

## First records of two species of Tephritidae and one species of Platystomatidae (Diptera) from Transcaucasia

## Первые находки двух видов из семейства Tephritidae и одного вида из семейства Platystomatidae (Diptera) для Закавказья

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**Abstract.** Two species of Tephritidae, *Tephritis conyzifoliae* Merz, 1992 and *Tephritomyia lauta* (Loew, 1869), and one species of Platystomatidae, *Platystoma dimidiatum* Hendel, 1913, are recorded for the first time from Armenia and Transcaucasia at large. The larvae of *T. conyzifoliae* develop in two species of *Crepis*, *C. pannonica* (Jacq.) K. Koch and *C. ciliata* C. Koch. The latter species is recorded for the first time as a host plant of *T. conyzifoliae*. *Tephritomyia lauta* were reared from *Echinops* sp. The morphological details of all three species of flies are illustrated in colour photos, as well as the host plants of the two species of tephritids.

**Резюме.** Два вида мух из семейства Tephritidae (*Tephritis conyzifoliae* Merz, 1992 и *Tephritomyia lauta* (Loew, 1869)) и один вид из семейства Platystomatidae (*Platystoma dimidiatum* Hendel, 1913) впервые приводятся для Армении и Закавказья в целом. Личинки *T. conyzifoliae* развиваются в двух видах *Crepis*: *C. pannonica* (Jacq.) K. Koch и *C. ciliata* C. Koch. Второй вид впервые указывается в качестве кормового растения *T. conyzifoliae*. Детали строения всех трех видов мух представлены в виде цветных фотографий. То же самое сделано в отношении кормовых растений двух видов мух-пестрокрылок.

**Key words:** Armenia, Transcaucasia, host plants, new records, Tephritidae, Platystomatidae, *Tephritis conyzifoliae*, *Tephritomyia lauta*, *Platystoma dimidiatum*, *Crepis pannonica*, *Crepis ciliata*

**Ключевые слова:** Армения, Закавказье, кормовые растения, новые находки, Tephritidae, Platystomatidae, *Tephritis conyzifoliae*, *Tephritomyia lauta*, *Platystoma dimidiatum*, *Crepis pannonica*, *Crepis ciliata*

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## Introduction

One can find in the literature only fragmentary data on the tephritid flies (Diptera: Tephritidae) and signal flies (Diptera: Platystomatidae) from Armenia. One species of Platystomatidae, *Platy-*

*stoma chrysotoxum* Hendel, 1913, was reliably recorded from Armenia (Hendel, 1913; Korneyev, 2001); the records of several other species of Platystomatidae need confirmation. Valery Korneyev is the author of the majority of publications on the tephritid flies of Armenia (Korneyev, 1985,

1990; Korneyev & White, 1996; Korneyev et al., 2013) including the new species described from this country: *Terellia armeniaca* Korneyev, 1985, *Chetostoma ermolenkoi* Korneyev, 1990, *Urophora vera* Korneyev et White, 1996, and *Terellia freidbergi* Korneyev, 2013. In addition to them, *Tephritis arsenii* S. Korneyev, Khaganinia, Mohamadzade et Zarghani, 2015 (S. Korneyev et al., 2015) and *T. anthrax* S. Korneyev et Evstigneev, 2019 (S. Korneyev & Evstigneev, 2019) were described from Armenia. A full list of publications that mention the tephritid flies from Armenia will be provided elsewhere.

In our material collected in Armenia, we have found two species of Tephritidae and one species of Platystomatidae, which were not recorded from Armenia and Transcaucasia at large. These are *Tephritis conyzifoliae* Merz, 1992, *Tephritomyia lauta* (Loew, 1869) (Tephritidae), and *Platystoma dimidiatum* Hendel, 1913 (Platystomatidae). The introductory information for each of these species is provided below.

