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A STUDY OF THE FAUNA OF LEAF-MINER FLIES OF THE SUBFAMILY AGROMYZINAE (DIPTERA: AGROMYZIDAE) OF UKRAINE. REPORT 3. ELEVEN NEW SPECIES FOR THE FAUNA OF UKRAINE

Гугля, Ю. О. Вивчення фауни мінуючих мушок під родини Agromyzinae (Diptera: Agromyzidae) України. Повідомлення 3. Одиннадцять нових видів для фауни України [Текст] / Ю. О. Гугля // Вісн. Харк. ентомол. т-ва. — 2015. — Т. XXIII, вип. 2. — С. 29–38.

За результатами вивчення фауни мінуючих мушок під родини Agromyzinae впродовж 2009–2015 рр. для території України наведено 79 видів. Одиннадцять видів (*Melanagromyza zlobini* Pakalniskis, 1996, *Ophiomyia asparagi* Spencer, 1964, *O. cornifera* Hendel, 1920, *O. inaequalis* (Hendel, 1931), *O. labiatarum* Hering, 1937, *O. moravica* Černý, 1994, *O. rapta* Hendel, 1931, *Agromyza abiens* Zetterstedt, 1948, *A. erythrocephala* Hendel, 1920, *A. pittodes* Hendel, 1931 і *A. pseudoreptans* Nowakowski, 1967) наведені як нові для фауни України. Стаття містить зображення голів і геніталій самців і самок *M. zlobini* Pakalniskis, 1996, *O. asparagi* Spencer, 1964, *O. cornifera* Hendel, 1920, *O. inaequalis* (Hendel, 1931), *O. rapta* Hendel, 1931, *A. erythrocephala* Hendel, 1920 і *A. pittodes* Hendel, 1931. Для двох видів наведені нові кормові рослини. 7 рис., 16 назв.

Ключові слова: мінуючі мушки, Diptera, Agromyzidae, Agromyzinae, Україна, фауна, біологія, розповсюдження.

Гугля, Ю. А. Изучение фауны минирующих мушек подсемейства Agromyzinae (Diptera: Agromyzidae) Украины. Сообщение 3. Одиннадцать новых видов для фауны Украины [Текст] / Ю. А. Гугля // Изв. Харьк. энтомол. о-ва. — 2015. — Т. XXIII, вып. 2. — С. 29–38.

По результатам изучения фауны минирующих мушек подсемейства Agromyzinae в течение 2009–2015 гг. для территории Украины приведено 79 видов. Одиннадцать видов (*Melanagromyza zlobini* Pakalniskis, 1996, *Ophiomyia asparagi* Spencer, 1964, *O. cornifera* Hendel, 1920, *O. inaequalis* (Hendel, 1931), *O. labiatarum* Hering, 1937, *O. moravica* Černý, 1994, *O. rapta* Hendel, 1931, *Agromyza abiens* Zetterstedt, 1948, *A. erythrocephala* Hendel, 1920, *A. pittodes* Hendel, 1931 и *A. pseudoreptans* Nowakowski, 1967) приведены как новые для фауны Украины. Статья содержит изображения голов и гениталий самцов и самок *M. zlobini* Pakalniskis, 1996, *O. asparagi* Spencer, 1964, *O. cornifera* Hendel, 1920, *O. inaequalis* (Hendel, 1931), *O. rapta* Hendel, 1931, *A. erythrocephala* Hendel, 1920 и *A. pittodes* Hendel, 1931. Для двух видов приведены новые кормовые растения. 7 рис., 16 назв.

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

Guglya, Yu. A. A study of the fauna of leaf-miner flies of the subfamily Agromyzinae (Diptera: Agromyzidae) of Ukraine. Report 3. Eleven new species for the fauna of Ukraine [Text] / Yu. A. Guglya // The Kharkov Entomol. Soc. Gaz. — 2015. — Vol. XXIII, iss. 2. — P. 29–38.

During 2009–2015, seventy-nine leaf-miner fly species from subfamily Agromyzinae were recorded from Ukraine. Eleven species (*Melanagromyza zlobini* Pakalniskis, 1996, *Ophiomyia asparagi* Spencer, 1964, *O. cornifera* Hendel, 1920, *O. inaequalis* (Hendel, 1931), *O. labiatarum* Hering, 1937, *O. moravica* Černý, 1994, *O. rapta* Hendel, 1931, *Agromyza abiens* Zetterstedt, 1948, *A. erythrocephala* Hendel, 1920, *A. pittodes* Hendel, 1931 and *A. pseudoreptans* Nowakowski, 1967) are recorded from Ukraine for the first time. The article includes images of heads and male and female genitalia of *M. zlobini* Pakalniskis, 1996, *O. asparagi* Spencer, 1964, *O. cornifera* Hendel, 1920, *O. inaequalis* (Hendel, 1931), *O. rapta* Hendel, 1931, *A. erythrocephala* Hendel, 1920 and *A. pittodes* Hendel, 1931. New host plants were recorded for two leaf-miner fly species. 7 figs., 16 refs.

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

Introduction. Mining flies Agromyzinae are still poorly investigated in Ukraine and adjacent territories. The present manuscript is a continuation of the research of Agromyzinae fauna launched in 2009 (Guglya, 2011, 2012, 2013, 2014).

Material and methods. Material was collected by the author in 41 localities mainly in eastern and southeastern Ukraine during 2009–2015. Adults were collected mainly by sweeping. Dissected genitalia were macerated in potassium hydroxide solution, washed, examined in glycerol, and stored in a microvial pinned together with the fly specimen. Some adults were reared from larva using the methods as described by Yu. Guglya (2010). All drawings and the photo were made by the author. The keys by Černý (1985, 1994), Pakalniskis (1996) and Spencer (1964, 1966, 1976) 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 discussions. In the present manuscript, 51 species from three genera are discussed; genus *Melanagromyza* — 5 species, *Ophiomyia* — 26 species and *Agromyza* — 20 species. A total of 628 specimens (254 males and 374 females) were collected and diagnosed by the author.

