forest stand, 16.05.2016 — 1 ♂; Kamyanets-Podilskyi, Rusky Filvarky, motley grass on the River Smotrych bank, before the rain, 24.05.2016 — 1 ♀; Shatsk National Reserve, shadowy motley grass (*Trifolium*, *Plantago*, *Taraxacum*, *Agrostis*, *Elymus*), 09.08.2016 — 1 ♀, young forest stand of birch between Peremut and Pesochne lakes, 10.08.2016 — 1 ♂, 1 ♀, motley grass between the road and oak wood (*Urtica*, *Aegopodium*, *Impatiens*, *Arctium*, *Galeopsis*, *Geranium*), 12.08.2016 — 2 ♂♂, 4 ♀♀; near Uzhhorod, 'Skalka', ruderal grass, 17.09.2016 — 1 ♀.

***Agromyza nana* Meigen, 1830**

**Material.** Near Luchky, low grass on a hayfield (Poaceae, *Trifolium*, *Plantago*), 26.06.2016 — 1 ♂, 2 ♀♀; Shatsk National Reserve, shadowy motley grass (*Trifolium*, *Plantago*, *Taraxacum*, *Agrostis*, *Elymus*), 09.08.2016 — 1 ♂.

***Agromyza nigrella* (Rondani, 1875)**

**Material.** Near Vasylivka, motley grass (*Alopecurus*, *Anthascus*, *Heracleum*), 02.05.2016 — 2 ♂♂, motley grass on a clearing in a small deciduous forest, 03.05.2016 — 1 ♂; Staryi Merchyk, clearing with *Urtica dioica*, *Sambucus*, *Solidago canadensis*, and *Ballota nigra*, 08.05.2016 — 1 ♂.

***Agromyza nigrociliata* Hendel, 1931**

**Material.** Near Petrivske, 01.05.2013 — 1 ♂.

***Agromyza prespana* Spencer, 1957**

**Material.** Stara Ushytsa, motley grass under *Picea* sp. (*Taraxacum*, *Vicia*, *Fragaria*, *Ranunculus*, *Lamium*, *Cicorium*, etc.), 26.05.2016 — 1 ♂, 2 ♀♀; Khotyn, motley grass near a fortress, 27.05.2016 — 3 ♂♂, 3 ♀♀; near Luchky, sweeping, shadowy path (*Lactuca*, *Ballota*, *Chenopodium*, *Convolvulus*, *Allium*, *Elytrigia*, *Cirsium*), 27.06.2016 — 1 ♂.

***Agromyza pseudoreptans* Nowakowski, 1967**

**Material.** Near Luchky, semishadowy path on swamped right bank of the River Vorskla, 25.06.2016 — 2 ♂♂, 1 ♀, motley grass on the foot of Zmyyina Hill (*Gallium*, *Ballota*, *Urtica*), 27.06.2016 — 2 ♂♂; Shatsk National Reserve, motley grass between the road and oak wood (*Urtica*, *Aegopodium*, *Impatiens*, *Arctium*, *Galeopsis*, *Geranium*), 12.08.2016 — 1 ♀.

***Agromyza reptans* Fallén, 1823**

**Material.** Sharivka, 09.05.2016 — 2 ♂♂, 1 ♀; Kyiv, Kyrylivskiy Yar, 08.06.2009 (E. Kameneva, V. Korneyev leg.) — 1 ♀; near Luchky, motley grass on the foot of Zmiyina Hill (*Gallium*, *Ballota*, *Urtica*), 27.06.2016 — 1 ♀; near Vasylivka, blackish-green blotch mine on *Urtica dioica* with larva — 19.06.2016, pupation outside of mine — 20.06.2016, ex pupae — 20.07.2016 — 1 ♂; Shatsk National Reserve, motley grass between the road and oak wood (*Urtica*, *Aegopodium*, *Impatiens*, *Arctium*, *Galeopsis*, *Geranium*), 12.08.2016 — 1 ♀, blotch collective mines on *Urtica dioica* with larva — 12.08.2016, pupation in soil — 14.08.2016, stratification outdoor, ex pupae — 17–20.03.2017 — 1 ♂, 9 ♀♀.