Merz (1992) described *Tephritis conyzifoliae* from the Swiss Alps (type locality: Canton of Valais) and recorded *Crepis conyzifolia* (Gouan) A. Kern as its host plant (Merz, 1992, 1994). Later on, the species was found in the Czech Republic, France, Italy, Kazakhstan, Kyrgyzstan, Russia, Ukraine (S. Korneyev, 2016b), and Tajikistan (S. Korneyev & V. Korneyev, 2019). In European Russia, *T. conyzifoliae* was reared from the capitula of *Crepis sibirica* L. and *C. pannonica* (Jacq.) K. Koch (Evstigneev, 2016). Sevryn Korneyev (2016a) synonymised the following three species with *T. conyzifoliae*: *T. academica* Bassov et Tolstoguzova, 1994, *T. nartshukovi* Bassov et Tolstoguzova, 1994 and *T. epicrepis* Shcherbakov, 2001. In the Kabardino-Balkarian Republic and the Republic of Adygea, the larvae of *T. conyzifoliae* develop in the capitula of *Crepis sibirica* (Evstigneev & Korneyev, 2018). Shcherbakov (2001) also reported rearing this species (described as *T. epicrepis*) from the capitula of *C. sibirica* in southern Siberia.

*Tephritomyia lauta* was described by Loew (1869) from Greece (type locality: islands of Rhodes and Naxos). Morgulis et al. (2016) revised the genus *Tephritomyia* Hendel, 1927. As a part of this revision, the authors provided a redescription of *T. lauta* (Loew, 1869) and summarised the infor-

mation on its distribution: the species is known from Morocco, Tunisia, Egypt, Greece, Cyprus, Turkey, Syria, Israel, and Iran (Morgulis et al., 2016). The host plants of *T. lauta* are various species of the genus *Echinops* L.: *E. sphaerocephalus* L. (Neuenschwander & Freidberg, 1983), *E. viscosus* DC. (Freidberg & Kugler, 1989), *E. adenocaulos* Boiss, *E. gaillardotii* Boiss, and *E. polyceras* Boiss (Morgulis et al., 2016).

Hendel (1913) described *Platystoma dimidiatum* from Greece (type locality: Crete). Subsequently, this species was recorded from Iran (Mohamadzade Namin, 2011), Turkey (Mesci & Hasbenli, 2015) and Israel (Bodner & Freidberg, 2016).