List of locations of collected material. Bohuslavka — Kharkiv Region (49°26' N, 37°38' E); Donetsk — 47°59' N, 37°52' E; Dvorichna — Kharkiv Region (49°51' N, 37°40' E); Haidary — Kharkiv Region, The National Nature Park 'Homilshanski Lisy' (49°37' N, 36°19' E); Illienko — Luhansk Region, (48°38' N, 36°41' E); Kamianka — Kharkiv Region, The National Nature Park 'Dvorichanskiy' (49°59' N, 37°53' E); Karavan — Kharkiv Region (50°03' N, 36°07' E); Kharkiv: Botanical Garden — 50°01' N, 36°14' E, city centre — 50°00' N, 36°14' E, Piatykhatty — 50°05' N, 36°14' E, Sokolnyky — 49°25' N, 36°15' E, Velyka Danylivka — 50°01' N, 36°18' E; Klymentove — Sumy Region (50°23' N, 34°55' E); Kondrashevska Staintion — Luhansk Region (48°39' N, 39°27' E); Kovpakivka — Kharkiv Region (49°09' N, 35°01' E); Kuripchyne — Mykolaiv Region, The National Nature Park 'Buzkyi Gard' (49°59' N, 31°00' E); Kuzemyn — Sumy Region, The National Nature Park 'Hetmanskyi' (50°08' N, 34°40' E); Kyiv: M. M. Grishko National Botanical Garden of the NAS of Ukraine (50°24' N, 30°33' E); Kytsivka — Kharkiv Region (49°51' N, 36°49' E); Lyman — Kharkiv Region (49°35' N, 36°28' E); Liubotyn — Kharkiv Region (49°56' N, 35°57' E); Lviv — 49°50' N, 24°04' E; Mokhnach — Kharkiv Region (49°44' N, 36°32' E); Myhiia — Mykolaiv Region, The National Nature Park 'Buzkyi Gard' (48°01' N, 30°57' E); Omelchenky — Kharkiv Region (49°38' N, 36°24' E); Orchyk — Kharkiv Region (49°09' N, 35°01' E); Petrivske — Kharkiv Region (49°10' N, 36°58' E); Rubizhne — Kharkiv Region (50°10' N, 36°47' E); Shchastia — Luhansk Region (48°45' N, 39°16' E); Sydorove — Donetsk Region, The National Nature Park 'Sviati Hory' (49°00' N, 37°37' E); Stara Pokrovka — Kharkiv Region (49°48' N, 36°32' E); Trostianets — Sumy Region (50°28' N, 34°55' E); Vakalivshchyna — Sumy Region (51°02' N, 34°55' E); Vilshany — Kharkiv Region (50°03' N, 35°51' E); Volokhiv Yar — Kharkiv Region (49°36' N, 36°57' E); Zatonetske — Kharkiv Region, The National Nature Park 'Homilshanski Lisy' (49°39' N, 36°20' E); Zarichne — Sumy Region (50°24' N, 34°58' E); Zmiiv — Kharkiv Region, (49°40' N, 36°21' E).

Genus *Melanagromyza* Hendel, 1920

Melanagromyza aenea (Meigen, 1830)

Material. Donetsk, Botanical Garden, 24.04.2014 — 1 ♀; Karavan, thicket of *Humulus* and *Urtica*, 28.04.2014 — 2 ♂♂, 3 ♀♀; Petrivske, thicket of *Humulus* and *Urtica* near a bog (1 ♂ and 1 ♀ — in copula), 01.05.2013 — 5 ♂♂, 3 ♀♀; Stara Pokrovka, thicket of *Urtica* in the flood-land, 02.05.2014 — 2 ♂♂, 5 ♀♀; Petrivske, cretaceous slope, 03.05.2013 — 1 ♀; Trostianets, sparse growth of trees on the slope, 07.05.2013 — 4 ♂♂, 1 ♀; Petrivske: thicket of *Urtica* in the flood-land, 09.05.2014 — 2 ♂♂, 21 ♀♀; clearing with small gullies between deciduous and coniferous forest, 10.05.2014 — 1 ♀; grass on a shadowy path, 10.05.2014 — 2 ♀♀; shadowy opening between coniferous forest and wetland plot, 10.05.2014 — 2 ♂♂, 2 ♀♀; Dvorichna, flood-land, 16.05.2014 — 1 ♂, 1 ♀.

Bionomics. One generation was registered in April–May.

Melanagromyza astragali Spencer, 1976

Material. Kytsivka: open sands, 04.05.2012 — 1 ♂, steppe, 04.05.2012 — 6 ♂♂; Petrivske, motley grass on the clearing with small gullies, 10.05.2014 — 1 ♂; Kovpakivka, clearing in coniferous forest, 15.05.2011 — 1 ♂; Dvorichna, small gully, 16.05.2014 — 1 ♂; Omelchenky, edge of coniferous forest, 18.05.2013 — 1 ♂; Kovpakivka, 23.05.2009 — 2 ♂♂; Kuzemyn: 23.05.2010 — 1 ♂, flood-land meadow near a bog, 29.05.2011 — 2 ♂; Vilshany, gully, 29.05.2011 — 2 ♂; Rubizhne, gully slope near coniferous forest, 12.06.2011 — 1 ♂; Zarichne, location Kukuevo Gorodische, thicket of *Astragalus cicer* L., 12.07.2013 — 3 ♂♂, 2 ♀♀.

Bionomics. Two generations were registered from April to July.

Melanagromyza cunctans (Meigen, 1830)

Material. Lyman, location Sukhoi Lyman, wet meadow, 18.05.2013 — 4 ♂♂; Zarichne, location Kukuevo Horodysheche thicket of *Astragalus cicer* L., 12.07.2013 — 1 ♀; Vakalivshchyna, motley grass in the orchard, 13.07.2013 — 1 ♂, 2 ♀♀, wet meadow, 15.07.2013 — 1 ♂; Rubizhne, meadow, 20.07.2013 — 2 ♂♂, 4 ♀♀; Dvorichna, deep cretaceous gully, 24.07.2014 — 1 ♂; Kytsivka, meadow nearby deciduous forest, 26.07.2014 — 1 ♂; Petrivske, cretaceous slope, 11.08.2013 — 2 ♂♂; Rubizhne: meadow, 17.08.2013 — 4 ♂♂, 7 ♀♀, edge of coniferous forest, 17.08.2013 — 1 ♂, 1 ♀, meadow nearby the birch forest, 17.08.2013 — 5 ♂♂, grass on the opening in coniferous forest, 17.08.2013 — 1 ♂, 1 ♀, high and thick grass in the forest stand of *Robinia* and *Pinus*, 17.08.2014 — 1 ♀; Petrivske, grass on a country road, 24.08.2014 — 1 ♂, 1 ♀.

Bionomics. Usually three or four generations develop from May to September. Common species, sometimes mass aggregation was registered.