***Agromyza seticercus* L. Papp, 2015**

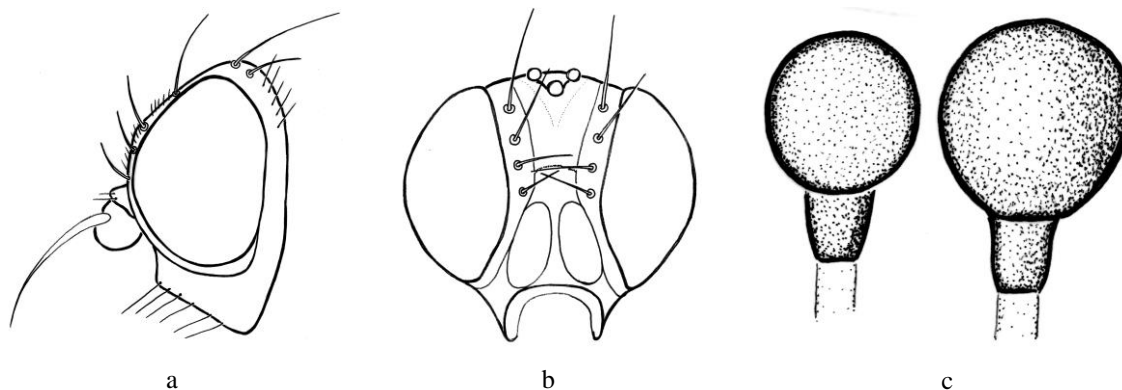
**Material.** Near Vasylivka, sweeping on floodland (Poaceae, *Thalictrum*, *Medicago*, *Urtica*, *Humulus*), 01.05.2016 — 1 ♂, 1 ♀, motley grass (*Alopecurus*, *Anthascus*, *Heracleum*), 02.05.2016 — 1 ♀, shadowy motley grass on the slope under *Ulmus*, *Acer* and *Quercus*, 02.05.2016 — 2 ♂♂, motley grass on a clearing in a small deciduous forest, 03.05.2016 — 5 ♂♂, 4 ♀♀; near Luchky, motley grass along shadowy path in deciduous forest stand, 16.05.2016 — 1 ♀; Kamyanets-Podilskiy, Karvasary, motley grass on a slope (Poaceae, *Salvia*, *Timus*, *Fragaria*, etc.), 25.05.2016 — 2 ♀♀; Stara Ushytsa, motley grass under *Picea* sp. (*Taraxacum*, *Vicia*, *Fragaria*, *Ranunculus*, *Lamium*, *Cicorium*, etc.), 26.05.2016 — 1 ♀; Khotyn, motley grass near a fortress, 27.05.2016 — 2 ♂♂, 1 ♀; Zhovtneve, motley grass on a slope and on the River Muksha bank, 28.05.2016 — 1 ♀; near Vasylivka, flood-land, thickets of *Astragalus*, *Latyris*, *Lotus*, *Medicago*, 19.06.2016 — 2 ♀♀, motley grass on the River Samara bank, 19.06.2016 — 1 ♂, opening in deciduous forest (*Trifolium*, *Cicorium*, *Elymus*, *Urtica*, *Sambucus*, *Verbascum*, *Arctium*), 20.06.2016 — 2 ♀♀, motley grass on a sunny clearing, 20.06.2016 — 2 ♀♀; near Luchky, high grass on the edge of a deciduous forest, 24.06.2016 — 3 ♀♀, semishadowy path on swamped right bank of the River Vorskla, 25.06.2016 — 4 ♀♀, high grass around hayfield (Poaceae, *Lactuca*, *Gallium*, *Allium*, *Malva*), 26.06.2016 — 1 ♀; Shatsk National Reserve, near Pulmo, motley grass on the edge of a coniferous forest near Stuky location, 11.08.2016 — 2 ♀♀.

***Agromyza vicifoliae* Hering, 1932 (Fig. 6, a–c)**

**Description of female terminalia (Fig. 6, c).** Both spermathecae are spherical, strongly sclerotized, dark brown. Diameter of smallest spermatheca 0.75× as diameter of biggest one. Collars of both spermathecae are equal, strongly sclerotized, dark brown.

**Material.** Irpin, meadow, 20.05.2015 — 3 ♂♂, 1 ♀; Kyiv, Botanical Garden, meadow, 21.05.2015 — 2 ♂♂, 5 ♀♀; Irpin, 22.05.2015 — 7 ♂♂, 6 ♀♀.

**Distribution.** Widespread European species (Papp and Černý, 2015). First record for Ukraine.



**Fig. 6.** *Agromyza vicifoliae*: a — male head (lateral view); b — male head (frontal view); c — spermathecae.

**Conclusions.** Currently, 97 species of mining flies of the subfamily Agromyzinae are recorded in Ukraine. Seven species, such as *Melanagromyza nigrissima* Spencer, 1976, *M. polemonii* Rohdendorf, 1953, *Ophiomyia delphinii* Hendel, 1926, *O. ononidis* Spencer, 1966, *O. verbasci* Černý, 1991, *Agromyza albitarsis* Meigen, 1830, and *A. vicifoliae* Hering, 1932, are recorded for Ukraine for the first time. All these species were hitherto found only in one or two localities, and possibly, are small in numbers and have patched distribution in the area of investigation. Descriptions and pictures of female terminalia of *Hexomyza simplex*, *Ophiomyia australis*, *O. cornifera*, *Agromyza igniceps* and *A. vicifoliae* allow reliable identification of females. Rearing of *A. igniceps* male and female from *Humulus lupulus* revealed more specific information about mine shape of this species and showed that it occurs in Khmelnytsky, Chernivtsi, Chernihiv, Kyiv, Sumy, Poltava, Kharkiv, and Dnipropetrovsk Regions of Ukraine where its host plant occurs.

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