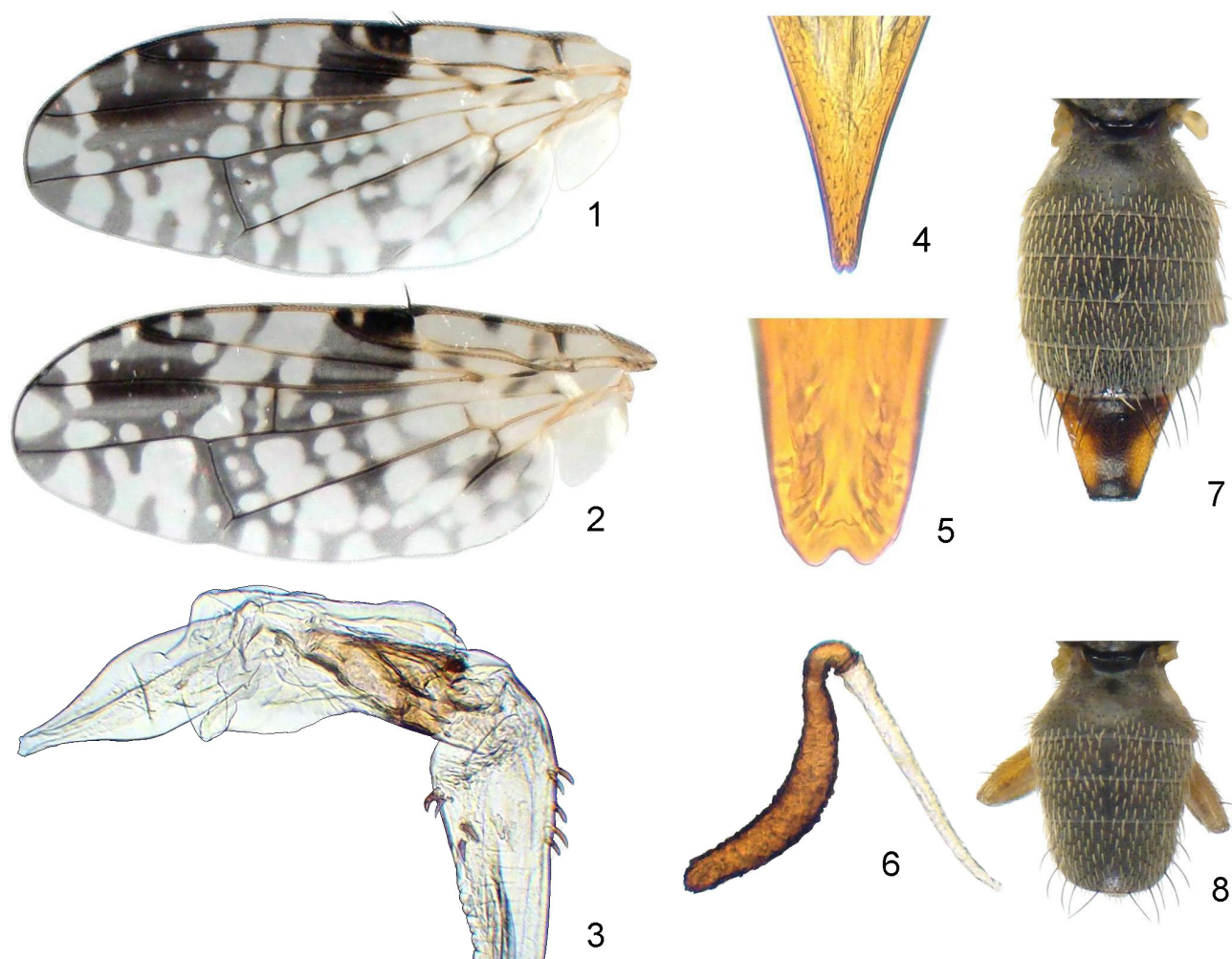
Diagnostic characters of all three species recorded in this study are presented in colour figures. This provides readers with necessary information on the certain specimens we dealt with, which gives them an opportunity to identify other specimens in future based on the adequate photos without using numerous sources. This also helps one to avoid very common misunderstandings and doubts in correctness of the identifications occurring when a researcher reports on certain species without figures illustrating diagnostic characters.

## Material and methods

The material has been collected by the first author and is stored in his private collection. For rearing tephritid flies from host plants, the capitula were dissected from stems and then placed in cotton bags.

Morphological structures were measured using an ocular micrometer. For making pictures, we chose the specimens that have been just reared from host plants or just captured with an entomological net. If we could not make photos immediately after rearing or capturing of flies, we placed them into a fridge camera. In convenient time, we took flies out and made photos. The photographs of the flies were taken using a MC-2 ZOOM stereoscopic microscope and a Sony DSC-H3 camera. Photographs of the genitalia were taken through a Biolam C11 microscope using the same camera.

The genitalia of males and females were extracted and put into a water solution of glycerin (86%)



**Figs 1–8.** *Tephritis conyzifoliae*, details of male (1, 3, 8) and female (2, 4, 5, 6, 7). **1** – male wing; **2** – female wing; **3** – glans of phallus (it is visible that preglans has spines); **4** – aculeus (part); **5** – apex of aculeus; **6** – spermatheca; **7** – female abdomen (in dorsal view); **8** – male abdomen (in dorsal view).

for one to three days (sometimes, for 5–7 days); after that photographs were taken. Our tests have shown that this procedure gave the best quality material for taking photos. We used two variants of the technique. In the first case, if specimens were not dried up, we extracted the genitalia from the abdomen by needles and placed them into a solution of glycerin. In the second case, if the specimens were dried up, we previously dissected the abdomen from the thorax. In order to soften the dried tissues, we boiled the abdomen in water (without chemical reagents) for about 30 minutes, then extracted the genitalia and placed them in a solution of glycerin. In both cases, the genitalia in a glycerin solution gradually returned to their natural shape.