Melanagromyza zlobini Pakalniskis, 1996 (Fig. 1)

Material. Donetsk, Botanical Garden, 23.04.2014 — 1 ♀; Trostianets: motley grass under *Pinus* and *Acer* on the slope 07.05.2013 — 3 ♂♂, 3 ♀♀, bank of the Trostyanka River 07.05.2013 — 4 ♀♀.

Bionomics. One generation was registered in Ukraine, but at least two generations may develop during May–June.

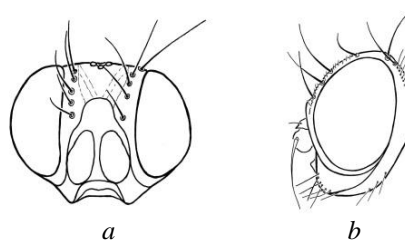


Fig. 1. Male head of *M. zlobini*: a — frontal view, b — lateral view.

Distribution. This species was described from Lithuania (Pakalniškis, 1996) and was known also from Greece (Černý, 2011). First record for Ukraine.

***Melanagromyza provecta* (de Meijere, 1910)**

Material. Rubizhne: shadowy edge of coniferous forest, 17.05.2014 — 1 ♀, low grass on a path, 19.07.2014 — 1 ♀; Dvorichna, thick grass in a small deciduous forest, 24.07.2014 — 1 ♂; Petrivske, grass on a country road, 24.08.2014 — 1 ♂, 1 ♀.

Bionomics. Three of four generations develop from May to August.

Genus *Ophiomyia* Braschnikov, 1897

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

Material. Dvorichna, steppe, 16.05.2014 — 1 ♀.

Bionomics. Probably one generation develops in May.

***Ophiomyia asparagi* Spencer, 1964 (Fig. 2)**

Description of female terminalia. Both spermathecae are identical, spherical, dark-brown, with well developed collar. Medial margin of egg guide with numerous minute dark scales in 2–3 irregular rows. Egg guide 5.4× as long as spermatheca.

Material. Petrivske, clearing on the bank of the Bereka River, stem mine with three pupae together (Fig. 2a) on *Asparagus officinale* — 25.07.2015, 02–03.08.2015 — ex pupa — 1 ♂, 2 ♀♀.

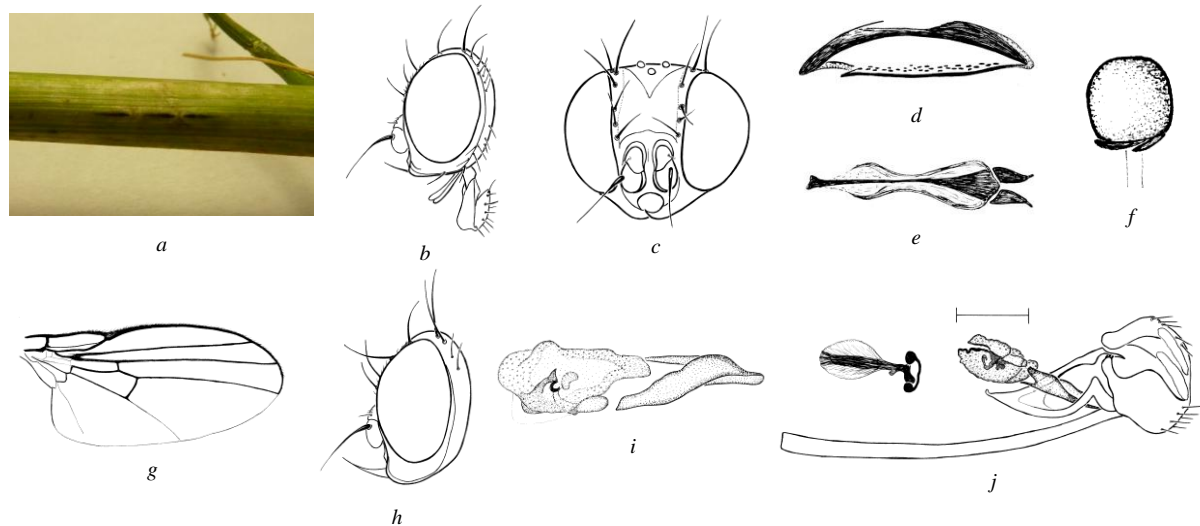


Fig. 2. *Ophiomyia asparagi*: a — pupae inside the mine; b — female head (lateral view); c — male head (frontal view); d — egg guide, left blade; e — proctiger and cerci; f — spermatec; g — wing; h — male head (lateral view); i — phallus (lateral view); j — male terminalia (total view). Scale bar 0.1 mm.

Bionomics. In most of the cases, one larva develops in one mine (original data).

Distribution. Occurs in Italy, Spain, Yugoslavia (Korsula), Slovenia (Spencer, 1964), Greece (Černý, 2011). First record for Ukraine.

***Ophiomyia australis* Guglya, 2013**

Material. Rubizhne: high and thick grass in the forest stand of *Robinia* and *Pinus*, 27.04.2015 — 1 ♂, slope with thicket of *Triticum* sp., 17.08.2014 — 1 ♂.

Bionomics. Probably three or four generations develop from April to August. Female and immature stages are unknown.

Distribution. This species was described from Mykolaiv Region of Ukraine. The record in the Kharkiv Region expands its range far to the north.

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

Material. Petrivske: motley grass on the clearing with small gullies, 10.05.2014 — 1 ♀, shadowy wet opening in deciduous forest, 10.05.2014 — 1 ♀; Rubizhne, meadow, 20.05.2012 — 1 ♀; Kytsivka, thicket of *Carex* and *Erigeron* in the apple orchard near the bog, 26.07.2014 — 1 ♂.

Bionomics. As a rule, three or four generations develop from May to August.

***Ophiomyia cornifera* Hendel, 1920** (Fig. 3)

Material. Trostianets, motley grass on the slope, 15.06.2013 — 1 ♂.

Distribution. Occurs in Greece (Spencer, 1964). First record for Ukraine.

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

Material. Kharkiv, city centre, mine with larva on *Taraxacum officinale* — 22.04.2013, 25.04.2013 — pupa, 07.05.2013 — ex pupa — 1 ♀; Lyman, location Sukhoi Lyman, meadow, 18.05.2013 — 2 ♀♀; Rubizhne, edge of deciduous forest, 20.05.2012 — 1 ♀; Kharkiv: city centre, mines with pupae on *Sonchus arvensis* — 08.06.2013, 16, 17.06.2013 — ex pupa — 2 ♂♂, Velyka Danylivka: mine with pupa on *Lactuca* sp. (I. Moskaletz leg.), 19.06.2013 — ex pupa — 1 ♂, mines with pupae on *Sonchus* sp. (I. Moskaletz leg.), 20.06.2013 — ex pupa — 1 ♂, 1 ♀, Piatykhvatky, deciduous forest, 01.07.2012 — 1 ♀, Velyka Danylivka, mine with pupa on *Sonchus oleracea* — 26.05.2013 (I. Moskaletz leg.), 02.07.2013 — ex pupa — 1 ♂; Rubizhne, shadowy edge of coniferous forest, 19.07.2014 — 1 ♀; Petrivske, mine with pupa on *Cichorium intybus* — 24.08.2014, 07.09.2014 — ex pupa — 1 ♀.