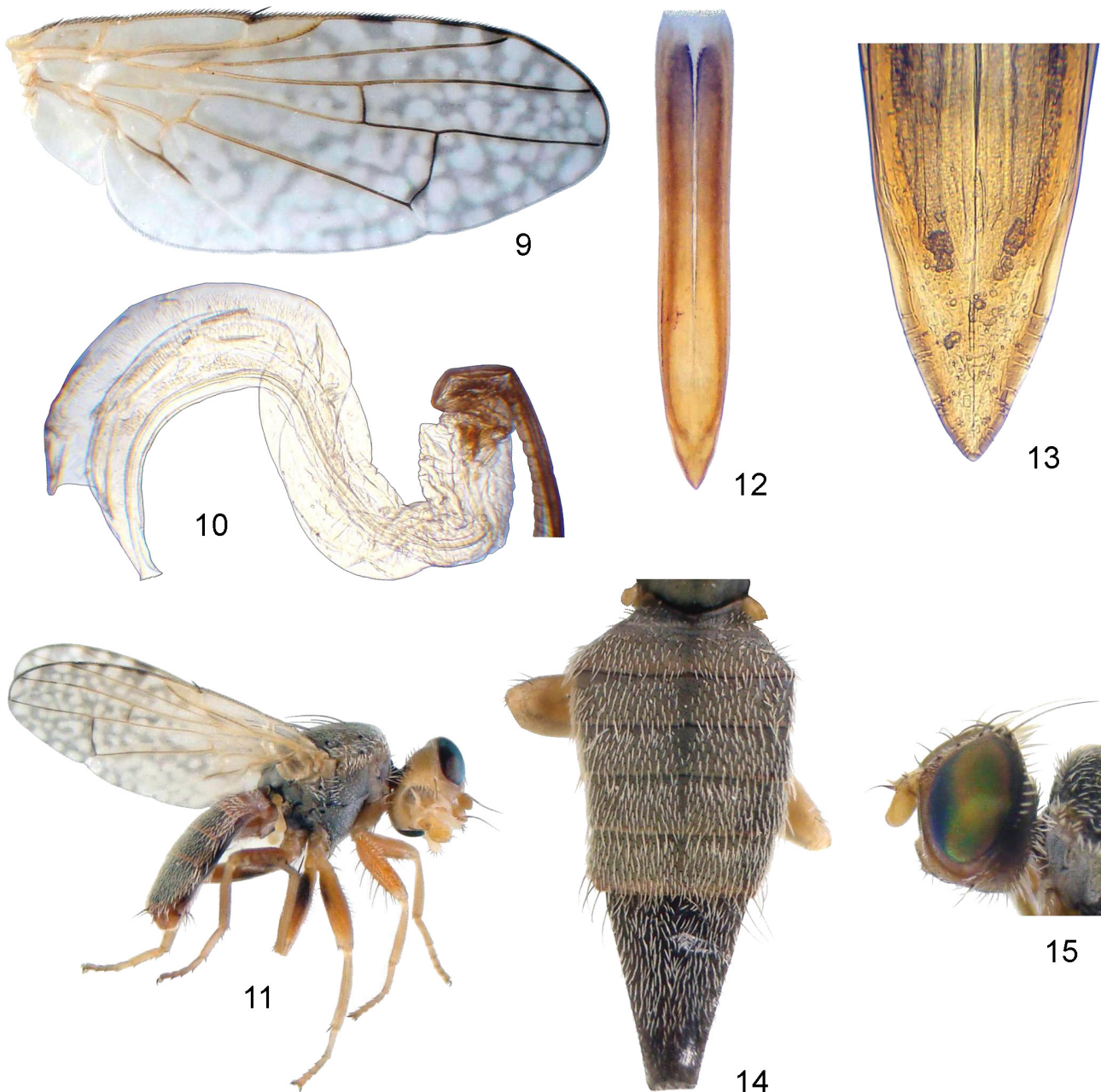
In the present study, we mean by Transcaucasia the territory within the borders of the former USSR (Armenia, Georgia and Azerbaijan).