Bionomics. Five generations develop from April to September. This species develops in leaf linear mines with short offshoots on many Asteraceae. *Cichorium intybus* is recorded as a host-plant for the first time.

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

Material. Trostianets, coniferous forest on the slope, 07.05.2013 — 1 ♀; Petrivske, bank of the Siversky Donets River 09.05.2014 — 1 ♀; Myhiia, bank of the Pivdennyi Buh River, granite steppe, 30.06.2010 — 1 ♀; Sydorove, cretaceous hills, 19.07.2010 — 1 ♀; Rubizhne, meadow, 20.07.2013 — 1 ♀; Dvorichna, deep cretaceous gully, 24.07.2014 — 1 ♀; Kytsivka, meadow near deciduous forest, 26.07.2014 — 1 ♂, 2 ♀♀; Petrivske: clearing between coniferous forest and blacktorn, 10.08.2013 — 1 ♀, cretaceous slope, 11.08.2013 — 1 ♂; Kuzemyn, flood-lands, 13.08.2011 — 1 ♀; Rubizhne: meadow, 17.08.2013 — 1 ♂, high and thick motley grass in the forest stand of *Robinia* and *Pinus*, 17.08.2014 — 1 ♂; Petrivske, clearing on the bank of the Siversky Donets River, 24.08.2014 — 1 ♂.

Bionomics. Four generations develop from May to September.

***Ophiomyia disorders* Pakalniskis, 1998**

Material. Petrivske: clearing with small gullies and an opening in coniferous forest, 10.05.2014 — 2 ♂♂, 1 ♀, flood-land, 11.05.2014 — 1 ♂, 1 ♀.

Bionomics. Two generations were registered in Ukraine.

***Ophiomyia heracleivora* Spencer, 1957**

Material. Kharkiv, Piatykhvatky, gully, 02.05.2012 — 1 ♀; Petrivske: clearing in deciduous forest, 10.05.2014 — 3 ♂♂, 1 ♀; Lyman, location Sukhoi Lyman, meadow, 18.05.2013 — 1 ♂; Bohuslavka, edge of alder thicket, 22.06.2013 — 1 ♂; Petrivske: 25.06.2011 — 1 ♀, high grass in gullies in flood-land, 03.07.2010 — 1 ♀; Lviv, Stryiskyi Park, clearing with blooming *Aegopodium*, a lot of empty leaf-mines were found, 04.07.2013 — 1 ♂, 1 ♀; Illienko, flood-land, bank of the Derkul River 23.07.2010 — 1 ♀; Kondrashevska Station, gully on the bank of the Siversky Donets River, 23.07.2010 — 4 ♀♀; Shchastia, meadow near an aspen grove, 24.07.2010 — 1 ♀.

Bionomics. Three generations develop from May to July.

***Ophiomyia inaequabilis* (Hendel, 1931)** (Fig. 4)

Description of female terminalia. Both spermathecae are identical, oval, dark-brown, with well-developed collar. Ventral margin of egg guide with minute, dark, proximally oriented teeth. Membrane of medial margin of egg guide with numerous minute scales along all margin. Besides that 9–10 large dark scales are located along central and proximal parts of medial margin.

Material. Kamianka, flood-land, 14.05.2010 — 1 ♀; Zarichne, location Kukuevo Horodishche: sweeping in the *Astragalus cicer* thicket in the meadow, 12.07.2013 — 9 ♂♂, 12 ♀♀, motley grass on the edge of a small deciduous forest, 12.07.2013 — 3 ♀♀.

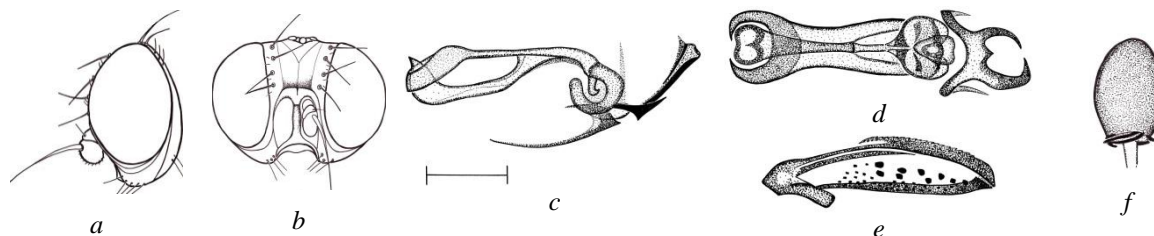


Fig. 4. *Ophiomyia inaequabilis*: a — male head (lateral view); b — male head (frontal view); c — phallus (lateral view); d — phallus (ventral view); e — egg guide, left blade; f — spermatheca. Scale bar 0.1 mm.

Bionomics. Host plant is unknown. This species is similar to *Ophiomyia shibatsui*, which is a stem miner of leguminous plants. Probably, *Astragalus cicer* L. is a host plant of *O. inaequalis*, because a mass aggregation of these flies was found on this plant. Two generations per year were registered.

Distribution. Occurs in Greece (Černý, 2011), and Turkey (Civelek, Çikman, Dursun, 2009). The first record for Ukraine.

Ophiomyia labiatarum Hering, 1937

Material. Vakalivshchina: meadow and slopes in an apple orchard, 12.06.2013 — 1 ♂, motley grass under pine trees, 13.06.2013 — 1 ♂; Kuripchine: gully, 26.06.2010 — 2 ♂♂, edge of deciduous forest, 27.06.2010 — 2 ♂; Petrivske, cretaceous slope, 11.08.2013 — 1 ♂; Rubizhne, edge of coniferous forest, 17.08.2013 — 1 ♂.

Bionomics. Two generations were registered.

Distribution. Occurs in countries of Western Europe, Israel, Canada, United States (Černý, 2009), Greece (Černý, 2011), Turkey (Civelek, Çikman, Dursun, 2009). First record for Ukraine.

Ophiomyia maura (Meigen, 1832)

Material. Petrivske, shadowy edge of coniferous forest, 10.05.2014 — 3 ♀♀; Kovpakivka, coniferous forest, serpentine mines with green pupae on *Solidago virgaurea* — 25.05.2013, 05–08.06.2013 — ex pupa — 5 ♂♂, 3 ♀♀; Petrivske: opening in coniferous forest, 10.08.2013 — 1 ♂, edge of coniferous forest, 11.08.2013 — 1 ♂.

Bionomics. Three generations develop from May to August.

Ophiomyia melandricaulis Hering, 1943

Material. Karavan, thicket of *Humulus*, *Urtica* and *Lappula*, 28.04.2014 — 1 ♂; Dvorichna, gully, 16.05.2014 — 1 ♀; Rubizhne, shadowy edge of coniferous forest, 17.05.2014 — 1 ♂; Vakalivshchina, clearing, 15.06.2010 — 1 ♂.

Bionomics. Three generations were registered from May to August.

Ophiomyia melandryi de Meijere, 1924

Material. Petrivske: shadowy wet path in deciduous forest, 10.05.2014 — 1 ♂, shadowy opening, 10.05.2014 — 1 ♂.

Bionomics. Two or three generations develop from May to August.

Ophiomyia moravica Černý, 1994

Material. Karavan, thicket of *Humulus*, *Urtica* and *Lappula*, 28.04.2014 — 1 ♂.

Distribution. This species was known only from Czech Republic (Černý, 1994). First record for Ukraine.

Ophiomyia nasuta (Melander, 1830)

Material. Kharkiv, Piatykhatky, deep narrow gully, 03.05.2014 — 1 ♀; Lyman, location Sukhoy Lyman, meadow, 18.05.2013 — 3 ♀♀; Kharkiv, Botanical Garden, edge of deciduous forest stand, 10.06.2012 — 1 ♀; Lviv, Stryiskyi Park, clearing, 04.07.2013 — 1 ♂; Vakalivshchina, meadow, 15.07.2013 — 1 ♂.

Bionomics. Four or five generations develop from May to September.

Ophiomyia orbiculata (Hendel, 1913)

Material. Kharkiv, Piatykhatky, deep narrow gully, 03.05.2014 — 1 ♂; Rubizhne, meadow, 17.05.2014 — 10 ♂♂, 7 ♀♀; Lyman, location Sukhoy Lyman, meadow, 18.05.2013 — 1 ♀; Volokhiv Yar, gully, 22.05.2011 — 1 ♂, 1 ♀; Rubizhne, gully, 29.05.2010 — 1 ♀; Kuripchine, gully, 26.06.2010 — 1 ♀; Kharkiv, city centre, white blotch leaf mine with larva — 18.06.2013 on *Medicago falcata*, 28.06.2013 — ex pupa — 1 ♂; Rubizhne, grass on a path, 19.07.2014 — 2 ♂♂, 9 ♀♀; Kytsivka, thicket of *Carex* and *Erigeron* in an apple orchard near the bog, 26.07.2014 — 1 ♂; Rubizhne, slope with a thicket of *Triticum* sp., 17.08.2014 — 1 ♀.

Bionomics. This species is known as a stem miner on *Pisum* and *Vicia*. It is the first record as a leaf miner on *Medicago falcata*. Three generations develop from May to August.

Ophiomyia pinguis (Fallén, 1820)

Material. Dvorichna: cretaceous gully, 16.05.2014 — 3 ♂♂, 2 ♀♀, steppe, 16.05.2014 — 2 ♂♂; Rubizhne, meadow, 17.05.2014 — 1 ♀; Sydorove, cretaceous slope, 19.07.2010 — 1 ♂; Dvorichna, deep cretaceous gully, 24.07.2014 — 3 ♂♂, 1 ♀; Kharkiv, Piatykhatky, gully, 28.08.2015 — 1 ♂.

Bionomics. Four generations develop from May to September.

Ophiomyia punctata Guglya, 2013

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

Bionomics. Two generations were registered.

Distribution. This species is known only from Eastern Ukraine (Kharkiv, Lugansk and Donetsk Regions).

Ophiomyia ranunculicaulis Hering, 1949

Material. Dvorichna, cretaceous gully, 16.05.2014 — 1 ♀; Rubizhne, motley grass on the slope, 17.05.2014 — 1 ♀.

Bionomics. Three generations develop from May to August.

Ophiomyia rapta Hendel, 1931 sensu male 'near *rapta*' in Spencer, 1964 (Fig. 5)

Description of female terminalia. Both spermathecae are identical, spherical, dark-brown, with well-developed collar. Spermatheca base is pressed into spermatheca on 0.8 of high of spermatheca. Only few minute scales are located on distal part of medial margin of egg guide. Ventral margin of egg guide with very minute, slightly diagnosed dark teeth. Proximal margin is narrow and sharp.

Material. Donetsk, Botanical Garden, 25.04.2014 — 1 ♂; Kyiv, Botanical Garden, steppe, high grass, 21.05.2015 — 5 ♂♂, 2 ♀♀.

Bionomics. Only one generation is registered in Ukraine.