## Results

### Family Tephritidae

#### *Tephritis conyzifoliae* Merz, 1992 (Figs. 1–8)

*Material examined.* **Armenia**, Vayots Dzor Prov., vicinity of Jermuk, mountain meadow, 4 females and 3 males reared 9.VIII.2018 from capitula of *Crepis ciliata* collected on 7.VIII.2018; same locality and habitat, 4 females and 12 males reared 15.VIII.2019 from capitula of *Crepis pannonica* collected on 14.VIII.2019.



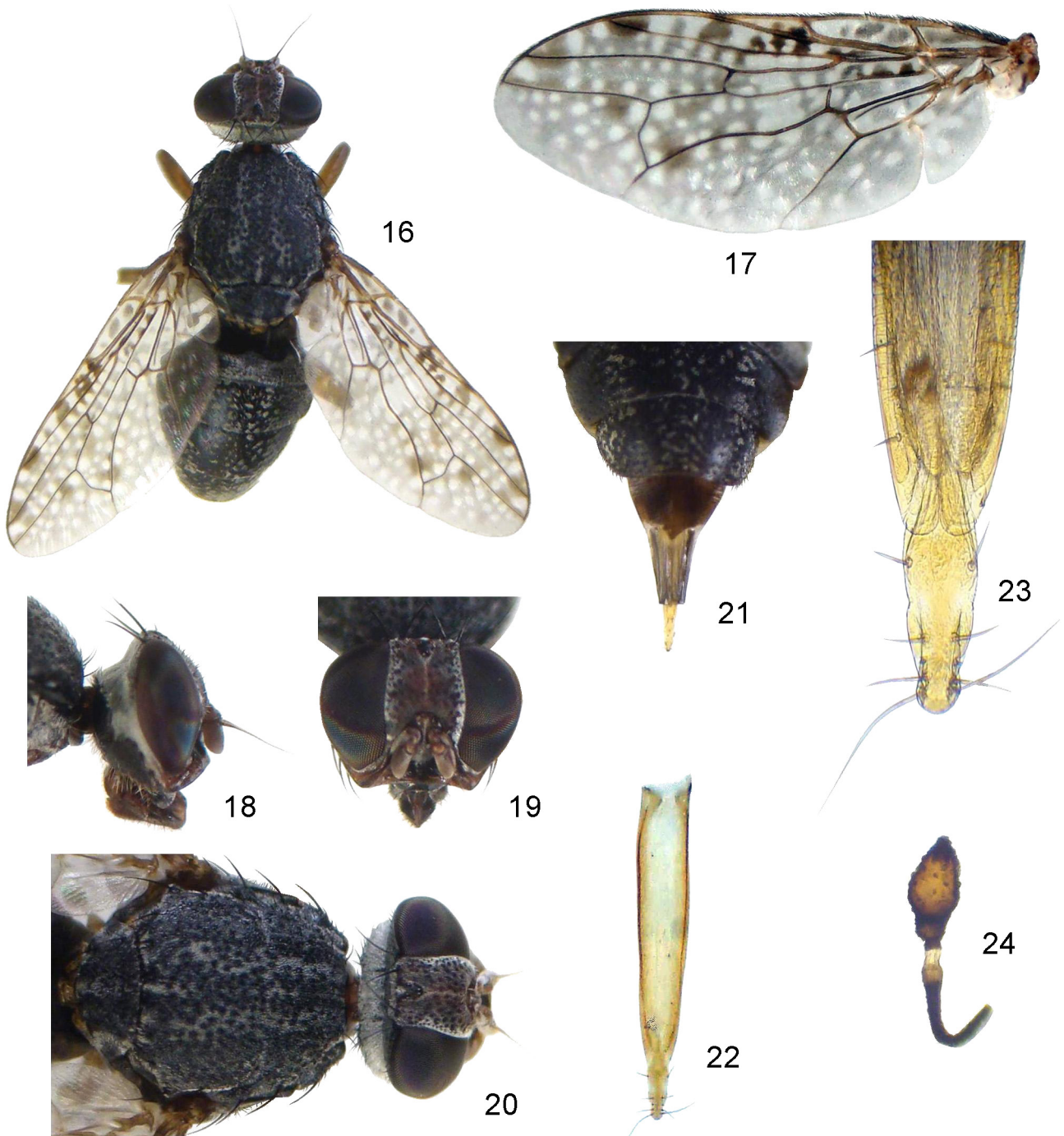
**Figs 9–15.** *Tephritomyia lauta*, details of male (10, 11) and female (9, 12, 13, 14, 15). **9** – female wing; **10** – glans of phallus; **11** – male habitus (in lateral view); **12** – aculeus; **13** – apical part of aculeus; **14** – female abdomen (in dorsal view); **15** – female head (in lateral view).