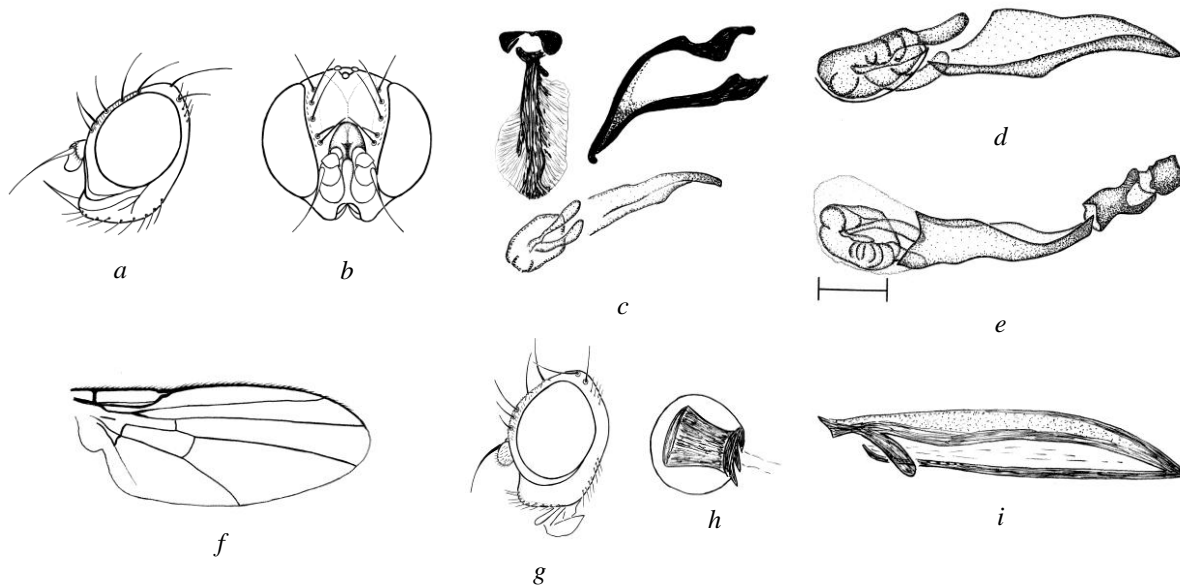


Fig. 5. *Ophiomyia rapta*: a — male head (lateral view); b — male head (frontal view); c — male terminalia (total view); d — phallus (lateral view); e — phallus (ventral view); f — wing; g — female head (lateral view); h — spermatheca; i — egg-guide, left blade. Scale bar 0.1 mm.

Distribution. This species was described by Hendel only by one female collected in South Tirol (Austria) in July. Later in 1964, K. A. Spencer described the male *Ophiomyia* 'near *rapta*' from Budapest (Hungary) similar to the specimen that was collected in April 2014 in Ukraine discussed here. Later, in May 2015 five males and two females were collected together in similar biotope but more to the north. First record for Ukraine.

Ophiomyia skanensis Spencer, 1976

Material. Petrivske: flood-land, 29.04.2013 — 2 ♀♀, clearing near deciduous forest, 30.04.2013 — 1 ♀; Trostianets, motley grass under pine and maple trees on the slope, 07.05.2013 — 1 ♂; Petrivske, edge of coniferous forest, 11.08.2013 — 1 ♂; Rubizhne, edge of coniferous forest, 17.08.2013 — 1 ♂.

Bionomics. Three or four generations develop from April to August.

Ophiomyia slovac Černý, 1994

Material. Donetsk, Botanical Garden, 23-25.04.2014 — 10 ♂♂, 5 ♀♀; Petrivske: meadow, 29.04.2013 — 1 ♂, sweeping on *Humulus*, 01.05.2013 — 1 ♂, 1 ♀, cretaceous slope, 03.05.2013 — 1 ♀; Trostianets, low grass on the slope, 07.05.2013 — 1 ♀.

Bionomics. One generation was registered.

Ophiomyia spenceri Černý, 1985

Material. Rubizhne, shadowy edge of coniferous forest, 17.05.2014 — 1 ♂; Bohuslavka, dry clearing in coniferous forest, 22.06.2013 — 1 ♂; Rubizhne: shadowy edge of coniferous forest on the slope, 19.07.2014 and 17.08.2013 — 3 ♂♂.

Bionomics. Two or three generations develop from May to August.

Ophiomyia submaura Hering, 1926

Material. Kharkiv, Piatykhatky, deep narrow gully, 03.05.2014 — 1 ♂, 2 ♀♀; Petrivske, opening between a coniferous and deciduous forest, 11.08.2013 — 1 ♀.

Bionomics. Three generations develop from April to August.

***Ophiomyia vimmeri* Černý, 1994**

Material. Dvorichna, cretaceous gully, 16.05.2014 — 1 ♂; Rubizhne: motley grass on the slope near a coniferous forest, 17.05.2014 — 1 ♂, 6 ♀♀, meadow, 17.05.2014 — 1 ♀; Vakalivshchina: edge of mixed forest, 13.06.2013 — 1 ♀, gully, 13.06.2013 — 1 ♀; Petrivske, meadow, Malaise trap, 12.07.2014 — 1 ♀; Rubizhne: shadowy edge of coniferous forest, 19.07.2014 — 1 ♀, motley grass, 17.08.2014 — 2 ♂♂, 4 ♀♀.

Bionomics. Four generations develop from May to August.

***Ophiomyia vitiosa* Spencer, 1964**

Material. Klymentove, flood-land, 08.05.2013 — 1 ♂; Trostianets, motley grass on the slope, 15.06.2013 — 1 ♂; Bohuslavka, 22.06.2013 — 1 ♂; Petrivske, cretaceous slope, 11.08.2013 — 2 ♂♂; Rubizhne: short grass meadow, 17.08.2013 — 1 ♂, shadowy path on the edge of coniferous forest, 17.08.2014 — 1 ♂.

Bionomics. Three generations develop from May to August.

Genus *Agromyza* Fallén, 1810***Agromyza abiens* Zetterstedt, 1948**

Material. Vakalivshchina, opening in deciduous forest, 14.06.2013 — 1 ♂, 2 ♀♀.

Bionomics. One generation was registered.

Distribution. Occurs in Denmark, Sweden, Norway (Spencer, 1976), Greece (Černý, 2011), Lithuania (Checklist ..., 2006), Turkey (Civelek, Çikman, Dursun, 2009), Morocco (Spencer, 1967). First record for Ukraine.

***Agromyza anthracina* Meigen, 1830**

Material. Petrivske: thicket of *Urtica*, 09.05.2014 — 2 ♂♂, 5 ♀♀, clearing, 10.08.2013 — 1 ♂.

Bionomics. Two generations were registered in May and August.

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

Material. Petrivske: flood-land, 29.04.2013 — 1 ♀, bank of the Siversky Donets River, 30.04.2013 — 1 ♂; Sydorove, flood-land, 02.05.2011 — 3 ♀♀; Trostianets, motley grass under pine and maple trees on the slope, 07.05.2013 — 2 ♀♀; Klymentove: meadow on the bank of the Vorskla River, 08.05.2013 — 1 ♂, 1 ♀; Orchyk, motley grass on a country road, 15.05.2011 — 1 ♀.

Bionomics. One generation per year was registered.

***Agromyza bromi* Spencer, 1966**

Material. Mokhnach, flood-land, 29.04.2012 — 1 ♀; Kharkiv, Piatykhatky, gully, 02.05.2012 — 1 ♀; Petrivske, cretaceous slope, 03.05.2013 — 1 ♀; Klymentove, meadow on the bank of the Vorskla River 08.05.2013 — 1 ♀; Petrivske, thicket of *Urtica*, 09.05.2014 — 1 ♀; Kharkiv, Botanical Garden, wet clearing, 12.05.2012 — 1 ♀; Kamianka, flood-land, 14.05.2010 — 1 ♀; Dvorichna, flood-land, 16.05.2014 — 1 ♂, 1 ♀; Rubizhne, edge of deciduous forest, 20.05.2012 — 2 ♀♀; Trostianets, meadow, 15.06.2013 — 2 ♀♀; near Zmiiv, meadow, 17.07.2010 — 1 ♀; Petrivske, motley grass on the bank of the Siversky Donets River 11.08.2013 — 1 ♂, 2 ♀♀; Rubizhne, small clearing near a coniferous forest, 17.08.2014 — 1 ♂; Petrivske, grass on a country road, 24.08.2014 — 1 ♀.

Bionomics. Three generations develop from April to August.

***Agromyza cinerascens* Maquart, 1835**

Material. Kuzemyn, clearing on the bank of the Vorskla River, 20.04.2014 — 1 ♂; Karavan, wet meadow, 28.04.2014 — 1 ♂, 2 ♀♀; Petrivske, wet flood-land, 29.04.2013 — 1 ♀; Mokhnach, flood-land, 29.04.2012 — 4 ♀♀; Kharkiv: Sokolnyky, motley grass, 01.05.2012 — 4 ♀♀, Piatykhatky: gully, 02.05.2012 — 1 ♀ and 03.05.2014 — 2 ♀♀, city center, clearing, 12.05.2011 — 3 ♀♀.

Bionomics. One generation was registered in April–May.

***Agromyza drepanura* (Hering, 1930)**

Material. Kharkiv, Piatykhatky, gully, 03.05.2014 — 3 ♀♀; Trostianets, alfalfa field, 07.05.2013 — 5 ♂♂, 26 ♀♀; Klymentove, meadow, 08.05.2013 — 1 ♀.

Bionomics. Two generations develop from April to June.

***Agromyza erythrocephala* Hendel, 1920 (Fig. 6)**

Description of female terminalia. Spermathecae are of different sizes, brown, with well-developed cylindrical collar. The biggest one is oval, more strongly tapering to base. The smallest one is oval, basally flattened and slightly tapering apically.

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

Distribution. Occurs in Sweden, Finland, Austria, Germany, England (Spencer, 1976), Greece (Černý, 2011). First record for Ukraine.

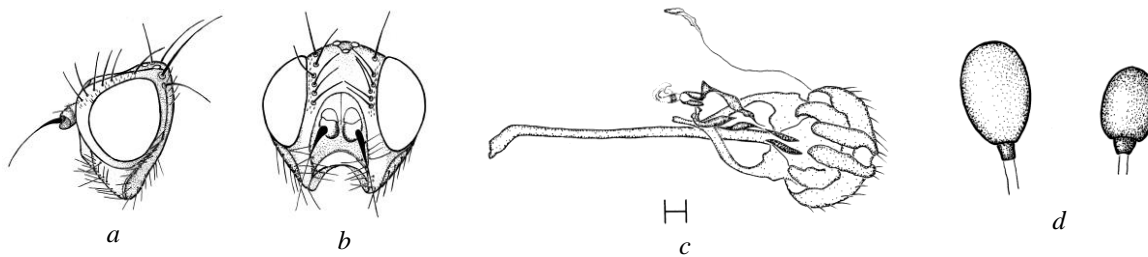


Fig. 6. *Agromyza erythrocephala*: a — male head (lateral view); b — male head (frontal view); c — total view of male terminalia (ventral view); d — spermathecae. Scale bar 0.1 mm.

Agromyza frontella (Rondani, 1878)

Material. Petrivske, cretaceous slope, 03.05.2013 — 1 ♂; Kharkiv, Piatykhatky, gully slope, 03.05.2014 — 1 ♀; Petrivske: shadowy opening in deciduous forest, 10.05.2014 — 4 ♀♀, flood-land, 21.05.2011 — 1 ♀, edge of deciduous forest, 22.05.2011 — 1 ♀; Kuzemyn: clearing on the bank of the Vorskla River, 22.05.2010 — 1 ♀, clearing on the bank of the Vorskla River, 28.05.2011 — 3 ♀♀; Vakalivshchina, motley grass in a gully, 13.06.2013 — 5 ♂♂.

Bionomics. Three generations develop from April to August.

Agromyza igniceps Hendel, 1920

Material. Karavan, thicket of *Humulus*, *Urtica* and *Potentilla*, 28.04.2014 — 1 ♂.

Bionomics. Two generations develop from April to June.

Agromyza luteitarsis (Rondani, 1875)

Material. Donetsk, Botanical Garden, 23–25.04.2014 — 2 ♀♀; Karavan, meadow, 28.04.2014 — 1 ♀; Sydorove, flood-land and cretaceous slope, 01-02.05.2011 — 3 ♀♀.

Bionomics. One generation develops from April to May.

Agromyza mobilis Meigen, 1830

Material. Kharkiv: centre, 12.05.2011 — 1 ♂, 1 ♀; Botanical Garden, edge of deciduous forest and clearing with *Trifolium* sp., 12.05.2012 — 4 ♀♀; Rubizhne, edge of coniferous forest, 17.05.2014 — 1 ♂, 4 ♀♀; Liubotyn, shadowy motley grass, 30.05.2010 — 1 ♂, 3 ♀♀; Trostianets, motley grass on the slope, 11.07.2013 — 1 ♀; Rubizhne, edge of coniferous forest, 19.07.2014 — 1 ♂, 1 ♀; Petrivske: opening in coniferous forest, 10.08.2013 — 1 ♀, opening between coniferous and deciduous forest, 11.08.2013 — 2 ♂♂, 1 ♀; Rubizhne: edge of deciduous forest, 17.08.2013 — 2 ♂♂, 10 ♀♀, motley grass on the edge of coniferous forest, 17.08.2014 — 2 ♂♂, 3 ♀♀; Petrivske, motley grass on a country road, 24.08.2014 — 1 ♀.

Bionomics. Three generations develop from May to August.

Agromyza nana Meigen, 1830

Material. Kharkiv, Sokolnyky, 01.05.2012 — 1 ♀; Lyman, location Sukhoy Lyman, meadow, 18.05.2013 — 1 ♀; Kuzemyn: motley grass in an old birch forest, 28.05.2011 — 1 ♀, flood-land, near a bog, 29.05.2011 — 1 ♀; Rubizhne, meadow and edge of coniferous forest, 17.08.2013 — 1 ♂, 1 ♀.

Bionomics. Two or three generations develop from May to August.