*Comments.* This species is recorded from Armenia and Transcaucasia at large for the first time. The diagnostic characters of *T. conyzifoliae* are illustrated in Figs 1–8. Host plants are illustrated in Figs 25–27 (see the Addenda section). *Crepis pannonica* has already been mentioned as a host plant for the larvae of *T. conyzifoliae*, whereas *C. ciliata* is recorded for the first time. A distinc-

tive feature of the males of *T. conyzifoliae* is the presence of spines on the preglans.

***Tephritomyia lauta*** (Loew, 1869)  
(Figs. 9–15)

*Material examined.* **Armenia**, Vayots Dzor Prov., between Yeghegis Vill. and Smbataberd fortress, mountain side disturbed by grazing animals, 7 females



**Figs 16–24.** *Platystoma dimidiatum*, female. **16** – habitus; **17** – wing; **18** – head (in lateral view); **19** – head (in anterior view); **20** – head and thorax (in dorsal view); **21** – ovipositor (in dorsal view); **22** – aculeus; **23** – apical part of aculeus; **24** – spermatheca.

and 10 males reared 23.VII.2019 from capitula of *Echinops* sp. collected on 21.VII.2019.

*Comments.* Previously *T. lauta* was not recorded from Armenia, but it was known from the bordering countries: Iran (Freidberg & Kugler, 1989;

Mohamadzade Namin & Korneyev, 2018) and Turkey (Kütük, 2008; Morgulis et al., 2016). The diagnostic characters of *T. lauta* are illustrated in Figs 9–15. Host plant is illustrated in Figs 28–30 (see the Addenda section).

## Family Platystomatidae

***Platystoma dimidiatum*** Hendel, 1913  
(Figs. 16–24)

*Material examined.* Armenia, Aragatsotn Prov., Mount Arteni, near the top, mountain side facing Arevut Vill., 15.VII.2019, 1 female.

*Comments.* This species is recorded from Armenia and Transcaucasia at large for the first time. The diagnostic characters of *P. dimidiatum* are illustrated in Figs 16–24. Before capture, the fly was resting on a stone, then flew up and down before returning to the stone.

## Addenda

*Electronic supplementary materials.*

**Figs 25–27.** Host plants of *Tephritis conyzifoliae*: *Crepis ciliata* and *C. pannonica* in their natural environment (mountain meadow near Jermuk).

**Figs 28–30.** Host plant of *Tephritomyia lauta*: *Echinops* sp., on a mountain side between Yeghegis Vill. and Smbataberd fortress.

Files format: JPEG.

Available from: <https://doi.org/10.31610/zsr/2020.29.1.155>

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