Agromyza nigrella (Rondani, 1875)

Material. Kharkiv, Piatykhatky, gully, 03.05.2014 — 2 ♂♂.

Bionomics. One generation develops in April–May.

Agromyza nigripes Meigen, 1830

Material. Trostianets, motley grass on the slope, 11.07.2013 — 1 ♂.

Bionomics. One generation was registered in June–July.

Agromyza phragmitidis Hendel, 1922

Material. Dvorichna, motley grass in a small deciduous forest, 24.07.2014 — 2 ♂; Kharkiv, Botanical Garden edge of deciduous forest, 02.09.2012 — 1 ♂.

Bionomics. Two generations were registered in July and September.

Agromyza pittodes Hendel, 1931 (Fig. 7)

Material. Rubizhne, shadowy motley grass on the edge of coniferous forest, 17.05.2014 — 1 ♂.

Bionomics. One generation was registered in May.

Distribution. Occurs in Sweden, Norway, Austria (Austrian Alps), Poland (Tatra Mounties), Russia (Murmansk Region) (Spencer, 1976), Turkey (Civelek, Çikman, Dursun, 2009). First record for Ukraine.

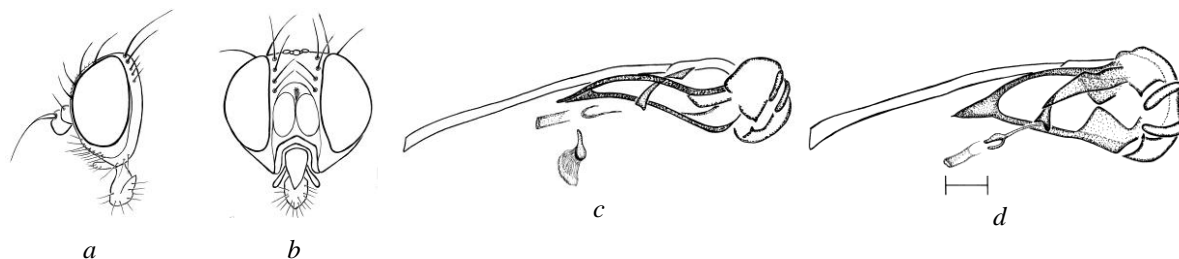


Fig. 7. *Agromyza pittodes*: a — male head (lateral view); b — male head (frontal view); c — male terminalia (lateral view); d — male terminalia (ventral view). Scale bar 0.1 mm.

Agromyza potentillae (Kaltenbach, 1864)

Material. Kuzemyn, glade in coniferous forest, 20.04.2014 — 1 ♀; Donetsk, Botanical Garden, 23, 25.04.2014 — 1 ♂, 4 ♀♀; Karavan, meadow, 28.04.2014 — 8 ♂♂, 4 ♀♀; Petrivske, clearing near a coniferous forest, 01.05.2013 — 1 ♂; Stara Pokrovka, flood-land, 02.05.2014 — 3 ♀♀; Kharkiv, Piatykhatky, gully, 03.05.2014 — 6 ♀♀; Trostianets: motley grass under pine and maple trees, 07.05.2013 — 1 ♂, 2 ♀♀, short grass under pine trees on the slope, 07.05.2013 — 1 ♀; Klymentove, meadow, 08.05.2013 — 2 ♂♂, 6 ♀♀; Petrivske: thicket of *Urtica*, 09.05.2014 — 1 ♂, 1 ♀, grass on a shadowy path, 10.05.2014 — 1 ♂, 3 ♀♀; Stara Pokrovka, bank of the Vudy River, 11.05.2014 — 1 ♂, 2 ♀♀; Rubizhne, edge of coniferous forest, 17.05.2014 — 2 ♂; Kuzemyn, motley grass in alder thickets, near a stream, 28.05.2011 — 1 ♀.

Bionomics. One generation was registered in April–May.

Agromyza prespana Spencer, 1957

Material. Petrivske, thicket of *Humulus*, 10.05.2012 — 1 ♀; Rubizhne, shadowy motley grass in the opening in coniferous forest, 17.05.2014 — 2 ♀♀; Kovpakivka, opening in coniferous forest, 25.05.2013 — 1 ♀; Liubotyn, motley grass, 30.05.2010 — 1 ♀; Kharkiv, Piatykhatky, gully, 10.06.2010 — 1 ♀; Vakalivshchina: motley grass under pine trees on the slope, 13.06.2013 — 1 ♂, wet grass under trees, 14.06.2010 — 1 ♀; Trostianets, meadow on the bank of the Trostyanka River 15.06.2013 — 1 ♂, motley grass on the slope, 15.06.2013 — 1 ♀; Haidary, deciduous forest, 25.06.2009 — 1 ♀; Zadonetske, opening in deciduous forest, 27.06.2009 — 1 ♂.

Bionomics. Two generations develop from May to July.

Agromyza pseudoreptans Nowakowski, 1967

Material. Kovpakivka, opening in coniferous forest, 25.05.2013 — 2 ♂♂, 1 ♀; Vakalivshchina, opening in deciduous forest, 14.06.2013 — 1 ♀.

Bionomics. One generation was registered in May–June.

Distribution. Occurs in North America, Europe (Greece (Černý, 2011), Lithuania (Checklist ..., 2006)), Asia (North Korea (Černý, 2007)). First record for Ukraine.

Agromyza reptans Fallén, 1823

Material. Stara Pokrovka, flood-land, thicket of *Urtica*, 02.05.2014 — 1 ♀; Omelchenki, edge of coniferous forest, 18.05.2013 — 1 ♀; Trostianets, motley grass on the slope, 11.07.2013 — 1 ♀.

Bionomics. Three generations develop from May to August.

Conclusion. Currently, seventy-nine species of mining flies from the subfamily Agromyzinae are registered in Ukraine. Eleven species, such as *Melanagromyza zlobini* Pakalniskis, 1996, *Ophiomyia asparagi* Spencer, 1964, *O. cornifera* Hendel, 1920, *O. inaequalis* (Hendel, 1931), *O. labiatarum* Hering, 1937, *O. moravica* Černý, 1994, *O. rapta* Hendel, 1931, *Agromyza abiens* Zetterstedt, 1948, *A. erythrocephala* Hendel, 1920, *A. pittodes* Hendel, 1931, *A. pseudoreptans* Nowakowski, 1967 are recorded from Ukraine for the first time. All these species are small in numbers and have patched distribution in the area of investigation. Two species, *O. rapta* and *A. erythrocephala* were found only in Botanical Gardens. Probably, they were introduced in Ukraine with their host plants.

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